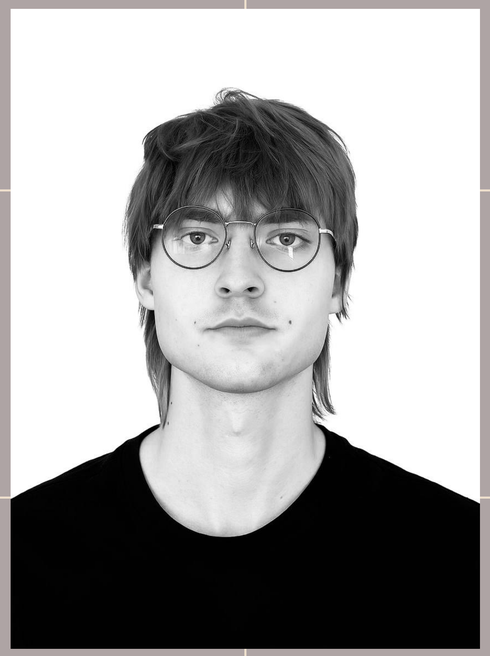
Constructing Architect's PORTFOLIO

VIA University College
Selected Projects

*All drawings and photographs featured in this portfolio are created and captured by me, except where otherwise noted

Mihai Railean



Personal info:

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Technical skills/programs used:

- Autodesk Revit
- Adobe indesign/Photoshop
- Microsoft office
- BE18
- Microsoft project

Projects:

Project 6

Bachelor project - Can Marcal Restaurant

Project 4

Multistorey social housing with roof terrace and basement

Project 2

Two storey family house with basement.

Gained competences:

- **Precision and orientation towards details**
- **Solving problems in a conprehensive and foolproof way**
- **Building teamwork and communication,working with trust and responsability**

Project 5

Renovation and student housing development

Project 3

Multipurpose concrete hall with wooden administration building and glass hallway

Project 1

Traditional brick one-storey single family house.

PROJECT 6

BACHELOR PROJECT-CAN MARCAL RESTAURANT

LA PORXADA 105,SANT MARCAL, BARCELONA, SPAIN

For my final semester, I completed a 30-page thesis and a comprehensive bachelor project based on a real-world renovation brief provided by Circle Collection, a hospitality brand in Amsterdam where I completed my internship. The company specializes in transforming existing buildings across Europe into boutique hotels and restaurants. I was granted access to architectural documentation—including building reports, drawings, and elevations—of one of their upcoming renovation sites.

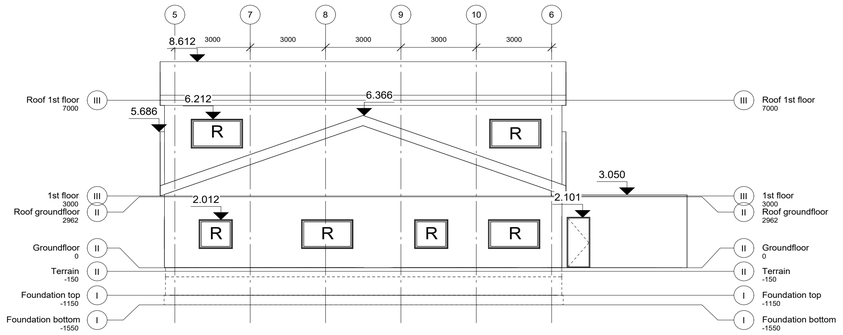
Given the project's large scale, I chose to focus on the restaurant section of the property to align with the academic scope. From this base, I developed a full architectural and technical proposal, covering design, planning, and construction documentation.

Key responsibilities included:
- **Full structural analysis and load calculations**
- **Development of architectural drawings, fire safety plans, and building services layouts**
- **Compliance with zoning, planning law, and regulatory standards**
- **Production of technical detail drawings, elevations, and section cuts**
- **Compilation of a Carpentry Trade Booklet, with step-by-step mounting and installation instructions tailored for contractor use**

This project was the most demanding academic challenge I've undertaken, requiring me to apply every aspect of my architectural training—from conceptual design to technical execution. It was both a test and a validation of my readiness to step into the professional role of a Constructing Architect.

ELEVATIONS

K01_H2_EX_N01



Underground

R Rescue opening

Main entrance

All measurments are in mm

West
1 : 100

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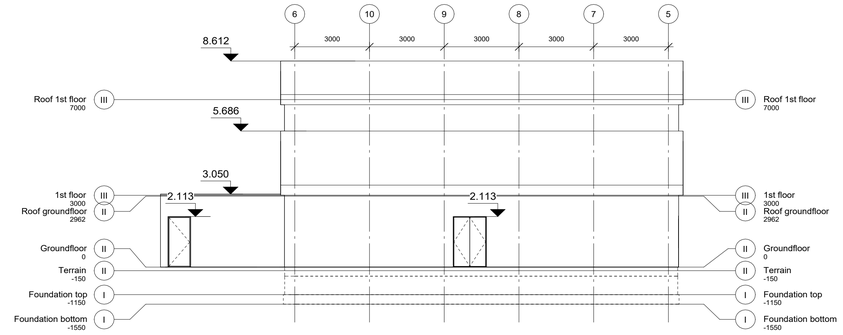
VIA Built Environment & Engineering
Campus TYPE TOWN

PROJECT: Can Marcal	DATE: 01/13/25	K01_H2_EX_N01
SUBJECT: Elevation West	SCALE: 1 : 100	
DRAWN BY: Mihai Railean	CLASS:	

K01_H2_EX_N02



Underground

R Rescue opening

Main entrance

All measurments are in mm

East
1 : 100

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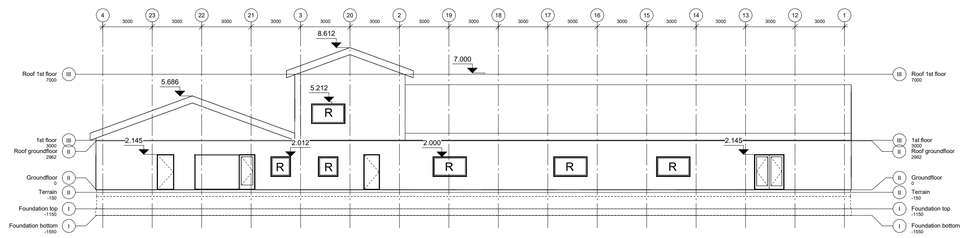
Campus TYPE TOWN

PROJECT: Can Marcal	DATE: 01/13/25	K01_H2_EX_N02
SUBJECT: Elevation East	SCALE: 1 : 100	
DRAWN BY: Mihai Railean	CLASS:	

K01_H2_EX_N03



Underground

R Rescue opening

Main entrance

All measurments are in mm

North
1 : 100

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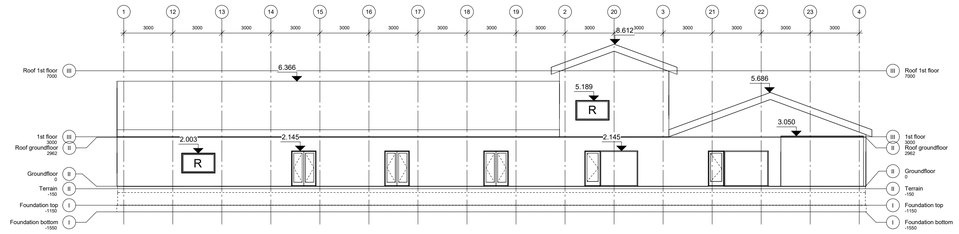
Campus TYPE TOWN

PROJECT: Can Marcal	DATE: 01/13/25	K01_H2_EX_N03
SUBJECT: Elevation North	SCALE: 1 : 100	
DRAWN BY: Mihai Railean	CLASS:	

K01_H2_EX_N04



Underground

R Rescue opening

Main entrance

All measurments are in mm

South
1 : 100

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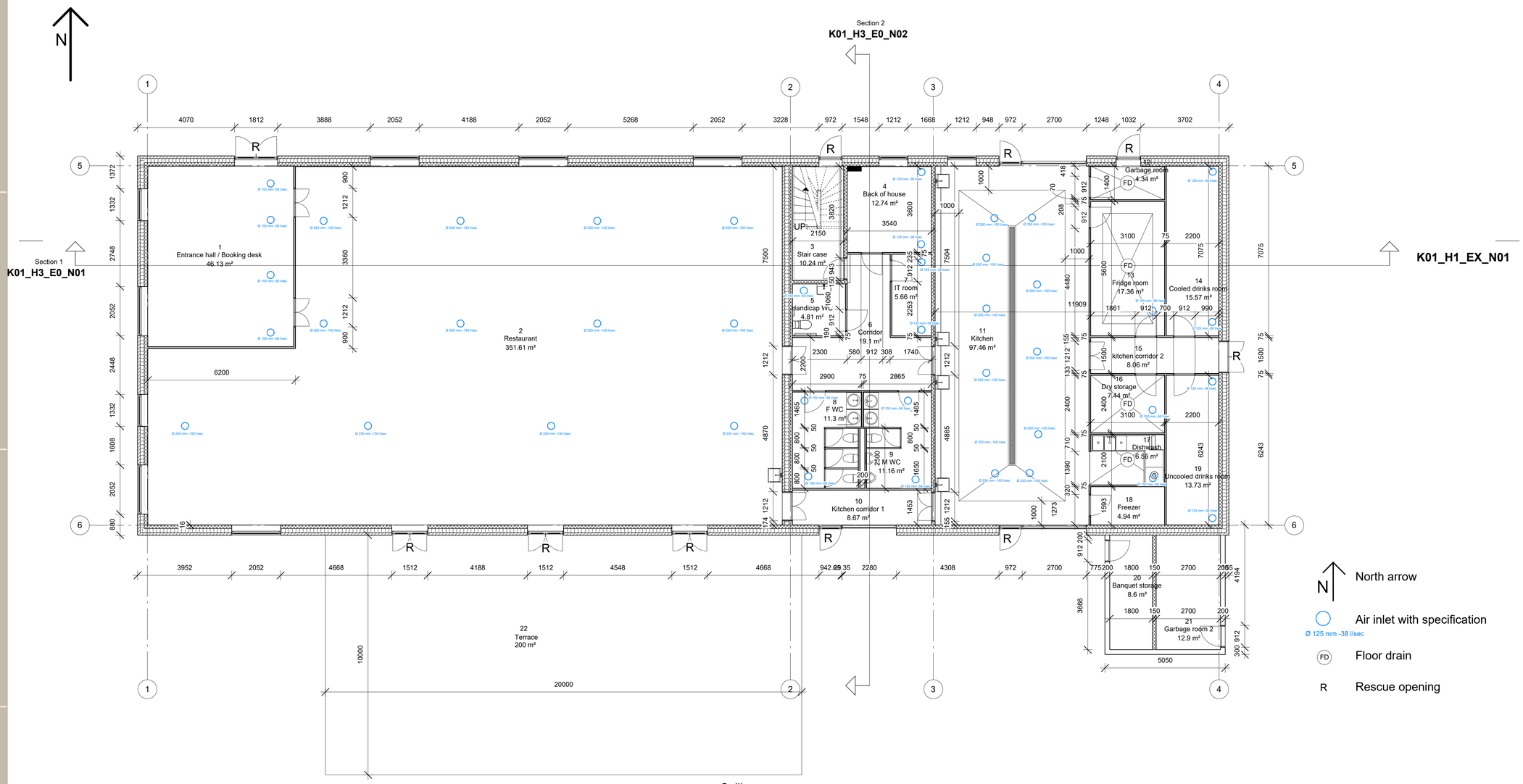
Campus TYPE TOWN

PROJECT: Can Marcal	DATE: 01/13/25	K01_H2_EX_N04
SUBJECT: Elevation South	SCALE: 1 : 100	
DRAWN BY: Mihai Railean	CLASS:	

PLANS



Groundfloor
1 : 100

Ground supported floor:
150 mm capilary breaking layer (sand)
50 mm Jackon Radon plate/insulation
300 mm EPS insulation
DPM/Radon barier
100 mm concrete
14 mm wooden parquet floor finish
Fire demand; EI60
U-value required: 0,12 W/mK
U-value actual:0,10 W/mK

Facade wall:
150 mm concrete prefabricated inner leaf wall
170 mm EPS insulation
108 mm mansonry wall
Fire demand: REI60
U-value required: 0.18 W/mK
U-value actual: 0.11 W/mK

Heavy floor partition:
180 mm Hollow core concrete decks
70 mm EPS insulation
70 mm concrete
14 mm wooden parquet floor finish

Ceiling:
DPM foil
45x45 mm ceiling battens 400 mm c/c
2x 12 mm fire gypsum boards
Fire demand: EI60

Internal non-load bering wall:
12.5 mm fibre gypsum board
50 mm steel stud frame
50 mm soft insulation
12.5 mm fibre gypsum board
Fire demand: EI60

N North arrow

Air inlet with specification
Ø 125 mm -38 l/sec

FD Floor drain

R Rescue opening

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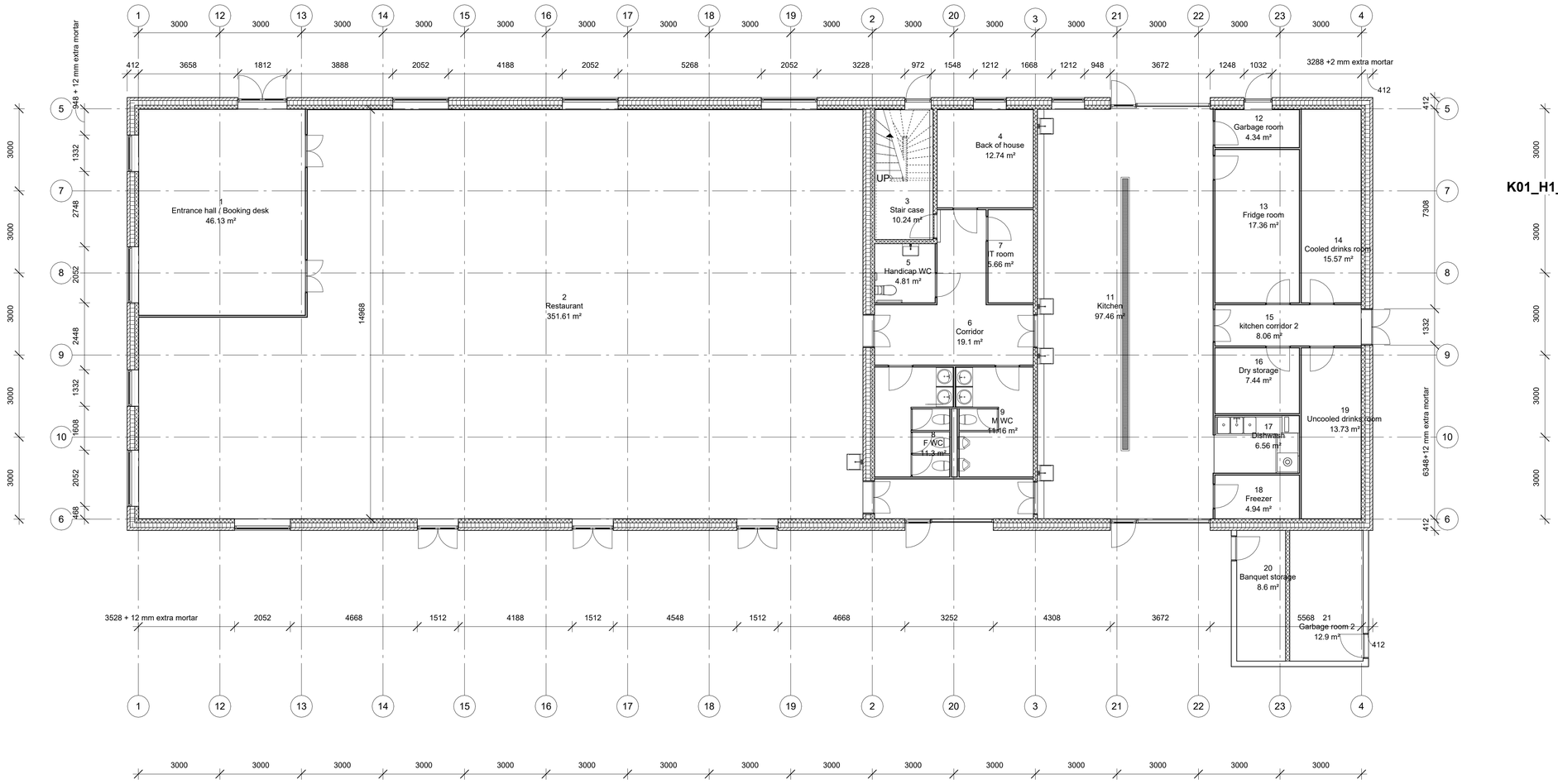
Campus TYPE TOWN

PROJECT: Can Marcal	DATE: 12/03/24	K01_H1_EX_N01
SUBJECT: Groundfloor	SCALE: 1 : 100	
DRAWN BY: Mihai Railean	CLASS:	

PLANS



K01_H1_EX_N12

Groundfloor modular plan
1 : 100

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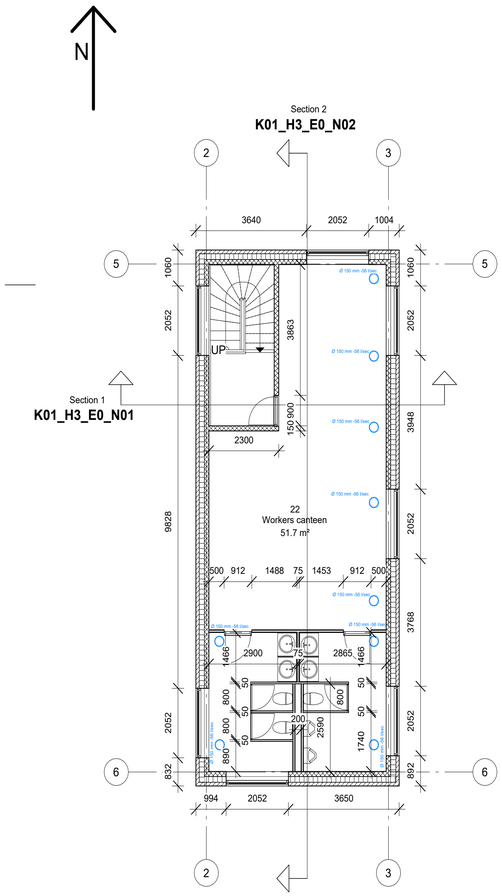
Campus TYPE TOWN

PROJECT: Can Marcal	DATE:01/15/25	K01_H1_EX_N12
SUBJECT: Modular plan GF	SCALE: 1 : 100	
DRAWN BY: Mihai Railean	CLASS:	

PLANS



N North arrow

Air inlet with specification
Ø 125 mm -38 l/sec

FD Floor drain

R Rescue opening

Heavy floor partition:
180 mm Hollow core concrete decks
70 mm EPS insulation
70 mm concrete
14 mm wooden parquet floor finish

Ceiling:
DPM foil
45x45 mm ceiling battens 400 mm c/c
2x 12 mm fire gypsum boards
Fire demand: EI60

Internal non-load bering wall:
12.5 mm fibre gypsum board
50 mm steel stud frame
50 mm soft insulation
12.5 mm fibre gypsum board
Fire demand: EI60

Facade wall:
150 mm concrete prefabricated inner leaf wall
170 mm EPS insulation
108 mm mansonry wall
Fire demand: REI60
U-value required: 0.18 W/mK
U-value actual: 0.11 W/mK

Ground supported floor:
150 mm capilary breaking layer (sand)
50 mm Jackon Radon plate/insulation
300 mm EPS insulation
DPM/Radon barier
100 mm concrete
14 mm wooden parquet floor finish
Fire demand; EI60
U-value required: 0,12 W/mK
U-value actual:0,10 W/mK

1st floor
1 : 100

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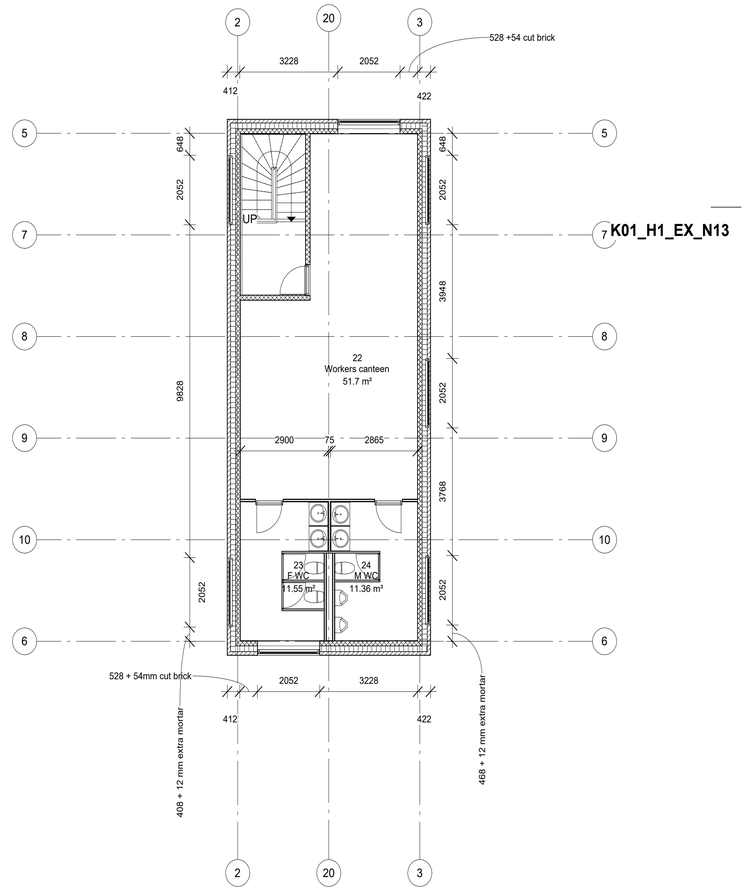
Campus TYPE TOWN

PROJECT: Can Marcal	DATE: 12/03/24	K01_H1_EX_N02
SUBJECT: 1st floor	SCALE: 1 : 100	
DRAWN BY: Mihai Railean	CLASS:	

K01_H1_EX_N02



K01_H1_EX_N13

1st floor modular plan
1 : 100

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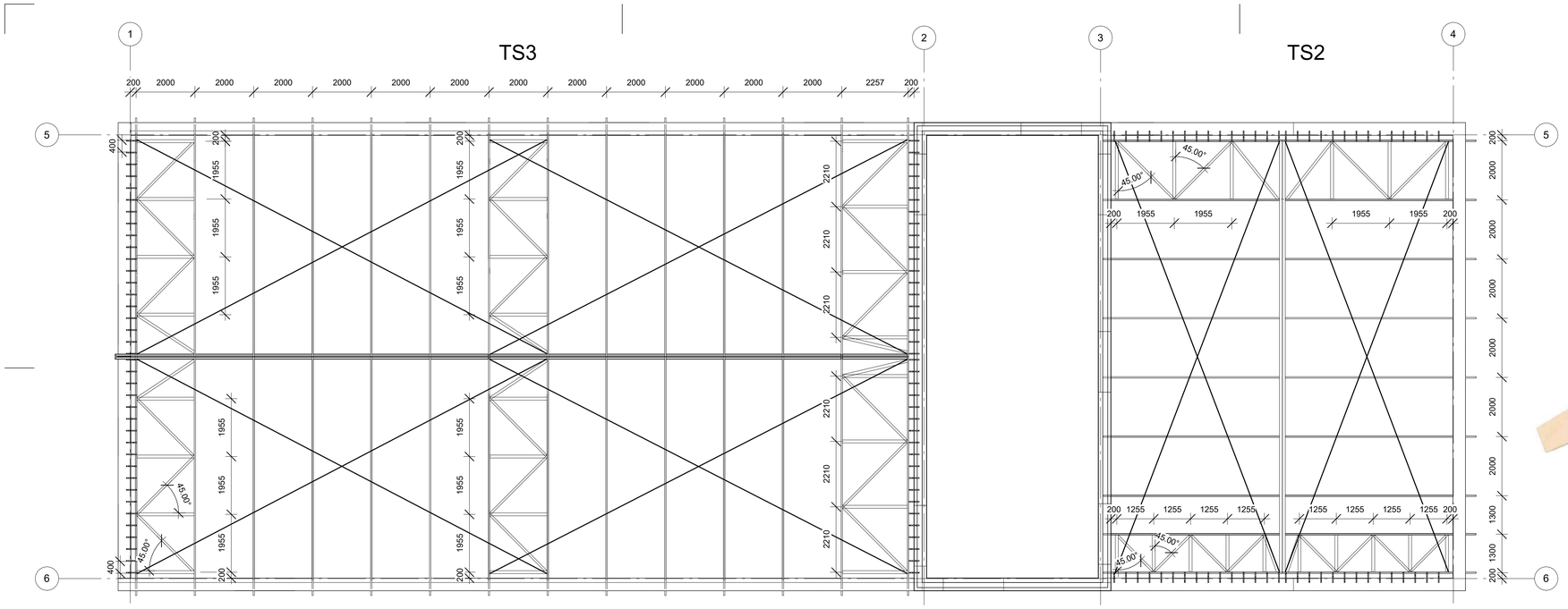
Campus TYPE TOWN

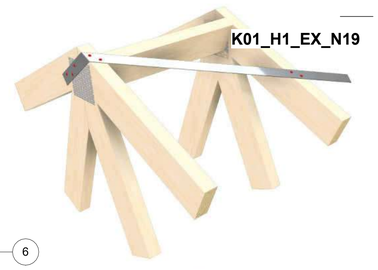
PROJECT: Can Marcal	DATE: 01/15/25	K01_H1_EX_N13
SUBJECT: Modular plan 1F	SCALE: 1 : 100	
DRAWN BY: Mihai Railean	CLASS:	

PLANS

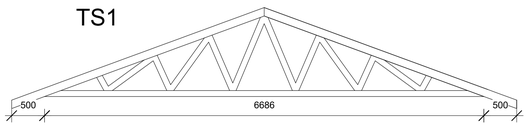


Truss plan Gf
1 : 100

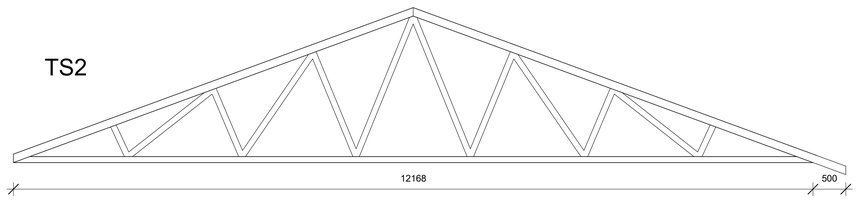
Tension angle brackets to fix gable trusses to the gable walls, installed at 400 mm intervals



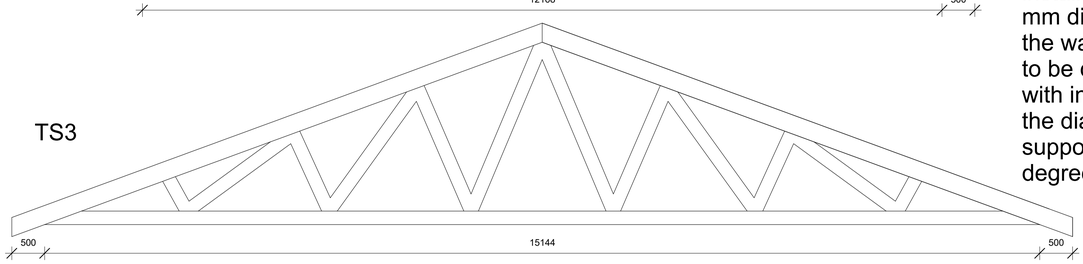
TS1



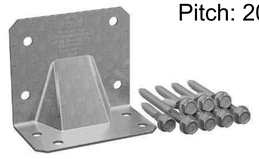
TS2



TS3



Gable supports to be manufactured from C24 grade 50 x 100 mm timber. FirstHorizontal supports to be installed at 200 mm distance from the wall and then to be continued with intalation of the diagonal supports at 45 degree angle.



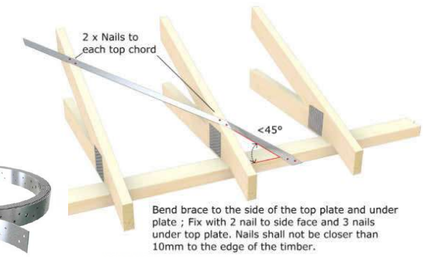
Trusses to be connected to the wall plate with Huricane Gusset Angle brackets according to details

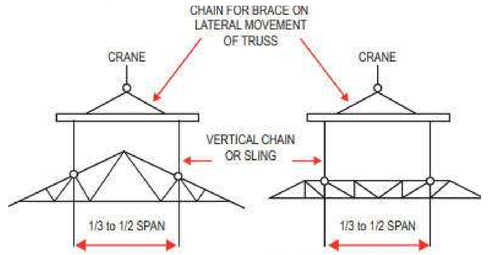
Truss manufacturer: Palsgaard spaer

TS1
Span: 6686 mm
Overhang left: 500 mm
Overhang right: 500 mm
Pitch: 20

TS2
Span: 12168 mm
Overhang left: 0 mm
Overhang right: 500 mm
Pitch: 20

TS3
Span: 15144 mm
Overhang left: 500 mm
Overhang right: 500 mm
Pitch: 20





VERTICAL LIFTING OF TRUSSES – SPAN FROM 9M TO 16M

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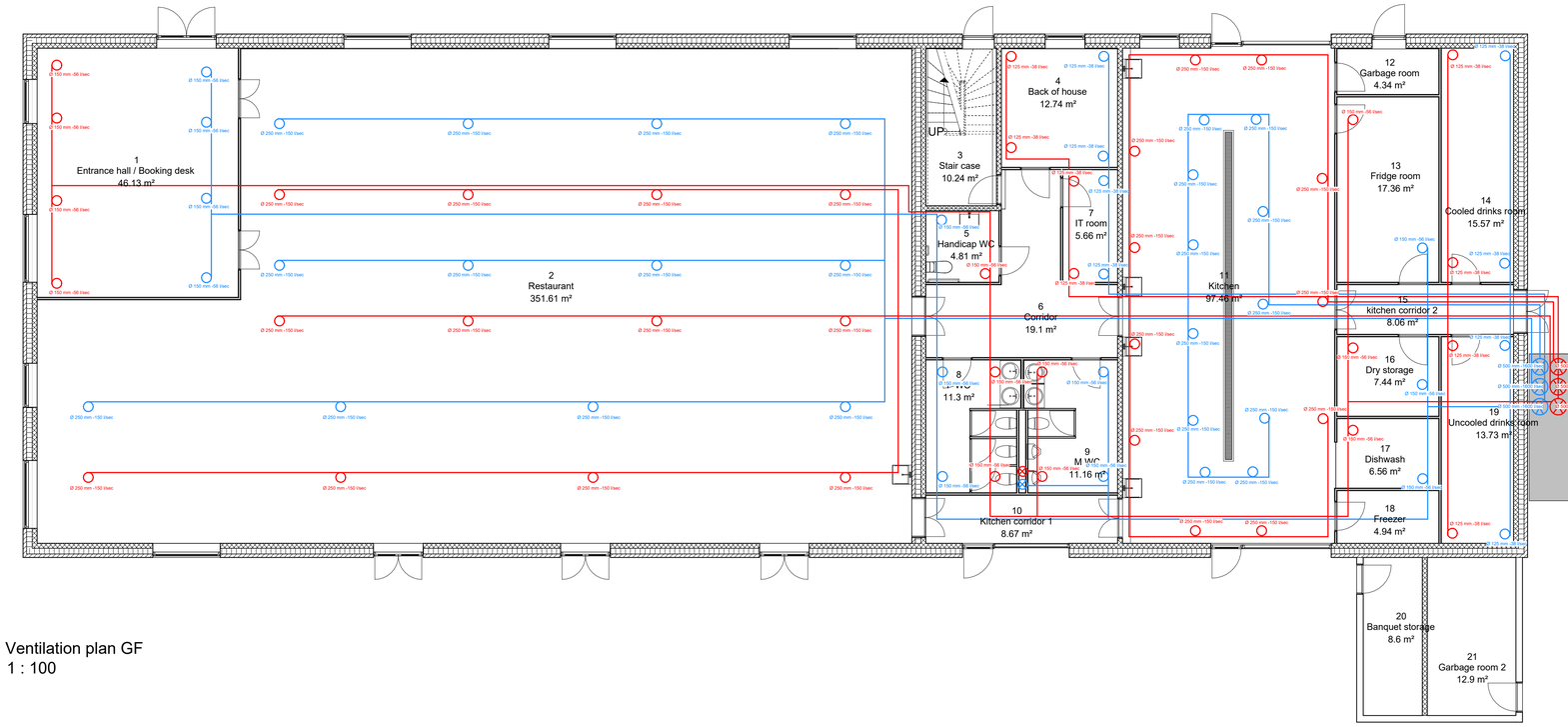
Campus TYPE TOWN

PROJECT: Can Marcal	DATE: 12/26/24	K01_H1_EX_N19
SUBJECT: Truss plan GF	SCALE: As indicated	
DRAWN BY: Mihai Railean	CLASS:	

PLANS



Main air duct extraction

Main air duct supply

Air outlet (supply/extraction)

Ventilation downpipes(supply/ex**K01_H1_EX_N07**

Air extraction duct

Air supply duct

Ventilation Unit: Nilan VPM1500
Min airflow: 5000 m³/h
Max airflow: 18000 m³/h

Note:
Circular ducts- spiral folded pipes SR in standart galvenized steel.

Ventilation plan GF
1 : 100

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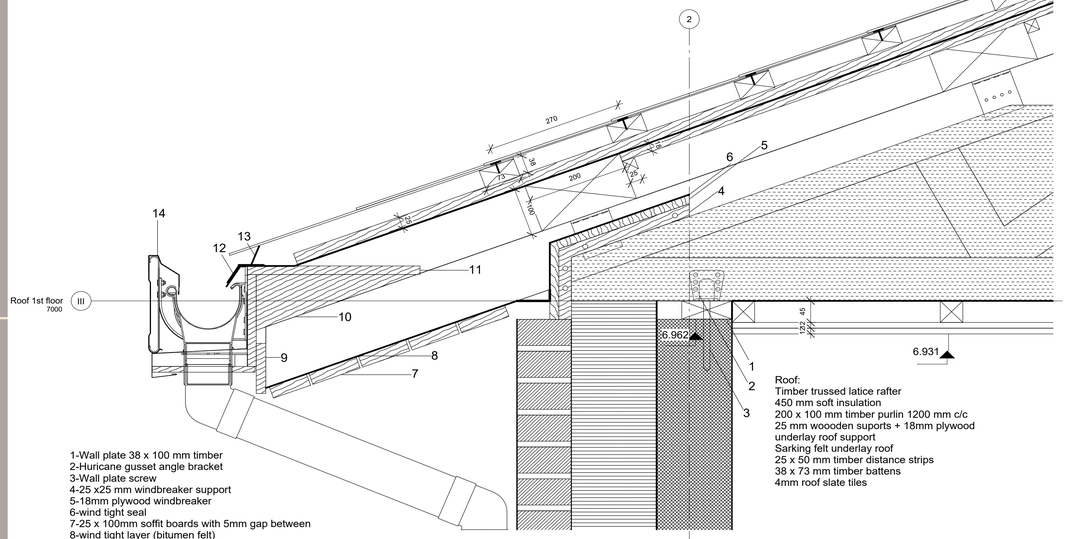
Campus TYPE TOWN

PROJECT: Can Marcal	DATE: 12/23/24	**K01_H1_EX_N07**
SUBJECT: Ventilation GF	SCALE: As indicated	
DRAWN BY: Author	CLASS:	

DETAILS

K01_H5_EX_N08



1-Wall plate 38 x 100 mm timber
2-Huricane gusset angle bracket
3-Wall plate screw
4-25 x25 mm windbreaker support
5-18mm plywood windbreaker
6-wind tight seal
7-25 x 100mm soffit boards with 5mm gap between
8-wind tight layer (bitumen felt)
9-18 mm fascia boards
10- wedge support
11- 18 mm tilting fillet
12-metal flashing to drive underlay roof into the gutter
13-bird/insect screen
14-adjustable fascia panel

Roof:
Timber trussed latice rafter
450 mm soft insulation
200 x 100 mm timber purlin 1200 mm c/c
25 mm woooden suports + 18mm plywood
underlay roof support
Sarking felt underlay roof
25 x 50 mm timber distance strips
38 x 73 mm timber battens
4mm roof slate tiles

Roof eave
1 : 5

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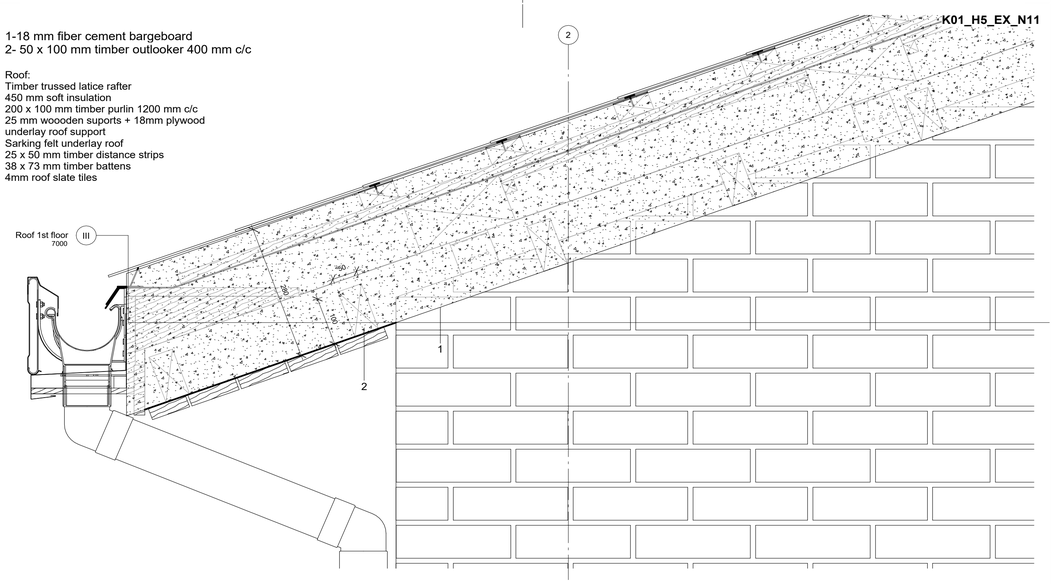
Campus TYPE TOWN

PROJECT: Can Marcal	DATE: 01/06/25	K01_H5_EX_N08
SUBJECT: Detail rooof eave	SCALE: 1 : 5	
DRAWN BY: Mihai Railean	CLASS:	

K01_H5_EX_N11

1-18 mm fiber cement bargeboard
2- 50 x 100 mm timber outlooker 400 mm c/c

Roof:
Timber trussed latice rafter
450 mm soft insulation
200 x 100 mm timber purlin 1200 mm c/c
25 mm woooden suports + 18mm plywood
underlay roof support
Sarking felt underlay roof
25 x 50 mm timber distance strips
38 x 73 mm timber battens
4mm roof slate tiles



Bargeboard detail
1 : 5

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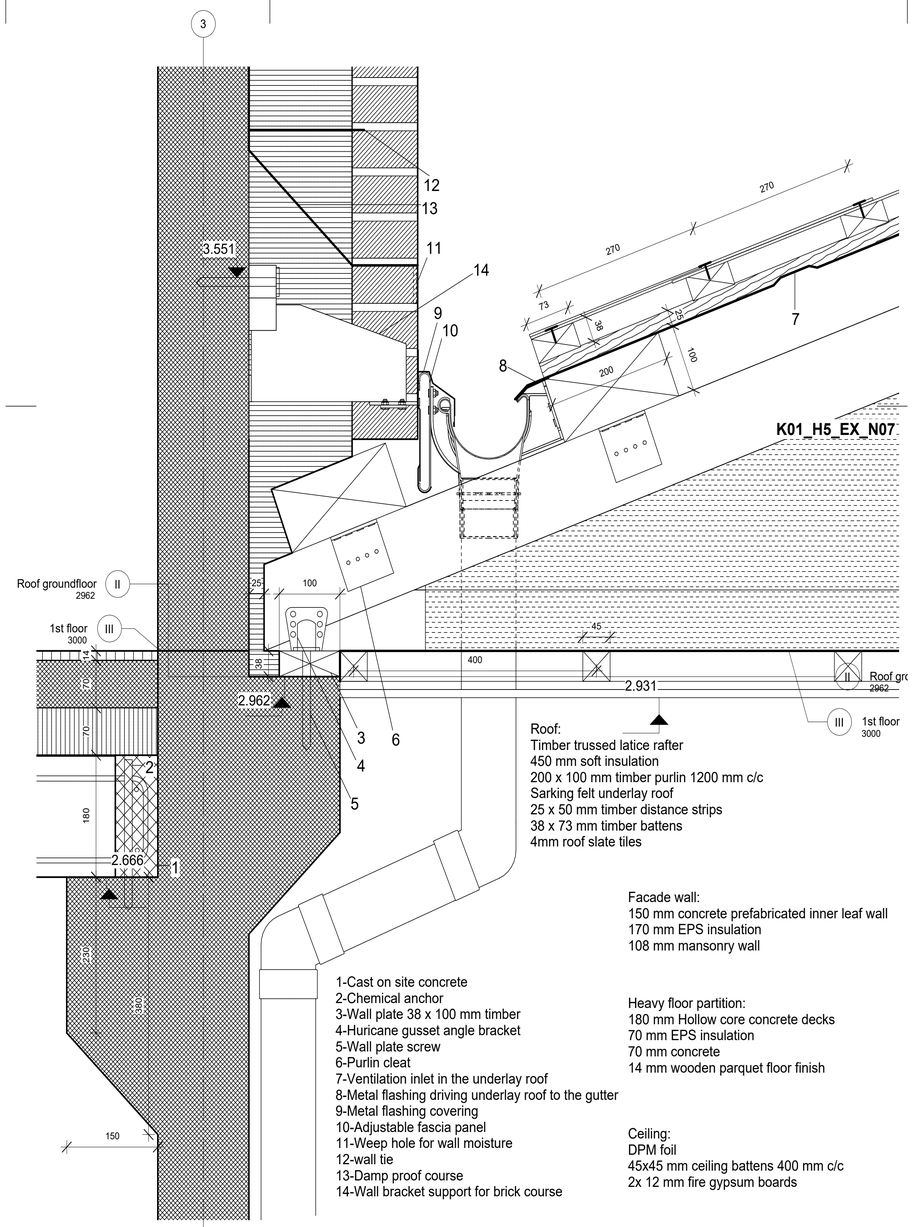
Campus TYPE TOWN

PROJECT: Can Marcal	DATE: 01/08/25	K01_H5_EX_N11
SUBJECT: Detail Bargeboard	SCALE: 1 : 5	
DRAWN BY: Mihai Railean	CLASS:	

K01_H5_EX_N07



Roof:
Timber trussed latice rafter
450 mm soft insulation
200 x 100 mm timber purlin 1200 mm c/c
Sarking felt underlay roof
25 x 50 mm timber distance strips
38 x 73 mm timber battens
4mm roof slate tiles

Facade wall:
150 mm concrete prefabricated inner leaf wall
170 mm EPS insulation
108 mm mansonry wall

1-Cast on site concrete
2-Chemical anchor
3-Wall plate 38 x 100 mm timber
4-Huricane gusset angle bracket
5-Wall plate screw
6-Purlin cleat
7-Ventilation inlet in the underlay roof
8-Metal flashing driving underlay roof to the gutter
9-Metal flashing covering
10-Adjustable fascia panel
11-Weep hole for wall moisture
12-wall tie
13-Damp proof course
14-Wall bracket support for brick course

Heavy floor partition:
180 mm Hollow core concrete decks
70 mm EPS insulation
70 mm concrete
14 mm wooden parquet floor finish

Ceiling:
DPM foil
45x45 mm ceiling battens 400 mm c/c
2x 12 mm fire gypsum boards

Roof/deck
1 : 5

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Campus TYPE TOWN

PROJECT: Can Marcal	DATE: 01/06/25	K01_H5_EX_N07
SUBJECT: Detail deck/roof	SCALE: 1 : 5	
DRAWN BY: Mihai Railean	CLASS:	

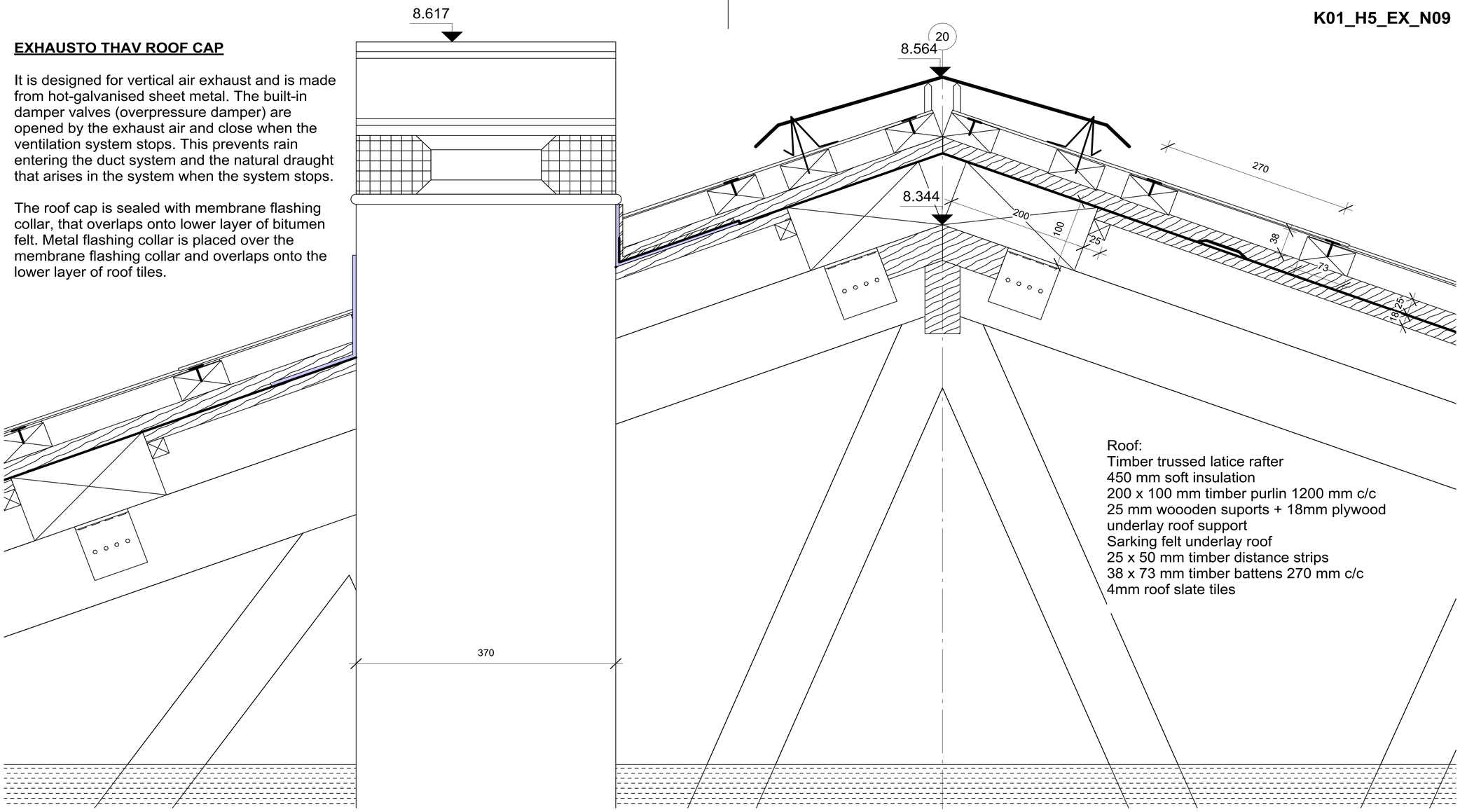
DETAILS

K01_H5_EX_N09

EXHAUSTO THAV ROOF CAP

It is designed for vertical air exhaust and is made from hot-galvanised sheet metal. The built-in damper valves (overpressure damper) are opened by the exhaust air and close when the ventilation system stops. This prevents rain entering the duct system and the natural draught that arises in the system when the system stops.

The roof cap is sealed with membrane flashing collar, that overlaps onto lower layer of bitumen felt. Metal flashing collar is placed over the membrane flashing collar and overlaps onto the lower layer of roof tiles.



Roof:
Timber trussed latice rafter
450 mm soft insulation
200 x 100 mm timber purlin 1200 mm c/c
25 mm woooden suports + 18mm plywood underlay roof support
Sarking felt underlay roof
25 x 50 mm timber distance strips
38 x 73 mm timber battens 270 mm c/c
4mm roof slate tiles

Roof ridge
1 : 5

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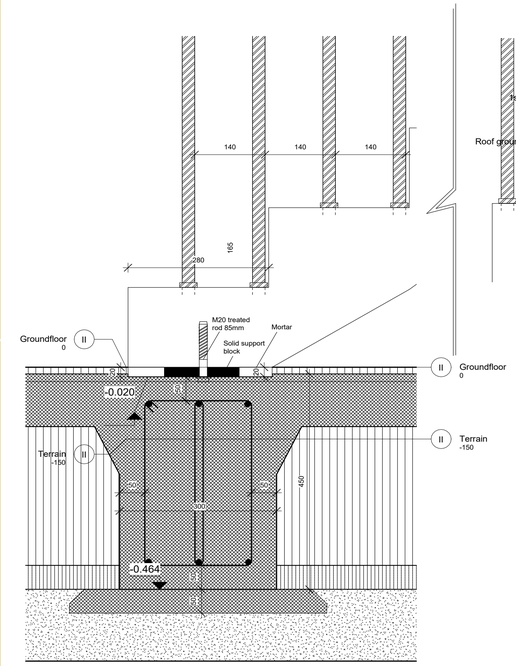
Campus TYPE TOWN

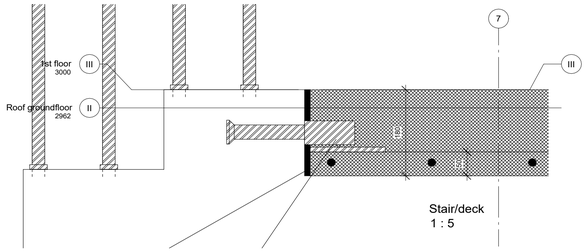
PROJECT: Can Marcal	DATE: 01/06/25	**K01_H5_EX_N09**
SUBJECT: Detail roof ridge	SCALE: 1 : 5	
DRAWN BY: Mihai Railean	CLASS:	

DETAILS

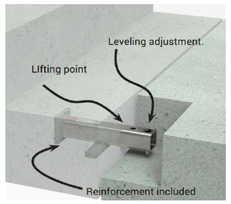
K01_H5_EX_N03



Stairs floor
1 : 5



TSS Invisible stair/deck connection



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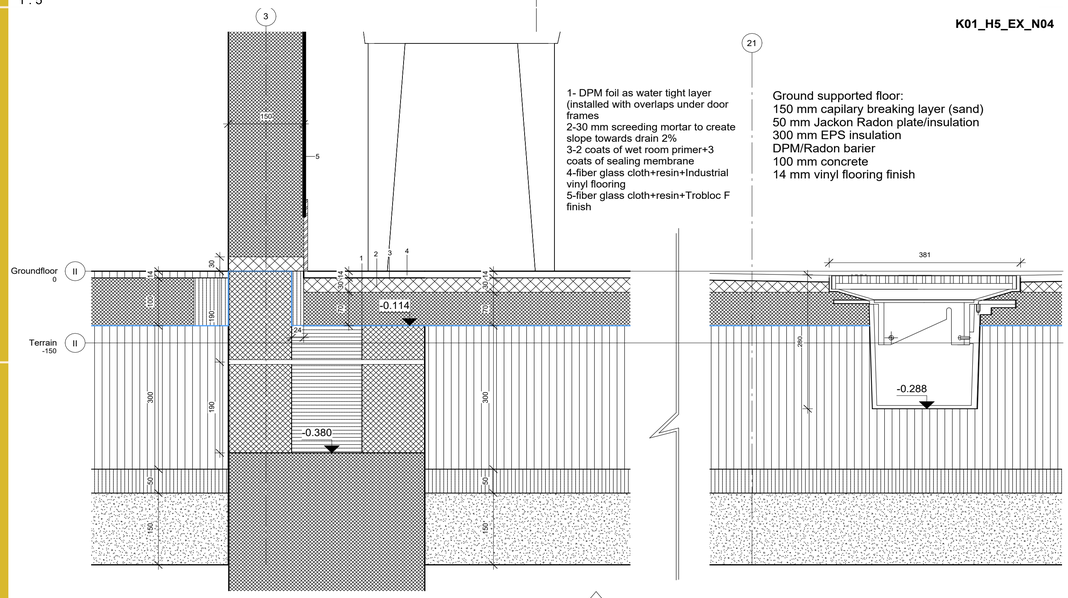
Campus TYPE TOWN

PROJECT: Can Marcal	DATE:01/12/25	K01_H5_EX_N03
SUBJECT: Detail stairs	SCALE: 1 : 5	
DRAWN BY: Mihai Railean	CLASS:	

K01_H5_EX_N04



1- DPM foil as water tight layer (installed with overlaps under door frames
2-30 mm screeding mortar to create slope towards drain 2%
3-2 coats of wet room primer+3 coats of sealing membrane
4-fiber glass cloth+resin+Industrial vinyl flooring
5-fiber glass cloth+resin+Trobloc F finish

Ground supported floor:
150 mm capilary breaking layer (sand)
50 mm Jackon Radon plate/insulation
300 mm EPS insulation
DPM/Radon barier
100 mm concrete
14 mm vinyl flooring finish

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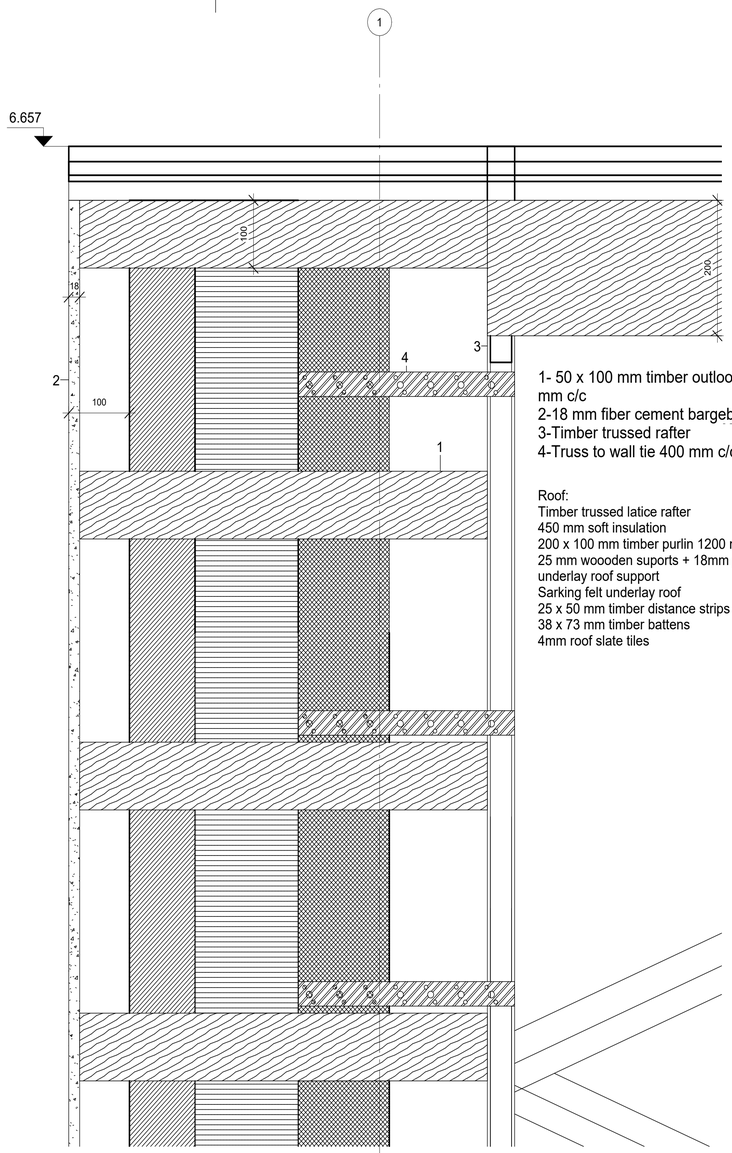
Campus TYPE TOWN

PROJECT: Can Marcal	DATE:01/11/25	K01_H5_EX_N04
SUBJECT: Detail Wet room kitchen	SCALE: 1 : 5	
DRAWN BY: Mihai Railean	CLASS:	

Kitchen wet room
1 : 5



1- 50 x 100 mm timber outlooker 400 mm c/c
2-18 mm fiber cement bargeboard **5_EX_N10**
3-Timber trussed rafter
4-Truss to wall tie 400 mm c/c

Roof:
Timber trussed latice rafter
450 mm soft insulation
200 x 100 mm timber purlin 1200 mm c/c
25 mm woooden suports + 18mm plywood underlay roof support
Sarking felt underlay roof
25 x 50 mm timber distance strips
38 x 73 mm timber battens
4mm roof slate tiles

Roof/gable
1 : 5

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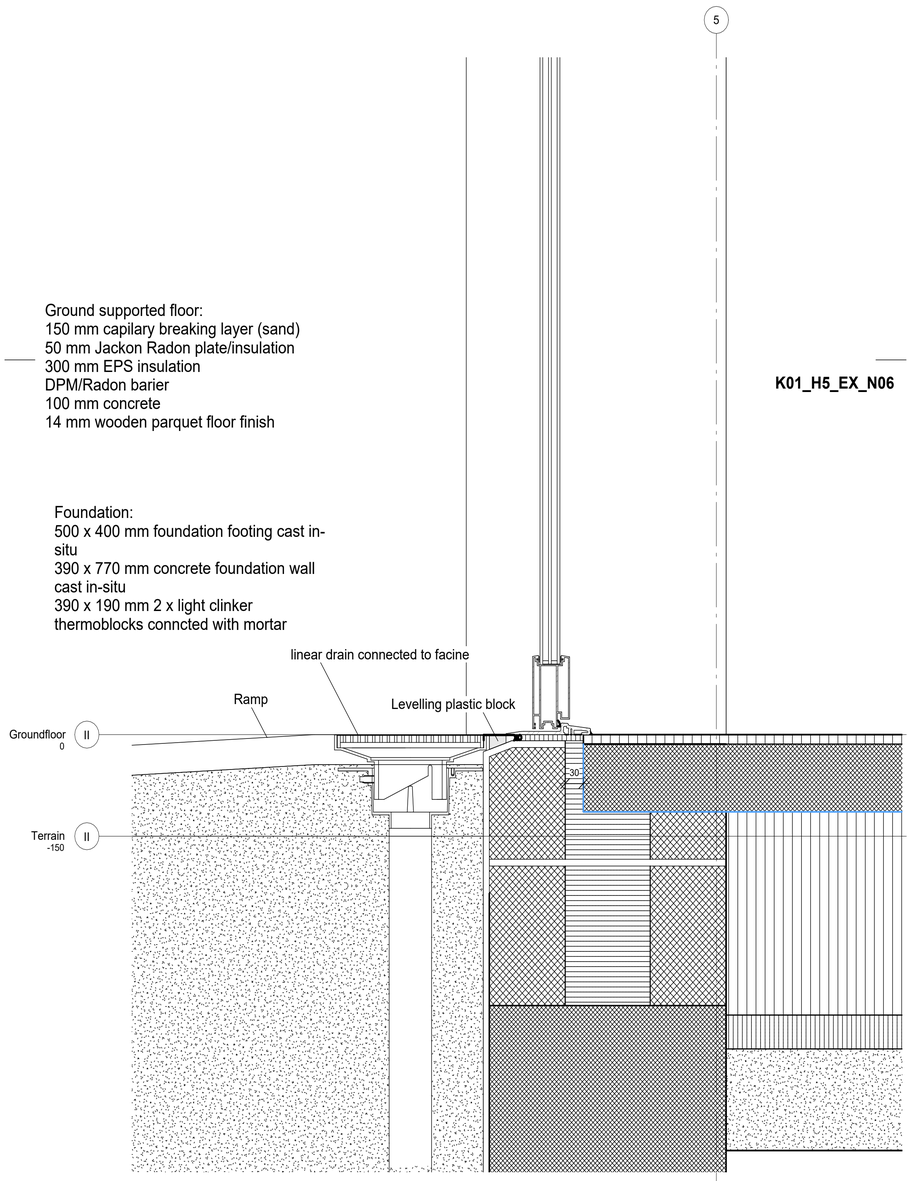
VIA Built Environment & Engineering
Campus TYPE TOWN

PROJECT: Can Marcal	DATE:01/06/25	K01_H5_EX_N10
SUBJECT: Detail roof/gable	SCALE: 1 : 5	
DRAWN BY: Mihai Railean	CLASS:	

DETAILS

Ground supported floor:
150 mm capilary breaking layer (sand)
50 mm Jackon Radon plate/insulation
300 mm EPS insulation
DPM/Radon barier
100 mm concrete
14 mm wooden parquet floor finish

Foundation:
500 x 400 mm foundation footing cast in-situ
390 x 770 mm concrete foundation wall cast in-situ
390 x 190 mm 2 x light clinker thermoblocks conncted with mortar



Levell access
1 : 5

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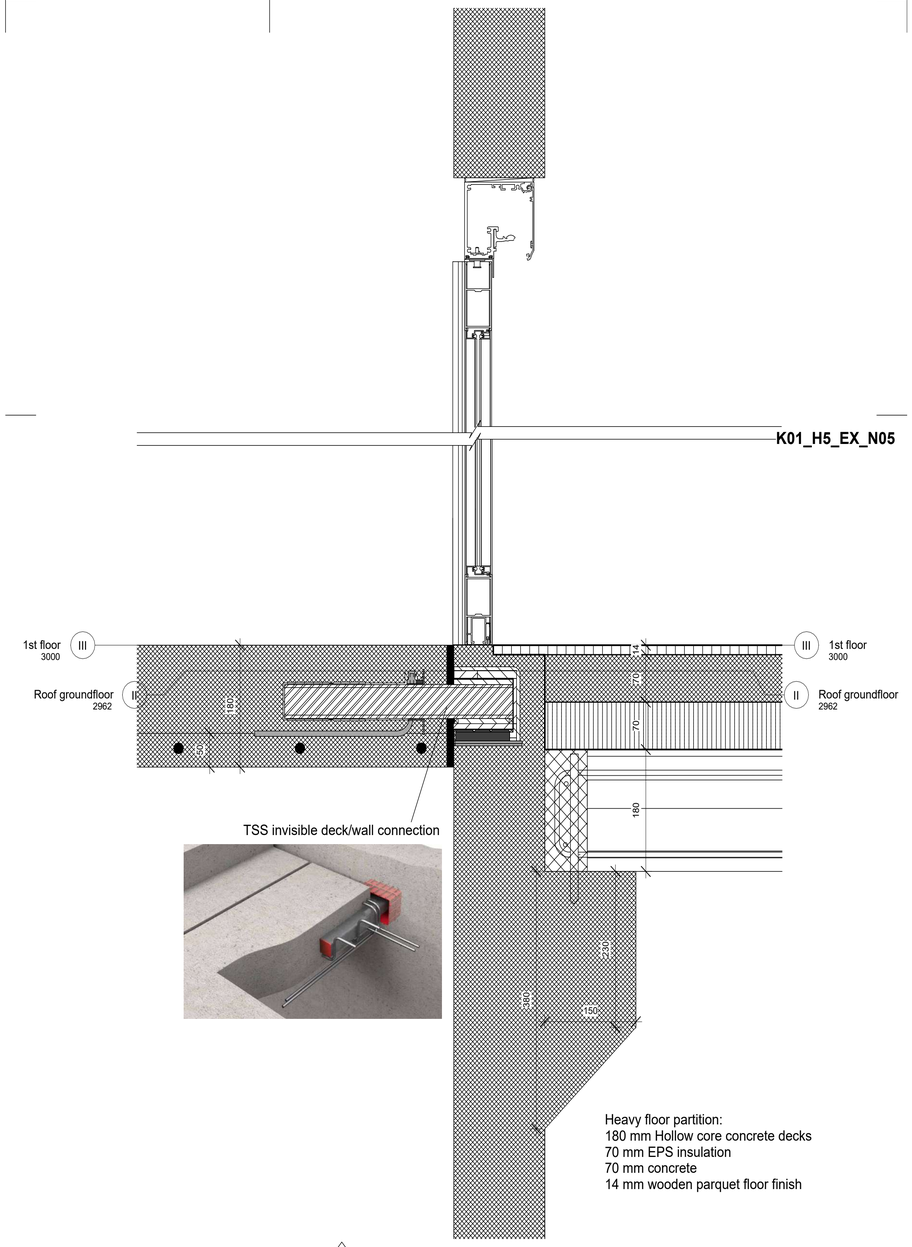
VIA Built Environment & Engineering
Campus TYPE TOWN

PROJECT: Can Marcal	DATE:01/06/25	K01_H5_EX_N06
SUBJECT: Detail levell access	SCALE: 1 : 5	
DRAWN BY: Author	CLASS:	

K01_H5_EX_N06



Stair deck/door
1 : 5

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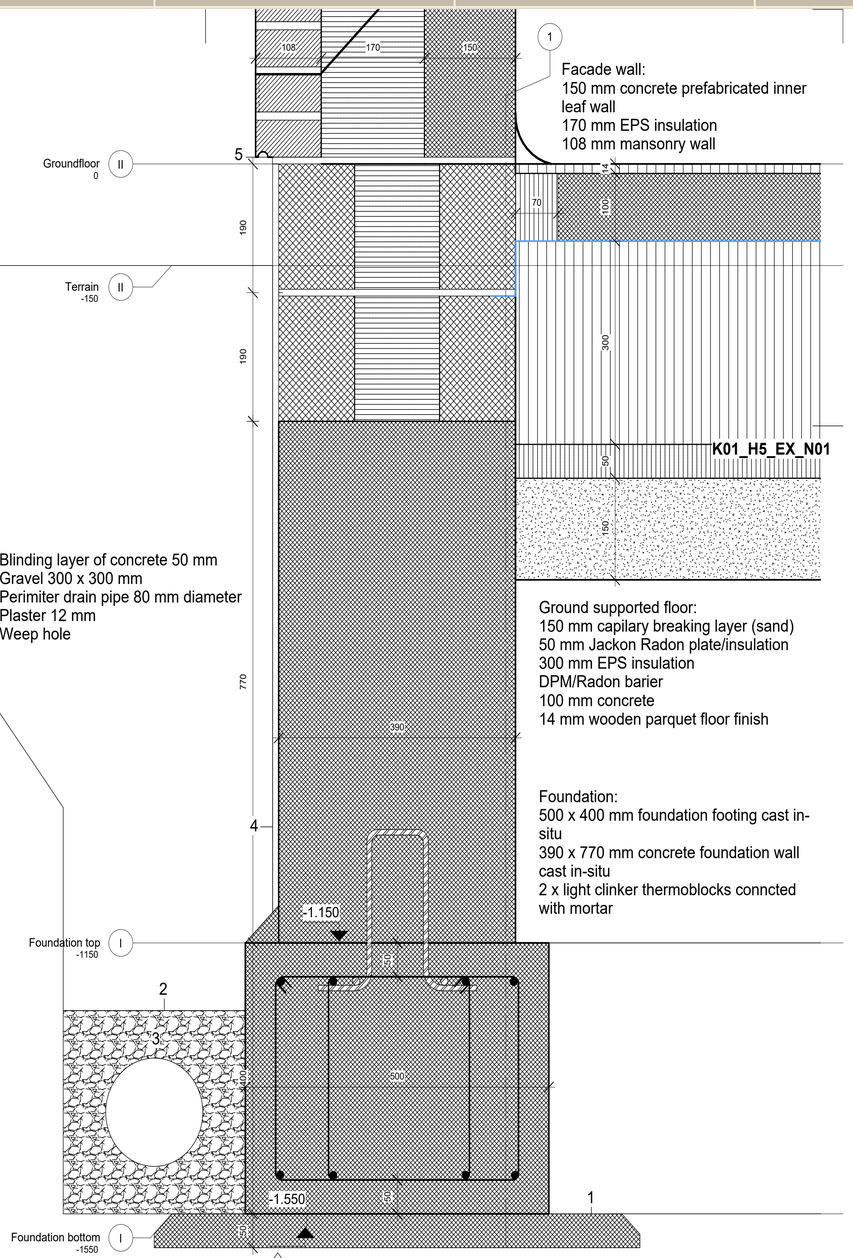
Campus TYPE TOWN

PROJECT: Can Marcal	DATE:01/10/25	K01_H5_EX_N05
SUBJECT: Detail stairs deck/fire door	SCALE: 1 : 5	
DRAWN BY: Mihai Railean	CLASS:	

DETAILS



Foundation/wall
1 : 5

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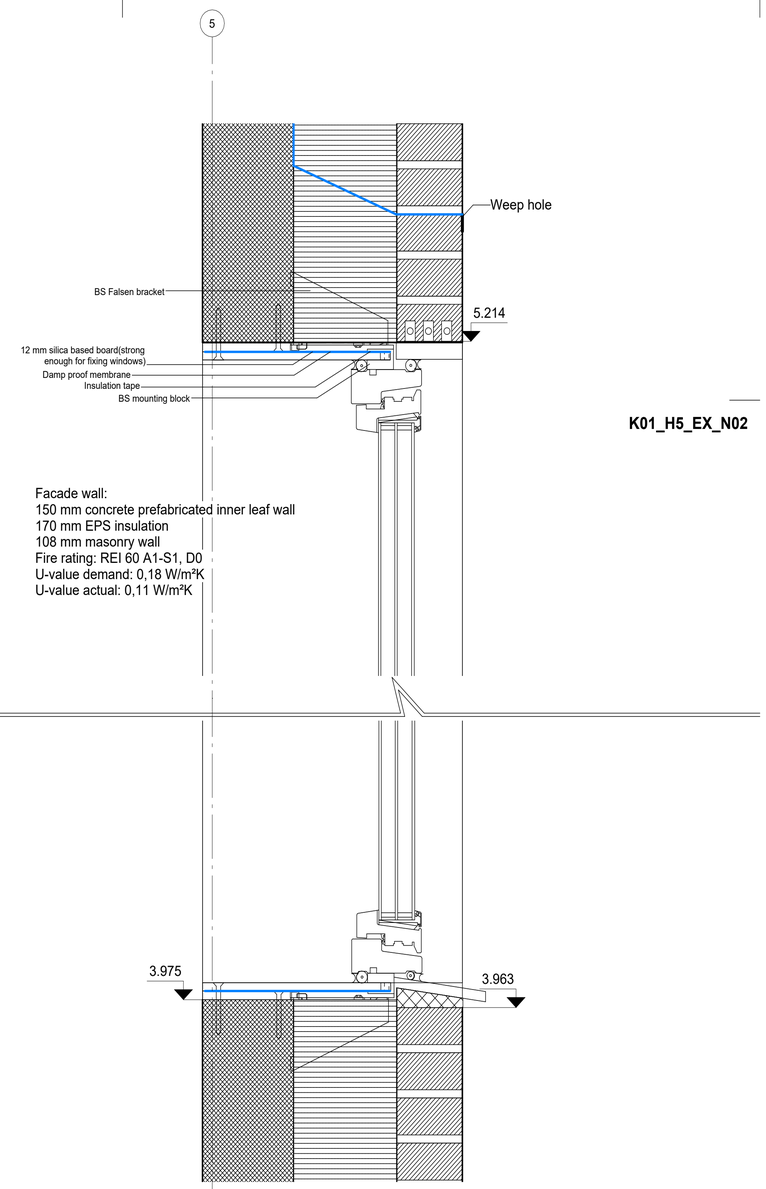
VIA Built Environment & Engineering
Campus TYPE TOWN

PROJECT: Can Marcal	DATE:01/06/25	K01_H5_EX_N01
SUBJECT: Detail foudation	SCALE: 1 : 5	
DRAWN BY: Mihai Railean	CLASS:	



Window
1 : 5

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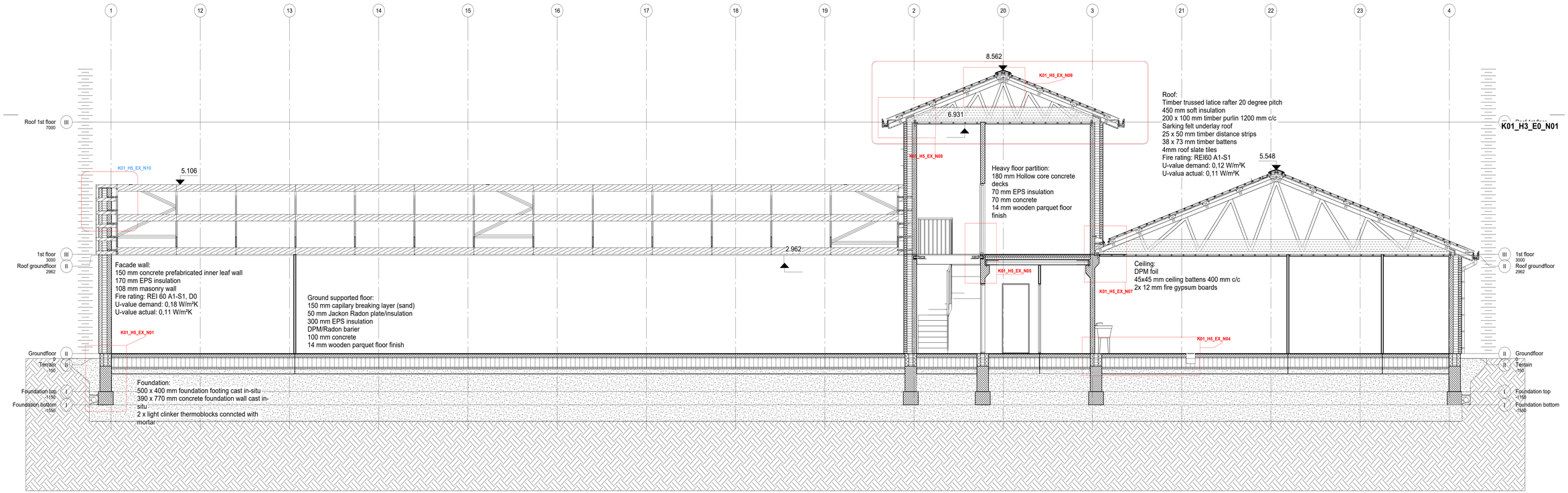
VIA Built Environment & Engineering
Campus TYPE TOWN

PROJECT: Can Marcal	DATE:01/15/25	K01_H5_EX_N02
SUBJECT: Detail window	SCALE: 1 : 5	
DRAWN BY: Mihai Railean	CLASS:	

SECTION



Section 1
1 : 50

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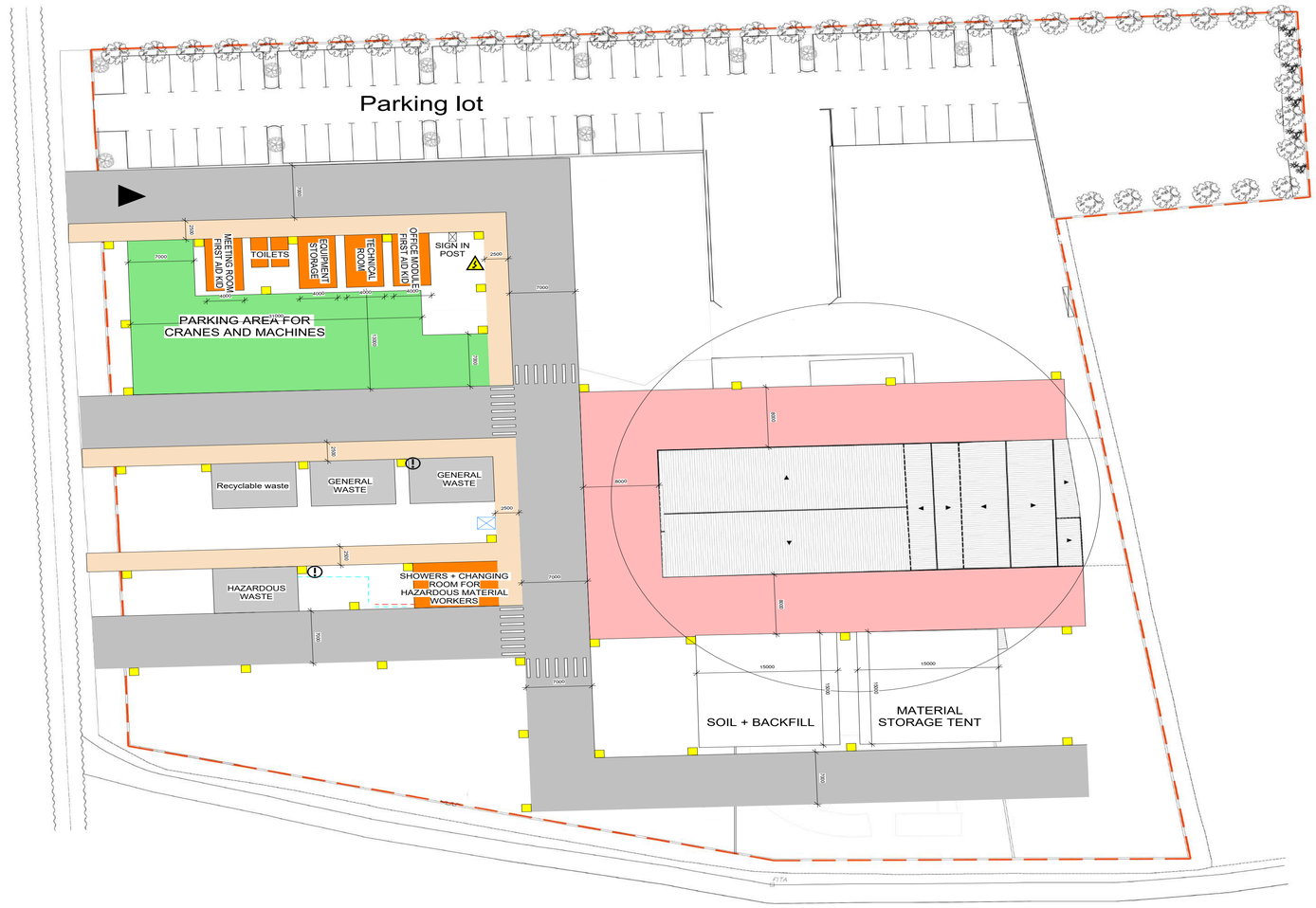
Campus TYPE TOWN

PROJECT: Can Marcal	DATE: 01/15/25	K01_H3_E0_N01
SUBJECT: Section 1	SCALE: 1 : 50	
DRAWN BY: Mihai Railean	CLASS:	

BUILDING SITE PLAN



NOTES:

MEETING ROOM:
-INCLUDING FIRST AID KIT
-CAPACITY 15 PEOPLE
OFFICE MODULE:
-INCLUDING 2 OFFICES
-FIRST AID KID
-SEPARATE TOILET

TOILETS / SHOWERS:
-WASHBASINS
-SHOWERS
-CAPACITY 15 PEOPLE
SHOWERS + CHANGING ROOM FOR

HAZARDOUS MATERIAL WORKERS:
-INCLUDING SHOWERS
-CHANGING ROOM
-CAPACITY 15 PEOPLE

Crane reach(could be mounted anywhere on the red area). Crane reach: 26m

Lamps

Pedestrian line

Truck lane

Placement of crane

Sign in post

Information board

Property line and fence

Electricity box

Energy generator

K01_H1_EX_N25

Building site plan
1 : 200

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VIA Built Environment & Engineering
Campus TYPE TOWN

PROJECT: Can Marcal	DATE: 01/14/25	K01_H1_EX_N25
SUBJECT: Building site plan	SCALE: As indicated	
DRAWN BY: Mihai Railean	CLASS:	

*Visualization made by Thibault Goossens

PROJECT 5
RENOVATION AND STUDENT HOUSING DEVELOPMENT

SCHUTTESVEJ 17, HORSENS, DENMARK

As part of the semester project, I worked on the adaptive reuse of a former agricultural laboratory near Bygholm Park in Horsens, transforming it into compliant and sustainable student housing with a new steel-frame extension. The building's distinctive industrial character and irregular form served as a catalyst for early design concepts.

The process began with a full 3D laser scan of the structure, allowing for precise digital modeling and accurate integration into BIM workflows. From there, I developed optimized unit layouts balancing density, circulation, and comfort, while addressing fire safety, acoustic insulation, and regulatory compliance.

Key responsibilities included:
- **Digital surveying and BIM modeling of the existing building**
- **Student housing layout planning with regulatory alignment**
- **Architectural plans, service layouts, and fire strategy drawings**
- **Technical wall build-ups and material specifications**
- **A Carpentry Trade Booklet with detailed step-by-step installation guides, including steel stud framing, acoustic roll insulation, resilient bar systems, and multi-layer gypsum board assemblies**

Additionally, I authored a short paper on biophilic design, exploring the integration of green infrastructure in residential architecture to enhance wellbeing and environmental performance.

This was the most technically demanding semester to date, requiring a comprehensive application of both design thinking and construction detailing—effectively bridging concept, compliance, and execution.

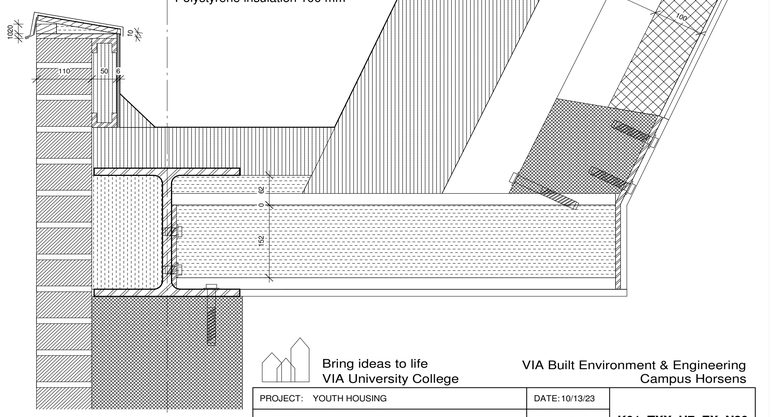
DETAILS

K01_TXX_H7_EX_N30

A 10 mm steel plate should be fitted and welded to the frame beams, which will be used to fix the mounting concrete brackets with chemical screws and torque bolts. The frame beam gets fixed to the main beam using a steel plate in the middle and torque screws. The main beam gets fixed to the colums using chemical screws.

Roof Structure:
Baumadeck 120 mm
Cast concrete 100 mm
Polystyrene insulation 250 mm
2 x Bitumen felt layers 7 mm

Modified Beam:
HEM 260 Main load carring beam
HEM 180 frame beams
Soft insulation:
145 mm (squezed to 134 mm)
70 mm (squezed to 62 mm)
Polystyrene insulation 100 mm



Roof Gable at column
1 : 5

Bring ideas to life VIA University College	VIA Built Environment & Engineering Campus Horsens	
PROJECT: YOUTH HOUSING	DATE: 10/13/23	K01_TXX_H7_EX_N30
SUBJECT: Modified beam/ Eave	SCALE: 1 : 5	
DRAWN BY: Mihai Railean	CLASS:	

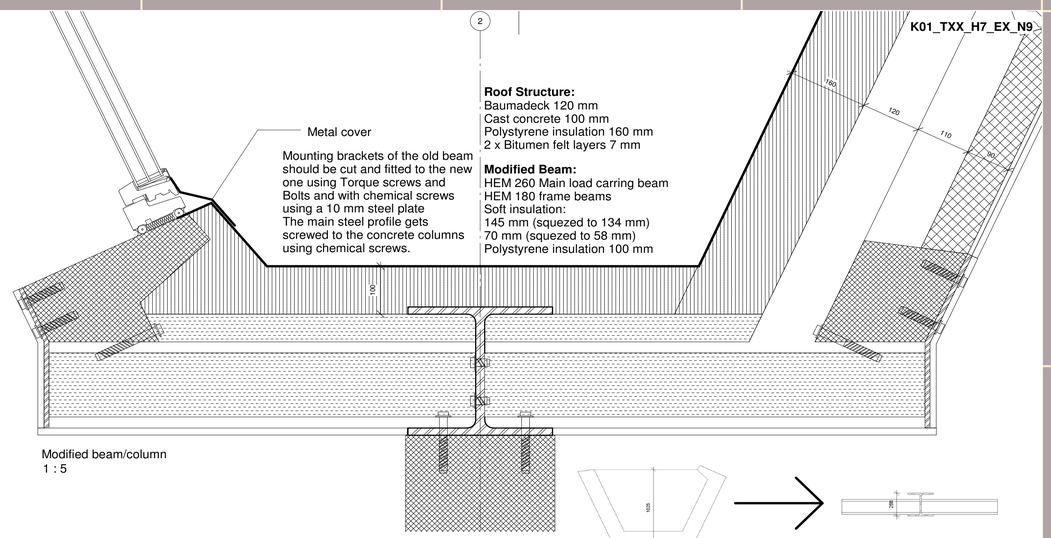
K01_TXX_H7_EX_N9

Metal cover

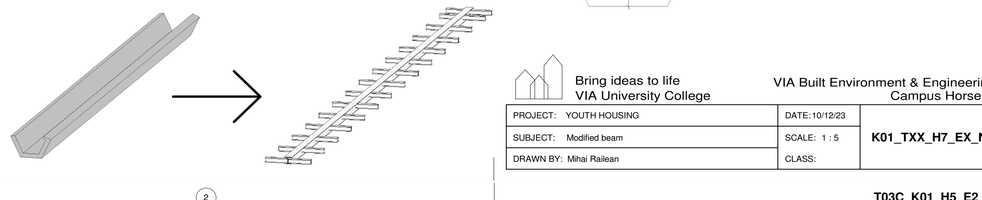
Mounting brackets of the old beam should be cut and fitted to the new one using Torque screws and Bolts and with chemical screws using a 10 mm steel plate
The main steel profile gets screwed to the concrete columns using chemical screws.

Roof Structure:
Baumadeck 120 mm
Cast concrete 100 mm
Polystyrene insulation 160 mm
2 x Bitumen felt layers 7 mm

Modified Beam:
HEM 260 Main load carring beam
HEM 180 frame beams
Soft insulation:
145 mm (squezed to 134 mm)
70 mm (squezed to 58 mm)
Polystyrene insulation 100 mm



Modified beam/column
1 : 5

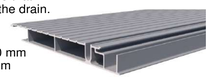


Bring ideas to life VIA University College	VIA Built Environment & Engineering Campus Horsens	
PROJECT: YOUTH HOUSING	DATE: 10/12/23	K01_TXX_H7_EX_N9
SUBJECT: Modified beam	SCALE: 1 : 5	
DRAWN BY: Mihai Railean	CLASS:	

K01_TXX_H7_EX_N32

Floor Patition inside apartments:
Fiber gypsum board 12.5 mm x 2
Steel C profile 300 mm
Fibre gypsum board 19 mm
XPS with aluminium plate + heating pipes 25 mm
Cork 10 mm
Wooden tiles 10 mm

The Aluminium cladding has integrated drain channels that are going to be led into the drain.



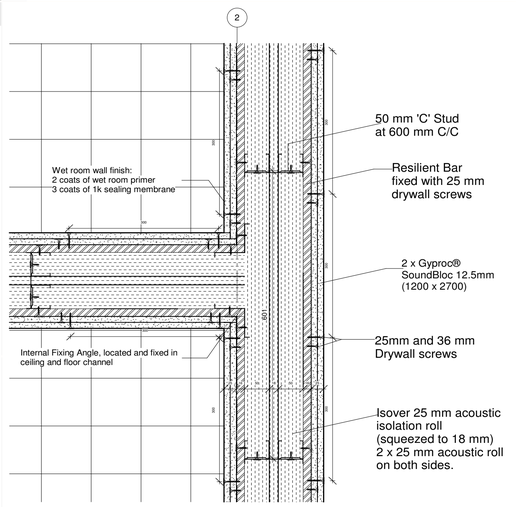
Balcony:
Steel balcony frame 220 mm
Distance strips 38x73 mm
Battens 38x57 mm
Dura Aluminium positive-drain cladding 18 mm
Linear drain 75 mm width

Facade wall:
Bricks 110mm
Insulation 125mm
Brick 110 mm
insulation 90mm
Steel C profiles 90 mm 400 mm c/c
gypsum boar 2 x 12.5 mm

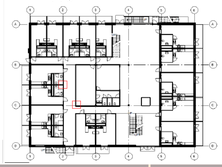
Balcony/door
1 : 5

Bring ideas to life VIA University College	VIA Built Environment & Engineering Campus Horsens	
PROJECT: YOUTH HOUSING	DATE: 10/27/23	K01_TXX_H7_EX_N32
SUBJECT: Balcony Door	SCALE: 1 : 5	
DRAWN BY: Mihai Railean	CLASS:	

T03C_K01_H5_E2_N10

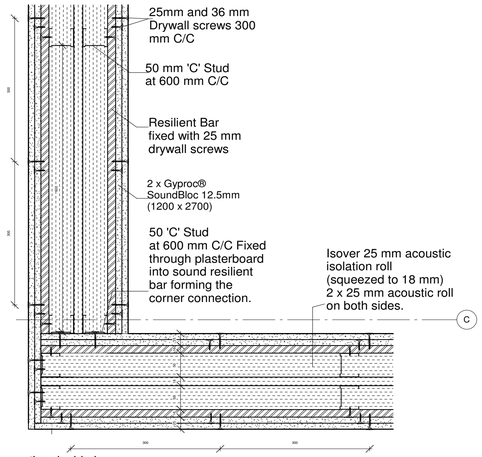


T connection double layer
1 : 5



Gypframe® GA5 Internal Fixing Angle

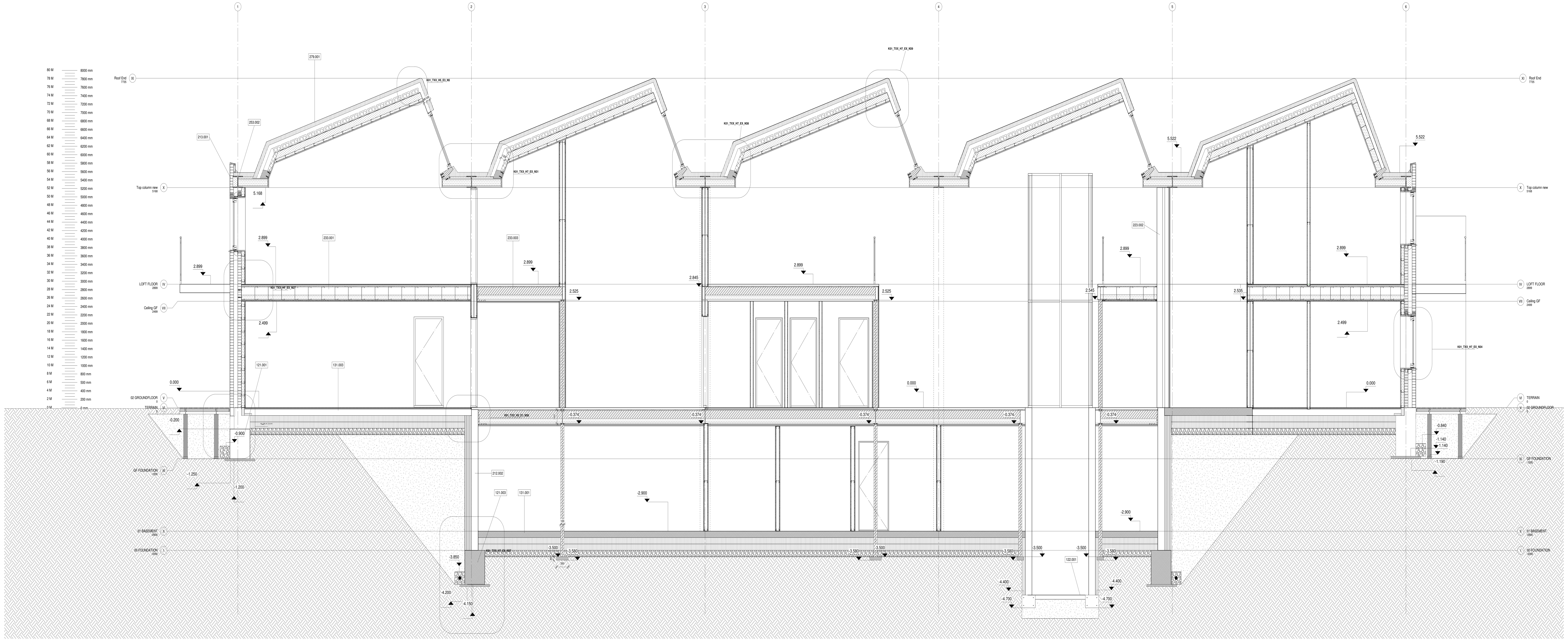
Lengths available (mm)	3600
Bespoke length available	Yes
Width (mm)	60 x 60
Gauge (mm)	0.50
Weight (kg/m)	0.53



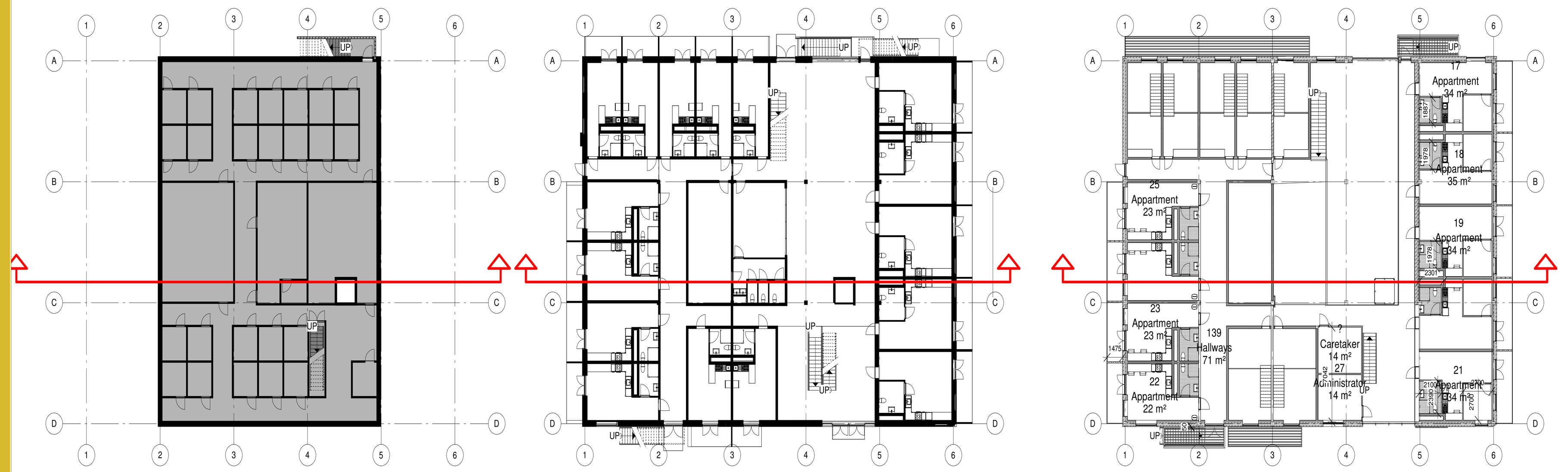
Corner connection double layer
1 : 5

Bring ideas to life VIA University College	VIA Built Environment & Engineering Campus Horsens	
PROJECT: Youth Housing	DATE: 01/26/24	T03C_K01_H5_E2_N10
SUBJECT: Double layer wall connections	SCALE: 1 : 5	
DRAWN BY: Mihai Railean	CLASS:	

SECTION



Key Value	Keynote Text
121.001	Strip Foundation Groundfloor External Wall: Reinforced concrete - 1000x600mm Lightweight clinker block - 190 + 100mm Rigid insulation - 35mm Blinding layer of concrete - 50x900mm
121.003	Strip Foundation Basement External Wall stairs: Reinforced concrete - 800x600mm 2x Lightweight clinker block - 190 + 10mm Rigid insulation - 50mm Blinding layer of concrete - 50x900mm
122.001	Elevator Shaft Foundation Reinforced concrete - 300mm
131.001	Basement Ground Supported Slab - 600mm Reinforced polished casted concrete - 150mm Rigid insulation - Polystyrene - EPS 035 - 2x 150mm Capilary breaking layer - Gravel 150mm U-value - demand - 0.20 $W/(m^2K)$ U-value - actual - 0.112 $W/(m^2K)$
131.003	Groundfloor Apartments Ground Supported Slab - 630mm Wooden tiles - 10mm + adhesive Cork - 10mm Leveling screed - 14mm Casted reinforced concrete + Floor heating - 150mm Rigid insulation - Polystyrene - EPS 035 - 2x 150mm Capilary breaking layer - Gravel 150mm U-value - demand - 0.20 $W/(m^2K)$ U-value - actual - 0.109 $W/(m^2K)$
212.002	Basement External Load Bearing Walls - 400mm Rigid insulation - XPS 035 - 4x 50mm Casted reinforced concrete - 200mm 2x Lightweight clinker block - 190 + 10 mm Rigid insulation - 100 mm Filter fabric flap - 1mm Aluminium fastening bracket U-value - demand - 0.30 $W/(m^2K)$ U-value - actual - 0.167 $W/(m^2K)$ Fire demand - REI60
213.001	Groundfloor External Non-load Bearing Walls - 463mm Brick - 110mm Soft insulation - Glass wool 032 - 125mm Brick - 110mm Soft insulation - Mineral wool 032 - 95mm C - profiles - 92mm DPM Fibre gypsum board - 2x 12.5mm Skirting board - 15x60 mm U-value - demand - 0.30 $W/(m^2K)$ U-value - actual - 0.152 $W/(m^2K)$ Fire demand - EI60 Sound demand - 63 dB L'w
223.002	Internal Existing Walls - Type 2 - 390mm Fire demand - REI60 Sound demand - 55 dB R'w
233.001	Apartment Light Floor Partition - 400mm Wooden tiles + adhesive - 10mm Cork - 10mm Rigid insulation - XPS 035 + floor heating - 25mm Fibre gypsum board - 19mm C-profile - C/C - 250/400/600mm - 300mm Air gap - 10mm Fibre gypsum board - 2x 12.5mm Fire demand - REI60 A2,s1,d0 Sound demand - 55 dB R'w
233.003	Common Area Light Floor Partition - 400mm Casted reinforced concrete - 45mm Fibre gypsum board - 19mm C-profile - C/C - 200mm - 300mm Air gap - 10mm Fibre gypsum board - 2x 12.5mm Fire demand - REI60 A2,s1,d0
253.002	Steel Beams HEM 260 Fire demand - R60
279.001	Roof Bitumen felt - 2x 0.5mm Soft insulation - Rockwool - 100mm Casted reinforced concrete - 100mm Reinforecd bricks - 125mm DPM Soft insulation - Mineral wool 032 - 150mm Soft insulation - Mineral wool 032 - 50mm Fibre gypsum board - 2x 12.5 mm Parapet Metal flashing Soft Insulation - Rockwool Batten - 20x40mm Fibre cement board - 6mm Soft Insulation - Rockwool - 50mm U-value demand - 0.20 $W/(m^2K)$ U-value - actual - 0.103 $W/(m^2K)$ Fire demand - REI60



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VIA Built Environment & Engineering
Campus Horsens

PROJECT: Youth Housing	DATE: 12/19/23	K01_TXX_H3_EX_N1
SUBJECT: Section A-A	SCALE: As indicated	
DRAWN BY: Jan Samek, Mihai Railen	CLASS: AH51P-23S	

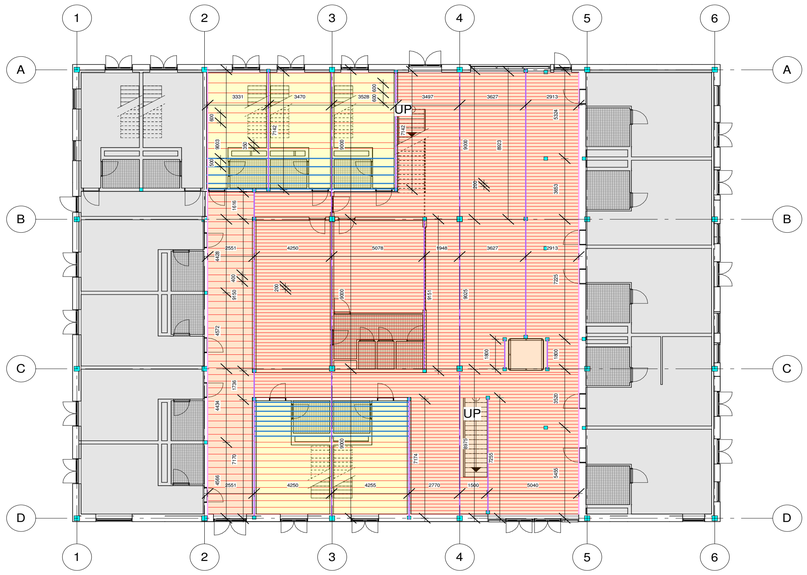
Scan this QR code or follow the link below to open the whole production booklet of the element.

https://drive.google.com/drive/folders/1sYJDHLuxHdLjJa_3CAVGwsFCBKB0rmTS?usp=drive_link

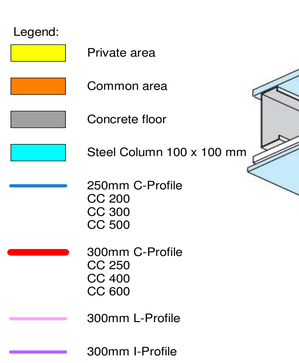
PROJECT 5

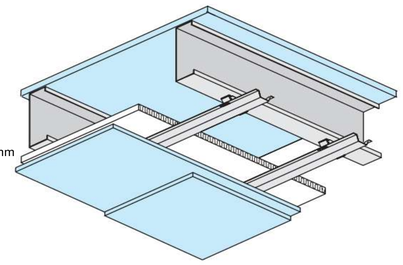
RENOVATION AND STUDENT HOUSING DEVELOPMENT- TENDER

T03C_K01_H1_E3_N3.2



Structural Element Plan GF
1 : 200





Note: Constructive elements should be mounted to I profiles on top of steel columns, and on L btackets fixed to existing concrete columns. In some places where the columns are inside the walls, some booring and shaving of the wall might be needed to fit the columns. Every column would have its individual foundation. Columns and brackets mounted by the blacksmith, light floor partition mounted by carpenter.

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Campus Horsens

PROJECT: Youth Housing	DATE: 12/08/23	T03C_K01_H1_E3_N3.2
SUBJECT: Structural element plan GF	SCALE: As indicated	
DRAWN BY: Mihai Railean	CLASS:	

As part of a semester-long renovation project focused on transforming a disused agricultural laboratory near Bygholm Park in Horsens into sustainable student housing, I assumed the role of a carpentry trade contractor. My core task was to develop a comprehensive Carpentry Trade Tender Booklet, covering all internal partition and cladding systems to guide site execution.

The booklet includes over 20 detailed drawings at multiple scales (1:200, 1:25, 1:5, and 1:1), illustrating each phase of interior wall construction: from floor/ceiling profile installation and steel stud framing, to acoustic insulation (Isover rolls), resilient bar placement, and multi-layer gypsum board systems (Gyproc® SoundBloc). Special attention was given to wall-to-facade assemblies, wet room detailing, and acoustic + fire-resistant specifications.

Each element was designed to comply with Danish building regulations, meeting performance targets such as EI60 fire rating, R'w 50–60 dB acoustic insulation, and U-values as low as 0.152 W/(m²K). Key connection details—including single/double-layer intersections, façade extensions, and beam-floor interfaces—were also developed to ensure buildability and structural integration with both existing and new elements (e.g., steel extensions and reinforced floor slabs).

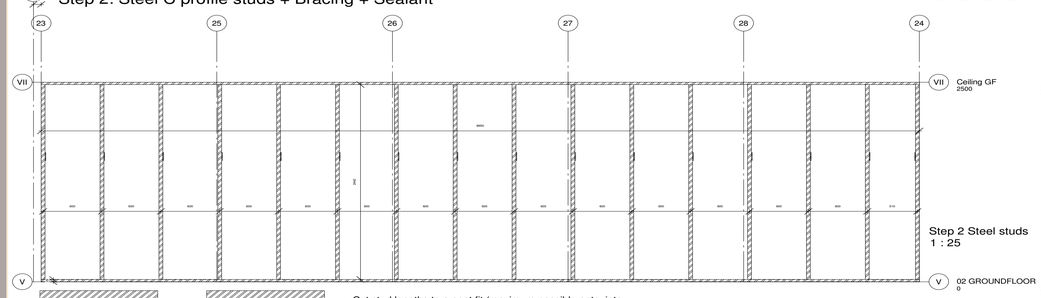
In addition, I produced a construction time schedule outlining the sequencing of carpentry-related tasks in coordination with other trades, enhancing the overall planning and execution process.

Through this document, I not only deepened my understanding of technical detailing and on-site construction logistics but also practiced industry-standard documentation, which is crucial for effective communication between designers, engineers, and contractors.

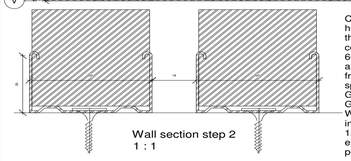
CEILING-FLOOR PROFILE

Step 2: Steel C profile studs + Bracing + Sealant

T03C_K01_H3_E3_N2



Step 2 Steel studs
1 : 25



Wall section step 2
1 : 1

Cut stud lengths to a neat fit (maximum possible entry into head channel). Locate first stud, twist into position and fix to the abutting wall with suitable fixings (by others) at 600mm centres. Locate further studs at required centres (typically 600mm) to a friction fit within the channel sections - this allows for adjustment during boarding. The second framework is installed as the first, with stud frameworks spaced to achieve the specified wall thickness. Opposing Gypframe 'C' Studs are braced by fixing a short length of Gypframe 99 FC 50 Fixing Channel. Fix with two Gyproc Wafer Head Drywall Screws, two into each stud. Braces are installed at mid-height for walls up to 2400mm, or at 1200mm maximum centres where this height is exceeded. Apply Gyproc Sealant to both sides of frame perimeter to provide optimum acoustic performance.

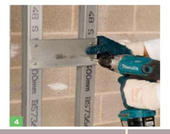
Gypframe® 99 FC 50 Fixing Channel

Lengths available (mm)	2400
Bespoke length available	No
Width (mm)	99
Gauge (mm)	0.50
Weight (kg/lm)	0.45

Gypframe® 48 S 50 'C' Stud

Lengths available (mm)	2400, 2700, 3000, 3600
Bespoke length available	Yes
Width (mm)	48
Gauge (mm)	0.50
Weight (kg/lm)	0.52


3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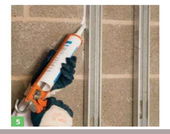
5

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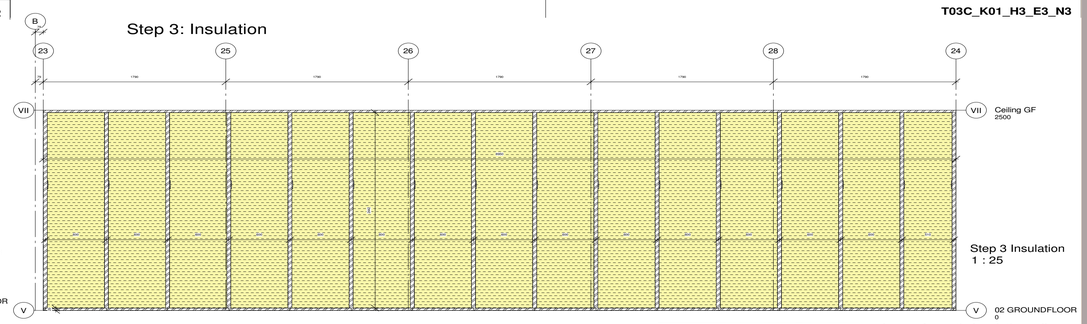
VIA Built Environment & Engineering
Campus Horsens

PROJECT: Youth Housing	DATE: 01/25/24	T03C_K01_H3_E3_N2
SUBJECT: Step 2 Steel studs	SCALE: As indicated	
DRAWN BY: Mihai Railean	CLASS:	

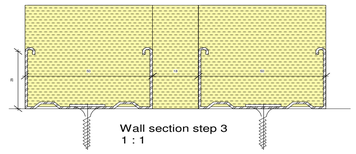
INSULATION

Step 3: Insulation

T03C_K01_H3_E3_N3



Step 3 Insulation
1 : 25



Wall section step 3
1 : 1

Insulation inbetween the profiles shoulld be installed rigth away. A 25 mm roll should be used and squezed to the desired thickness of 18 mm. The rest of the insulation should be installed progressively as boarding proceeds. the 50 mm roll should be squezed inbetween the C profiles.


10

Isover Acoustic Insulation roll
Thicnesses: 25 mm and 50 mm

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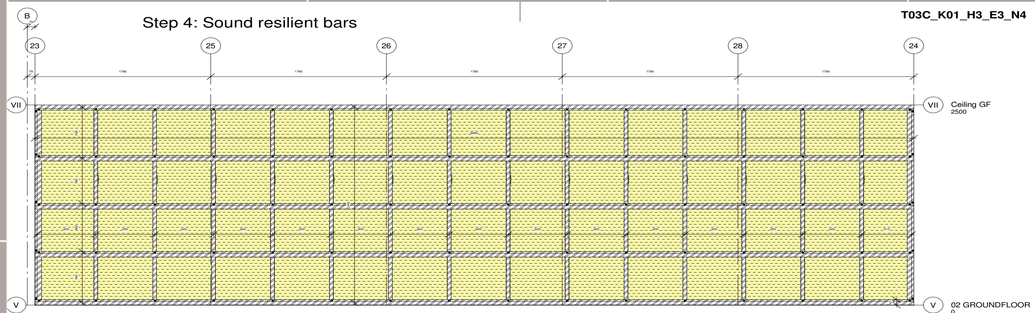
VIA Built Environment & Engineering
Campus Horsens

PROJECT: Youth Housing	DATE: 01/26/24	T03C_K01_H3_E3_N3
SUBJECT: Step 3 Insulation	SCALE: As indicated	
DRAWN BY: Mihai Railean	CLASS:	

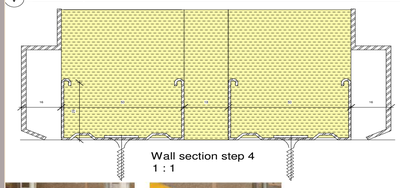
SOUND BARS

Step 4: Sound resilient bars

T03C_K01_H3_E3_N4



Step 4 Sound resilient bars
1 : 25

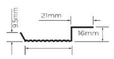


Wall section step 4
1 : 1

Gypframe RB1 Resilient Bars are fixed horizontally to the studs at 600mm centres on one or both sides of the stud as required. The resilient bars are normally fixed with the base flange on the top side, except on the uppermost bar which is fixed base flange down to provide board fixing at the partition head.
Resilient bars are joined by nesting them together over a stud. Noggings of Gypframe RB1 Resilient bars are fixed vertically to studs between horizontal bars at perimeters and doors. Any openings must be constructed with care so as to minimise loss of the acoustic performance. Specialist acoustic door sets may be required.

Gypframe® RB1 Resilient Bar

Lengths available (mm)	3000
Bespoke length available	No
Width (mm)	16
Gauge (mm)	045
Weight (kg/lm)	0.35




4


5

Bring ideas to life
VIA University College

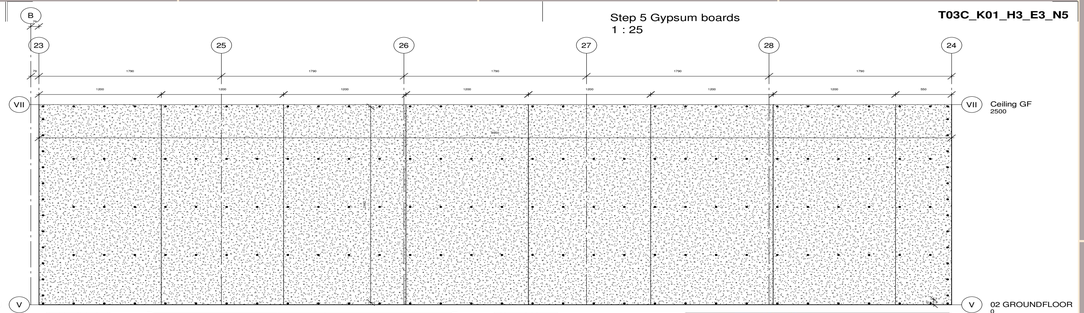
VIA Built Environment & Engineering
Campus Horsens

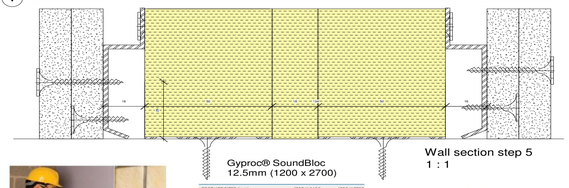
PROJECT: Youth Housing	DATE: 01/26/24	T03C_K01_H3_E3_N4
SUBJECT: Step 4 sound resilient bars	SCALE: As indicated	
DRAWN BY: Mihai Railean	CLASS:	

GYPSUM BOARDS

Step 5 Gypsum boards
1 : 25

T03C_K01_H3_E3_N5





Wall section step 5
1 : 1


6

Gyproc® SoundBloc 12.5mm (1200 x 2700)

PRODUCT SIZES (mm)	1200 X 2400	1200 X 2700
Nominal thickness (mm)	12.5	12.5
Minimum weight (kg/m²)	10.3	10.3
Edge options	Tapered edge	Tapered edge
Number of tapered edges	2	2
Maximum width tolerance (mm)	+0	+0
	-4	-4
Maximum length tolerance (mm)	+0	+0
	-5	-5
Maximum taper width (mm)	80	80
Minimum taper width (mm)	40	40
Maximum taper depth (mm)	2.5	2.5
Minimum taper depth (mm)	0.6	0.6

Gyproc Drywall Screws
For fixing boards to stud framing up to 0.79mm thick.

Gyproc Wafer Head Drywall Screws
For metal-to-metal fixing up to 0.79mm thick.

The 1200 x 2700 size should be used and trimmed down to the height of 2500 mm. Install boards vertically, fixing at 300mm centres along each Gypframe RB1 Resilient Bar using Gyproc DryWall screws. Select the fixing to give a minimum 10mm penetration into the metal. Fixings should not make contact with metal studs as this will impair acoustic performances. At abutments and openings, insert screw fixings into vertical Gypframe RB1 Resilient Bar noggings at 300mm centres. At external corners, fixing centres are reduced to 200mm centres. Fix second layer boards through into GypFrame RB1 Resilient Bar as for the first layer. Stagger vertical board joints by a minimum of one stud centre from the inner layer board joints.

Bring ideas to life
VIA University College

VIA Built Environment & Engineering
Campus Horsens

PROJECT: Youth Housing	DATE: 01/26/24	T03C_K01_H3_E3_N5
SUBJECT: Step 5 Gypsum boards	SCALE: As indicated	
DRAWN BY: Mihai Railean	CLASS:	

*Visualization made by Denis Lissák

PROJECT 4
MULTI-STOREY SOCIAL HOUSING

STRANDPROMENADEN 13-15, HORSENS, DENMARK

This semester focused on the design of a multi-story subsidized residential building located in Strandpromenaden, Horsens. Acting as consultant architects, our objective was to create a high-quality, cost-efficient housing solution that integrates seamlessly with the surrounding natural environment.

We approached the challenge with an emphasis on simplicity, stability, accessibility, and environmental sustainability. Key considerations included building massing, daylight optimization, and the economic constraints of subsidized housing. We conducted full feasibility assessments, including area calculations, rent modeling, life cycle cost analysis, and construction time and cost scheduling to ensure financial and functional viability.

Key responsibilities included:
- **Concept development for affordable multi-family housing**
- **Site-sensitive design aligned with planning regulations**
- **Rent zone and subsidy analysis for economic feasibility**
- **Life cycle and cost projections for long-term viability**
- **Integration of sustainable strategies for passive performance**

Individually, I explored emerging technologies in the Local Elective Element, focusing on AI-enhanced design workflows. Using Autodesk Forma, I applied generative tools to optimize the building's massing and façade for solar exposure and environmental performance—an approach that broadened my understanding of data-driven design.

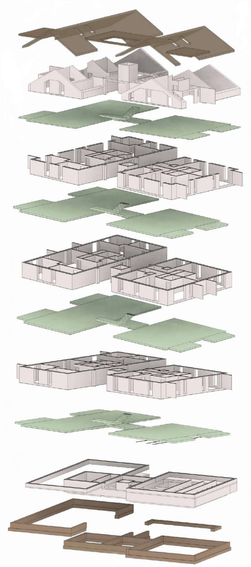
This semester pushed me beyond my comfort zone, requiring critical thinking and advanced detailing in both economic and architectural dimensions. It was a formative experience that deepened my technical skill set and adaptability as a future Constructing Architect.

*Outline elaborated as a group

OUTLINE

DETAILS

COMP_23F_002

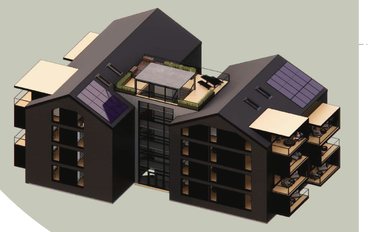


STRUCTURAL ANALYSIS

THE LOAD BEARING CONSTRUCTION OF THE BUILDING IS MOSTLY MADE OF PREFABRICATED CONCRETE ELEMENTS WHERE BRICKS WILL BE LAYERED ON SITE FOR THE EXTERIOR FINISH. AS SEEN ON THE MODEL, THE WALLS COLOURED WITH GREY ARE CARRYING THE VERTICAL LOADS SUCH AS THE LOAD FROM THE ROOFS AND THE HOLLOW CORE SLABS.

THE EXTERNAL WALLS RUNNING ALONG THE LONG SIDE OF THE BUILDINGS ARE TAKIN THE HORIZONTAL LOADS SUCH AS THE WIND LOAD.

THE FLOOR PARTITIONS THAT ARE SPANNING ON THE VERTICAL LOAD WALLS ARE MADE OF CONCRETE HOLLOW CORE DECK ELEMENTS. BALCONIES ARE INCLUDED IN THE VERTICAL LOAD.



ROOFTOP

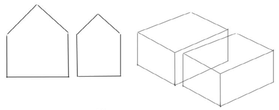
TERRACE ON THE ROOF, WHICH IS USED - ALL YEAR ROUND. HERE IT IS WONDERFUL TO DRINK COCOA IN WINTERS AND AT THE SAME TIME ENJOY REFRESHING COCKTAILS IN SUMMERS.

ALTHOUGH IT IS SMALL, IT OFFERS A GREAT VIEW IN ALL DIRECTIONS. WE HAVE SOLAR PANELS ON THE ROOF WHICH ARE INTENDED FOR EXTERIOR OR INTERIOR LIGHTING, THUS REDUCING CO2.

Apartment summary

	Amount	Size m²	Total m²
1A - 1 room apartment	6	89,05	534,3
1B - 1 room apartment	1	89,94	89,94
2A - 2 room apartment	6	113,97	683,82
2B - 2 room apartment	1	113,97	113,97
Total	14		1422,03

CONCEPT



CONNECTING BUILDINGS AND PEOPLE

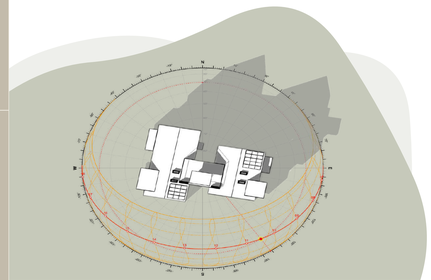
AREA WITH TRADITIONAL PITCHED ROOFS

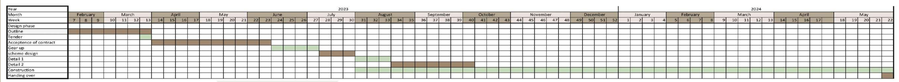
CLEAN & MODERN - LOOKING DESIGN WITH AREAS PROMOTING INTEGRITY AND SUSTAINIBILITY

COMMON SPACES AND LOUNGE AREAS TO BRING PEOPLE TOGETHER

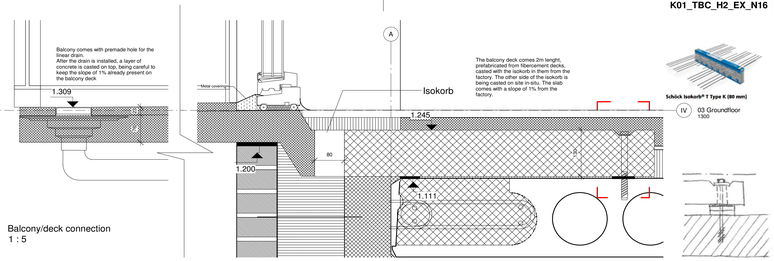
INTUITIVE AND SYMETRICAL DESIGN, WITH TWO SEPARATE UNITS FOR THE 2 TYPES OF APARTMENTS AND ONE HALL CONNECTING THEM

IMPLEMENTING MODERN DETAILS AND STRUCTURES, WITHOUT STANDING OUT FROM THE SURROUNDING AREA

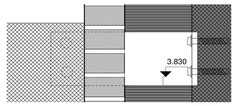


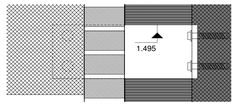


K01_TBC_H2_EX_N16

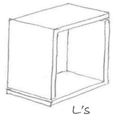


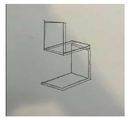
Balcony/deck connection
1 : 5





Connection of the balcony wall to the inner leaf using Angle brackets

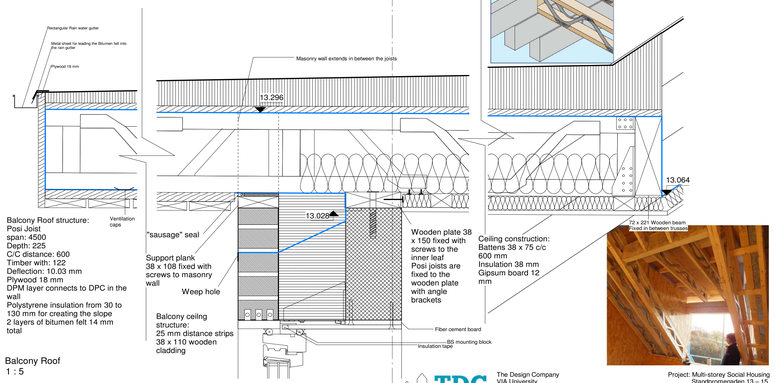




Balcony wall
1 : 5

TDC THE DESIGN COMPANY	The Design Company VIA University Campus Horsens AH42-23F Group N.2	Project: Multi-storey Social Housing Standpromenaden 13 – 15 8600 Horsens Denmark
BYGGESAG: 4 Storey Social housing -Standpromenaden 13	DATO: 05/16/23	K01_TBC_H2_EX_N16
EMNE: Balcony/Deck detail	MÅL: 1 : 5	
UDFØRT AF: Mihai Railean	KLASSE:	

K01_TAE_H2_EX_N17

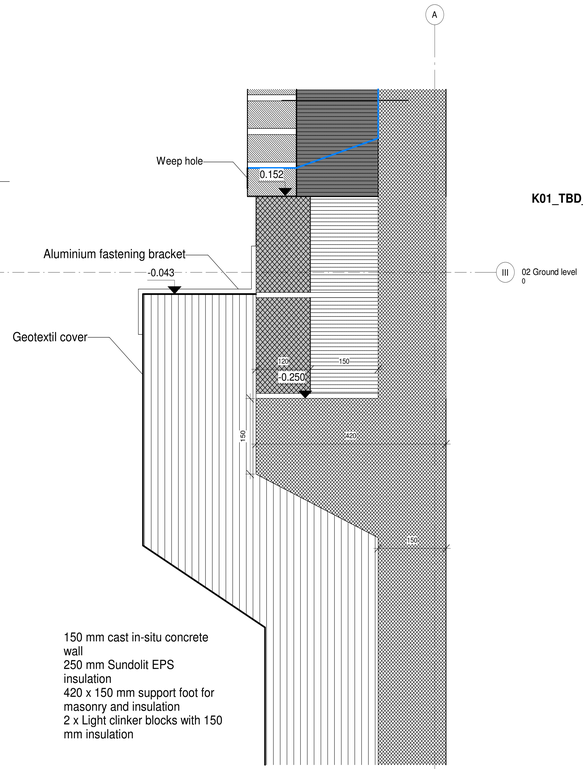


Balcony Roof structure:
Posi Joist
span: 4500
Depth: 225
C/C distance: 600
Timber with: 122
Deflection: 10.03 mm
Plywood 18 mm
DPM layer connects to DPC in the wall
Polystyrene insulation from 30 to 130 mm for creating the slope
2 layers of bitumen felt 14 mm total

Balcony Roof
1 : 5

TDC THE DESIGN COMPANY	The Design Company VIA University Campus Horsens AH42-23F Group N.2	Project: Multi-storey Social Housing Standpromenaden 13 – 15 8600 Horsens Denmark
BYGGESAG: 4 Storey Social housing -Standpromenaden 13	DATO: 05/22/23	K01_TAE_H2_EX_N17
EMNE: Balcony Roof	MÅL: 1 : 5	
UDFØRT AF: Mihai Railean	KLASSE:	

K01_TBD_H2_EX_N14

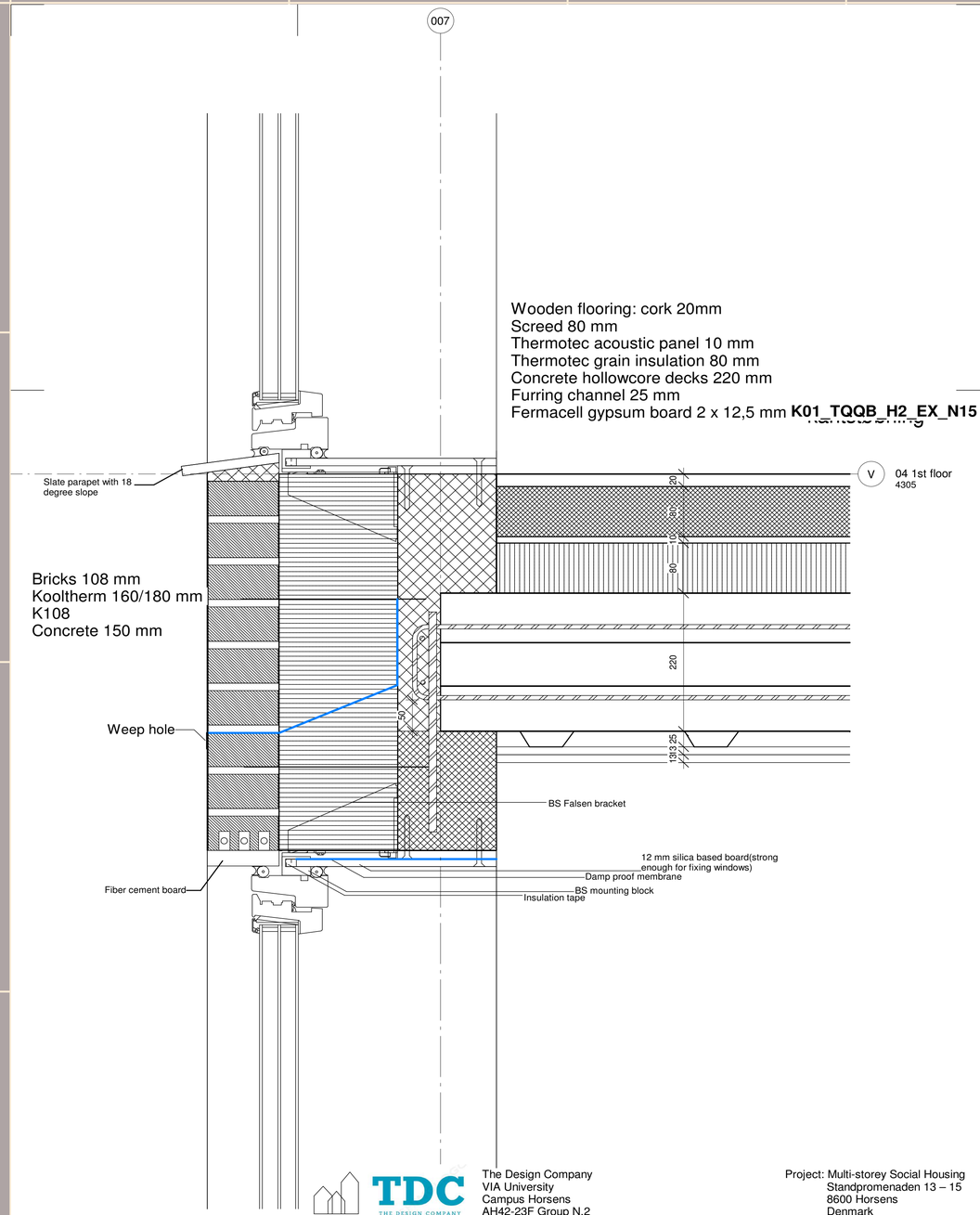


150 mm cast in-situ concrete wall
250 mm Sundolit EPS insulation
420 x 150 mm support foot for masonry and insulation
2 x Light clinker blocks with 150 mm insulation

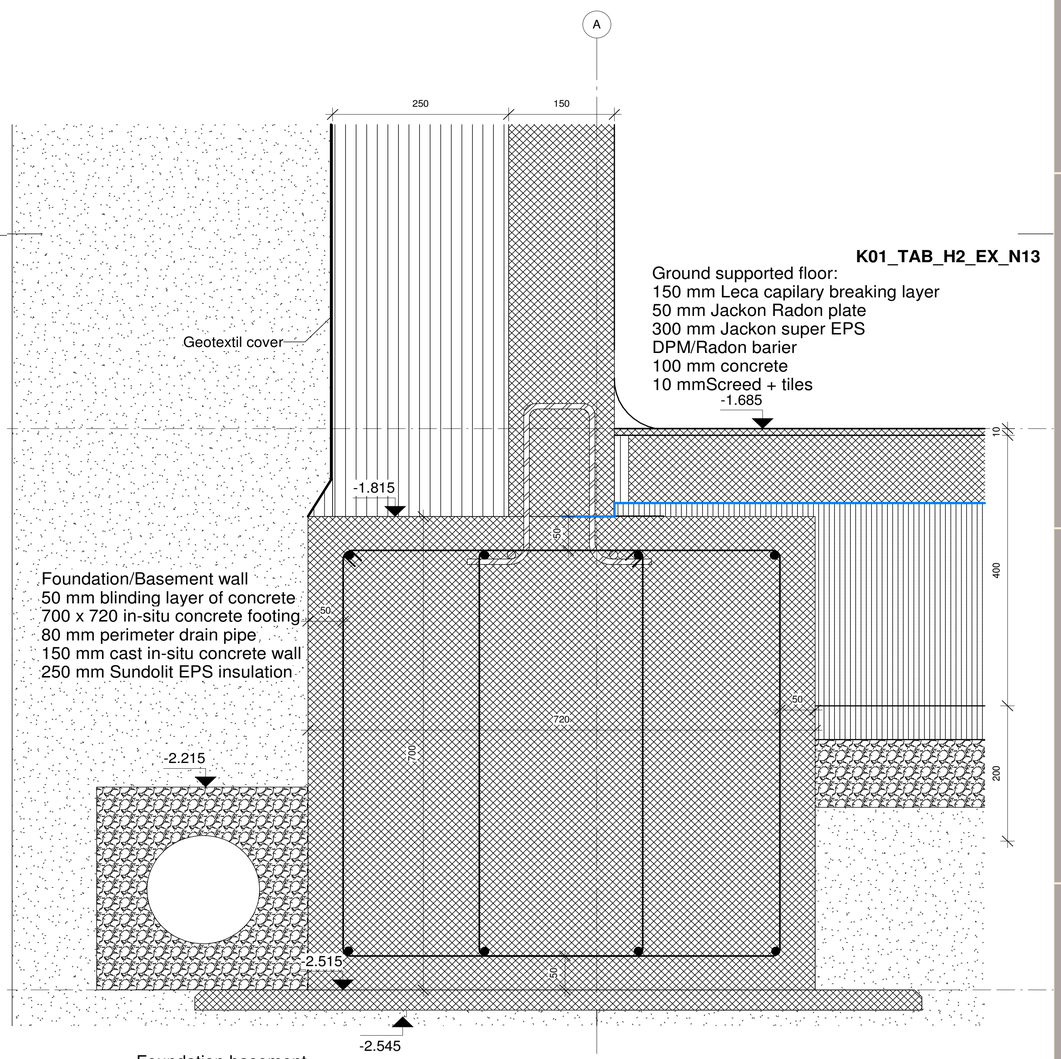
Basement wall
1 : 5

TDC THE DESIGN COMPANY	The Design Company VIA University Campus Horsens AH42-23F Group N.2	Project: Multi-storey Social Housing Standpromenaden 13 – 15 8600 Horsens Denmark
BYGGESAG: 4 Storey Social housing -Standpromenaden 13	DATO: 05/23/23	K01_TBD_H2_EX_N14
EMNE: Basement wall	MÅL: 1 : 5	
UDFØRT AF: Mihai Railean	KLASSE:	

DETAILS



Curtain wall oppening
1 : 5



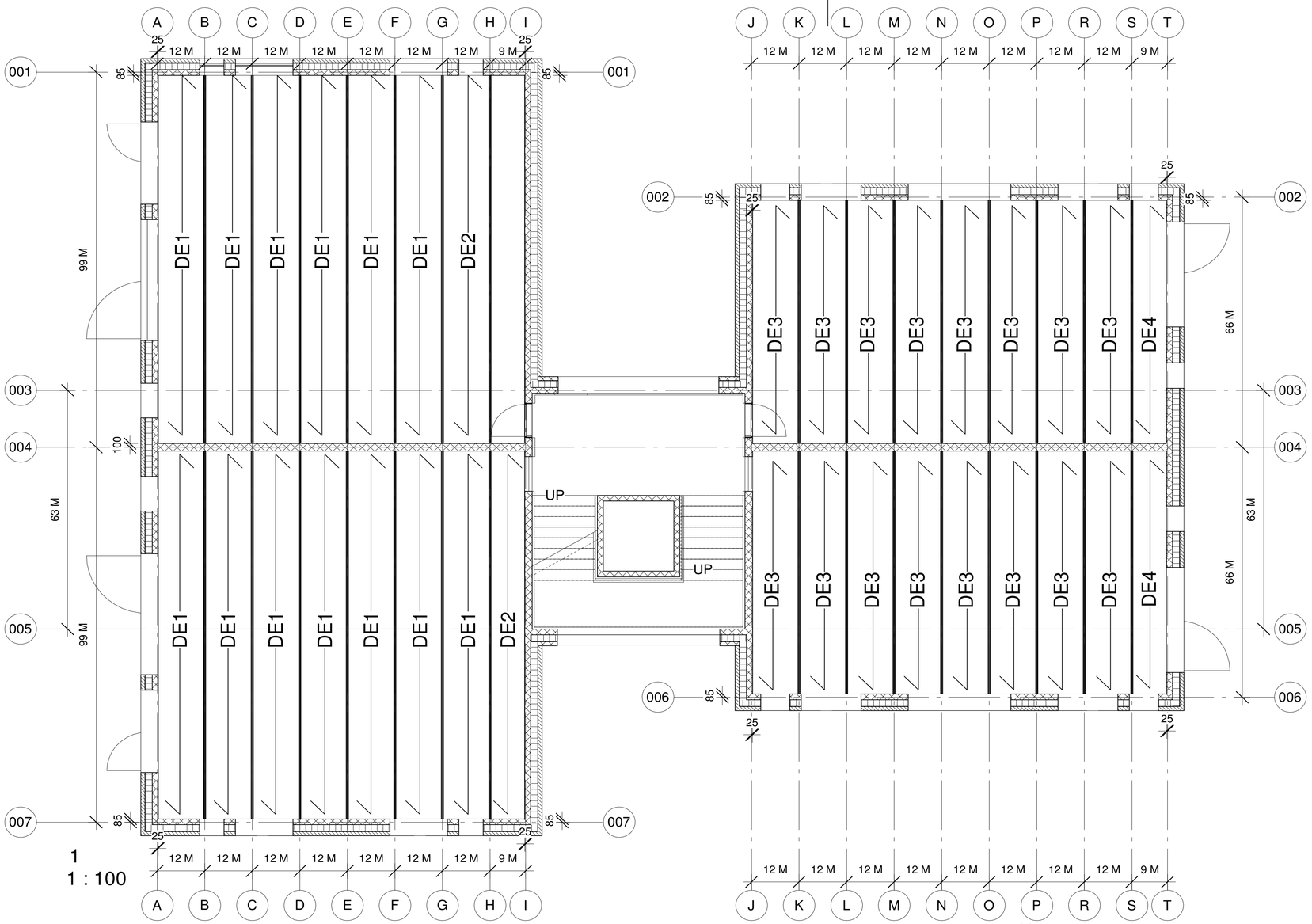
Foundation basement
1 : 5

TDC THE DESIGN COMPANY The Design Company VIA University Campus Horsens AH42-23F Group N.2	Project: Multi-storey Social Housing Standpromenaden 13 – 15 8600 Horsens Denmark	
BYGGESAG: 4 Storey Social housing -Standpromenaden 13	DATO: 05/22/23	K01_TQQB_H2_EX_N15
EMNE: Curtain wall detail	MÅL: 1 : 5	
UDFØRT AF: Mihai Railean	KLASSE:	

TDC THE DESIGN COMPANY The Design Company VIA University Campus Horsens AH42-23F Group N.2	Project: Multi-storey Social Housing Standpromenaden 13 – 15 8600 Horsens Denmark	
BYGGESAG: 4 Storey Social housing -Standpromenaden 13	DATO: 05/22/23	K01_TAB_H2_EX_N13
EMNE: Basement Foundation	MÅL: 1 : 5	
UDFØRT AF: Mihai Railean	KLASSE:	

MODULAR PLAN

K01_H1_E1_N09



1
1 : 100

EX22 Slab elements

Note:Elements overlap on:
Load bearing side 85 mm facade wall and 100 mm internal wall
Non-load-bearing side 25 mm facade wall

Name	Dimensions	Stk.
DE1	1200 x 9900	49x
DE2	900 x 9900	7x
DE3	1200 x 6600	56x
DE4	900 x 6600	8x

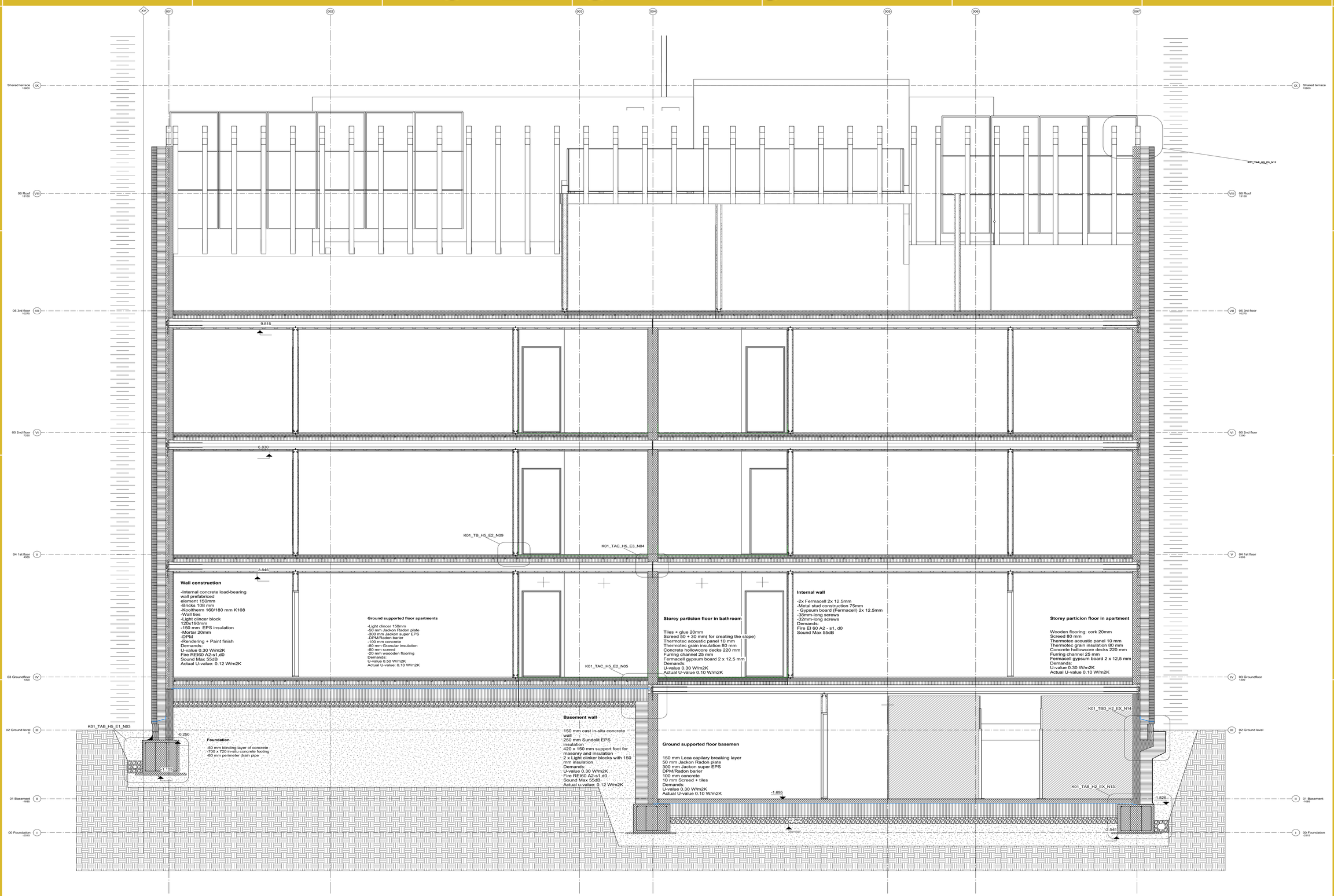
Chosen slab: SPAENCOM XTRUMAX EX22(220mm)
Reinforecement - 9 L12.5

TDC THE DESIGN COMPANY
The Design Company
VIA University
Campus Horsens
AH42-23F Group N.2

Project: Multi-storey Social Housing
Standpromenaden 13 – 15
8600 Horsens
Denmark

BYGGESAG: 4 Storey Social housing -Standpromenaden 13	DATO: 05/28/23	**K01_H1_E1_N09**
EMNE: Modular plan 1st floor	MÅL: As indicated	
UDFØRT AF: Mihai Railean	KLASSE:	

SECTION


RV
001
002
003
004
005
006
007
Shared terrace 19800
06 Roof 13150
05 3rd floor 10275
05 2nd floor 7290
04 1st floor 4305
03 Groundfloor 1300
02 Ground level 0
01 Basement -1685
00 Foundation -2515
9.815
6.830
3.845
-0.250
-1.105
-1.695
-2.295
-2.545
-1.826
K01_TAB_H5_E1_N03
K01_TB_H5_E2_N09
K01_TAC_H5_E3_N04
K01_TAC_H5_E2_N05
K01_TBD_H2_EX_N14
K01_TAB_H2_EX_N13
K01_TAB_H5_E4_N12
Wall construction
-Internal concrete load-bearing wall prefabriced element 150mm
-Bricks 108 mm
-Koolthern 160/180 mm K108
-Wall ties
-Light clincer block 120x190mm
-150 mm EPS insulation
-Mortar 20mm
-DPM
-Rendering + Paint finish
Demands:
U-value 0.30 W/m2K
Fire REI60 A2-s1,d0
Sound Max 55dB
Actual U-value: 0.12 W/m2K
Ground supported floor apartments
-Light clincer 150mm
-50 mm Jackon Radon plate
-300 mm Jackon super EPS
-DPM/Radon barier
-100 mm concrete
-80 mm Granular insulation
-80 mm screed
-20 mm wooden flooring
Demands:
U-value 0.50 W/m2K
Actual U-value: 0.10 W/m2K
Storey particion floor in bathroom
Tiles + glue 20mm
Screed 50 + 30 mm(for creating the slope)
Thermotec acoustic panel 10 mm
Thermotec grain insulation 80 mm
Concrete hollowcore decks 220 mm
Furring channel 25 mm
Fermacell gypsum board 2 x 12,5 mm
Demands:
U-value 0.30 W/m2K
Actual U-value 0.10 W/m2K
Internal wall
-2x Fermacell 2x 12.5mm
-Metal stud construction 75mm
- Gypsum board (Fermacell) 2x 12.5mm
-38mm-long screws
-32mm-long screws
Demands:
Fire EI 60 A2 - s1, d0
Sound Max 55dB
Storey particion floor in apartment
Wooden flooring: cork 20mm
Screed 80 mm
Thermotec acoustic panel 10 mm
Thermotec grain insulation 80 mm
Concrete hollowcore decks 220 mm
Furring channel 25 mm
Fermacell gypsum board 2 x 12,5 mm
Demands:
U-value 0.30 W/m2K
Actual U-value 0.10 W/m2K
Foundation
-50 mm blinding layer of concrete
-700 x 720 in-situ concrete footing
-80 mm perimeter drain pipe
Basement wall
150 mm cast in-situ concrete wall
250 mm Sundolit EPS insulation
420 x 150 mm support foot for masonry and insulation
2 x Light clinker blocks with 150 mm insulation
Demands:
U-value 0.30 W/m2K
Fire REI60 A2-s1,d0
Sound Max 55dB
Actual u-value: 0.12 W/m2K
Ground supported floor basemen
150 mm Leca capilary breaking layer
50 mm Jackon Radon plate
300 mm Jackon super EPS
DPM/Radon barier
100 mm concrete
10 mm Screed + tiles
Demands:
U-value 0.30 W/m2K
Actual U-value 0.10 W/m2K

*Visualization made by Viki Bilcíková

PROJECT 3
MULTIPURPOSE SPORTS HALL
LOVBYVEJ 54, HORSENS, DENMARK

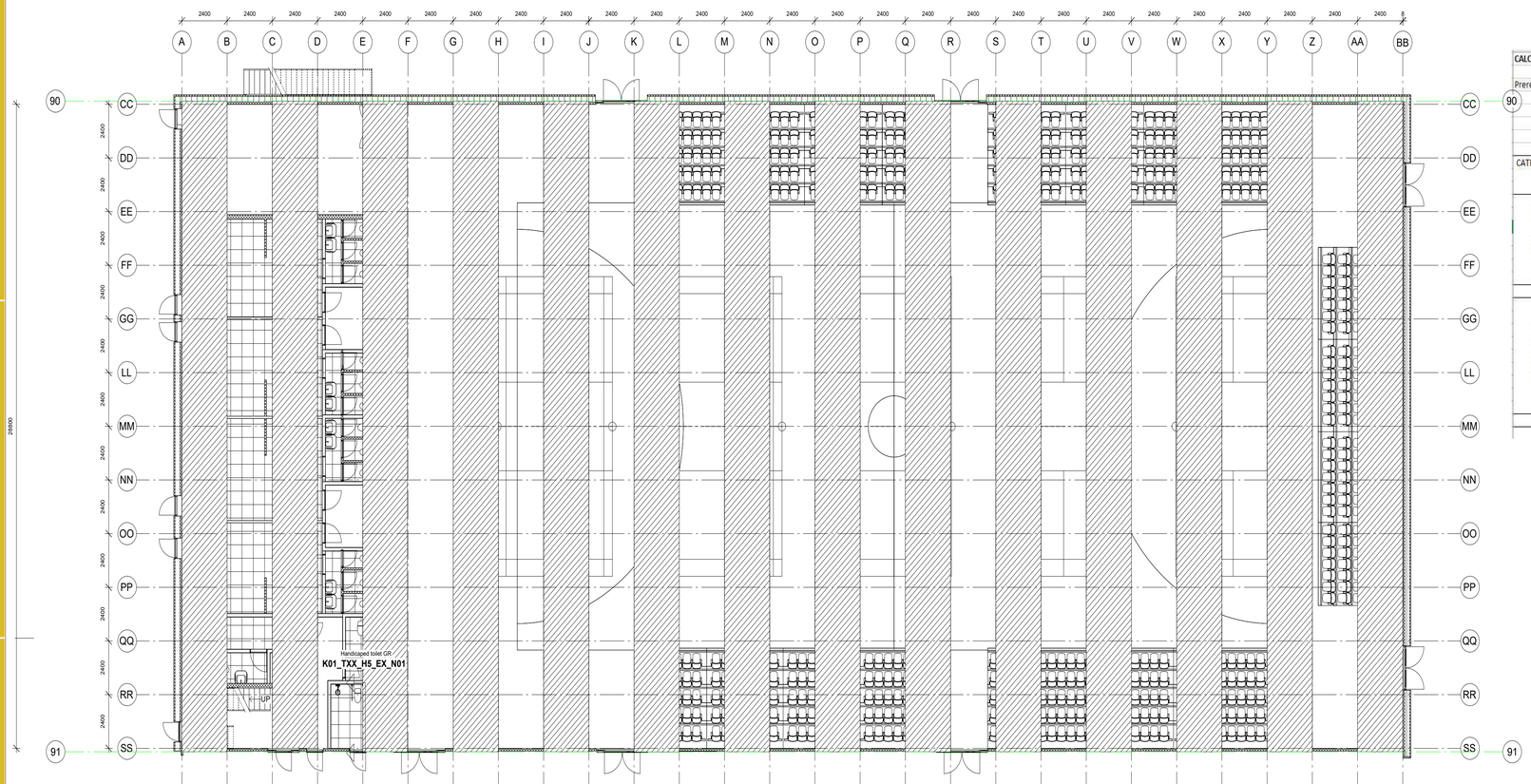
This semester involved updating an existing architectural proposal for a multifunctional municipal building combining a medium-sized sports hall, a two-story office wing, and a ground-floor commercial unit. Our task was to refine the design for constructability, sustainability, and accessibility, while remaining within a constrained budget.

Although the core functions, forms, and materials were predefined, we adapted the layout to better meet municipal needs, implemented modular design strategies, and selected surface materials with a focus on environmental performance. The architectural expression balanced solidity and transparency: a concrete sports hall paired with a timber-clad commercial unit, joined by a tall, glazed corridor to enhance light and spatial continuity.

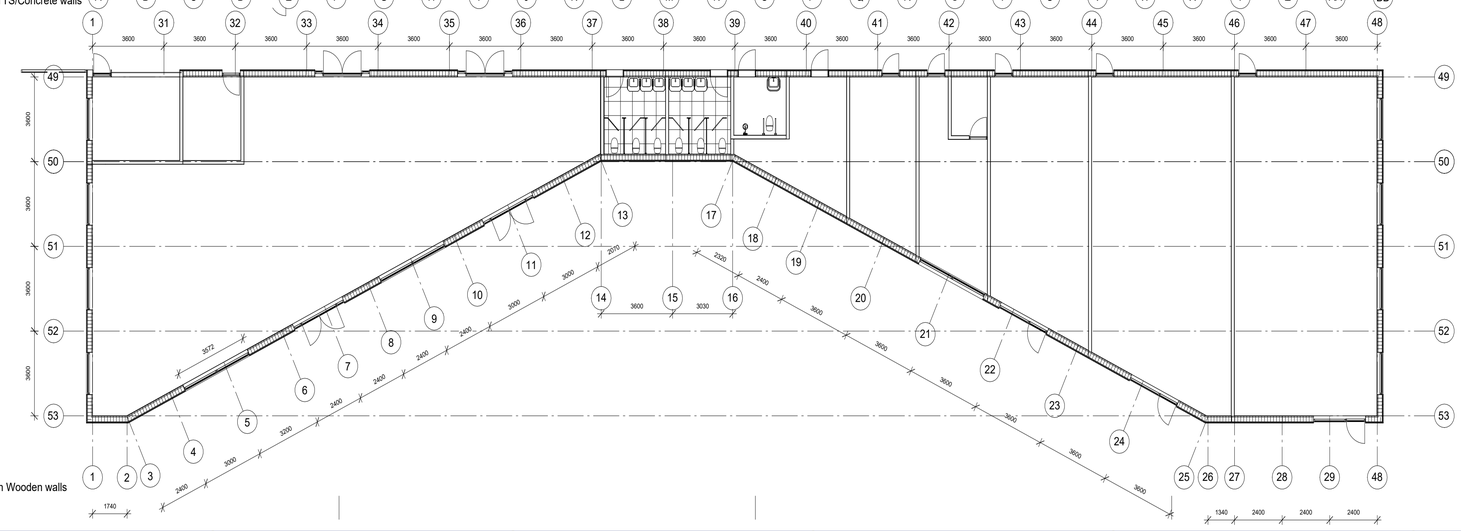
Key elements included:
- **Modular coordination using sandwich panels, TTS roof slabs, and waffle decks**
- **Integration of sustainable surface materials and passive design features**
- **Functional and spatial adjustments for improved flow, access, and user experience**
- **Detailed technical planning to meet tight budget constraints and client requirements**

This project required a proactive and flexible design approach—balancing technical limitations with creative problem-solving—while strengthening our ability to work within real-world public sector constraints.

MODULAR PLAN



03 Modular plan TTS/Concrete walls
1 : 100



03 Modular plan Wooden walls
1 : 100

CALCULATION OF DESIGN LOAD

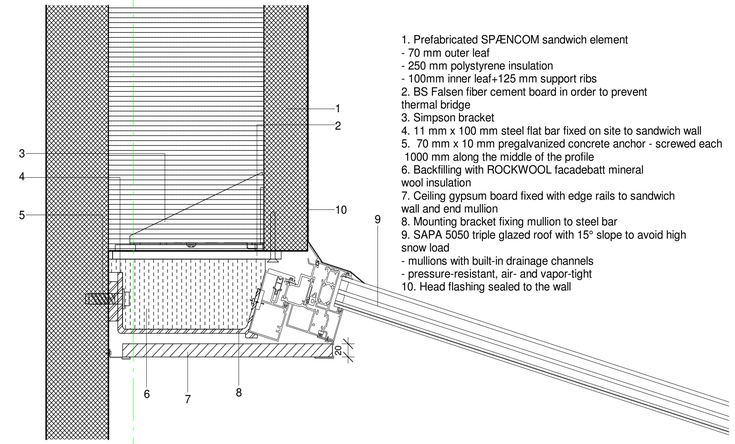
Prerequisites: TTS slabs + waffles
Roofing felt (2 layers of bitumen felt 4+3 mm)
Insulation , hard mineral wool
Installation (lights, ventilation ducts etc.) estimated load

CATEGORY	SOURCE	MATERIAL	DENSITY [kN/m3]	THICKNESS [m]	CHARACTERISTIC LOAD [kN/m2]	SAFETY coefficient	DESIGN LOAD [kN/m2]	Applicable load Area [m]/faktor	Total [kN/m2]
PERMANENT LOAD	Felt	Bitumen	17	0,007	0,12	1	0,12	2	0,24
	Insulation	Mineral wool	1	0,25	0,25	1	0,25	2	0,50
	Waffles	Concrete			0,80	1	0,80	1	0,80
	Installation	rule of thumb			0,30	1	0,30	2	0,60
									0,00
									0,00
									0,00
								Total permanent load	2,14
VARIABLE LOAD	Snow				1,00	1,5	1,5	2	3,00
									0,00
									0,00
									0,00
									0,00
									0,00
									0,00
									0,00
									0,00
								Total variable load	3,00
								Total weight of load area resting on TTS (= designload)	**5,14**

02

PROJECT:MULTI-PURPOSE HALL, HORSENS	DATE:09/08/22	02
SUBJECT:Modular plans	SCALE: 1 : 100	
DRAWN BY: Author	CLASS:	

DETAILS

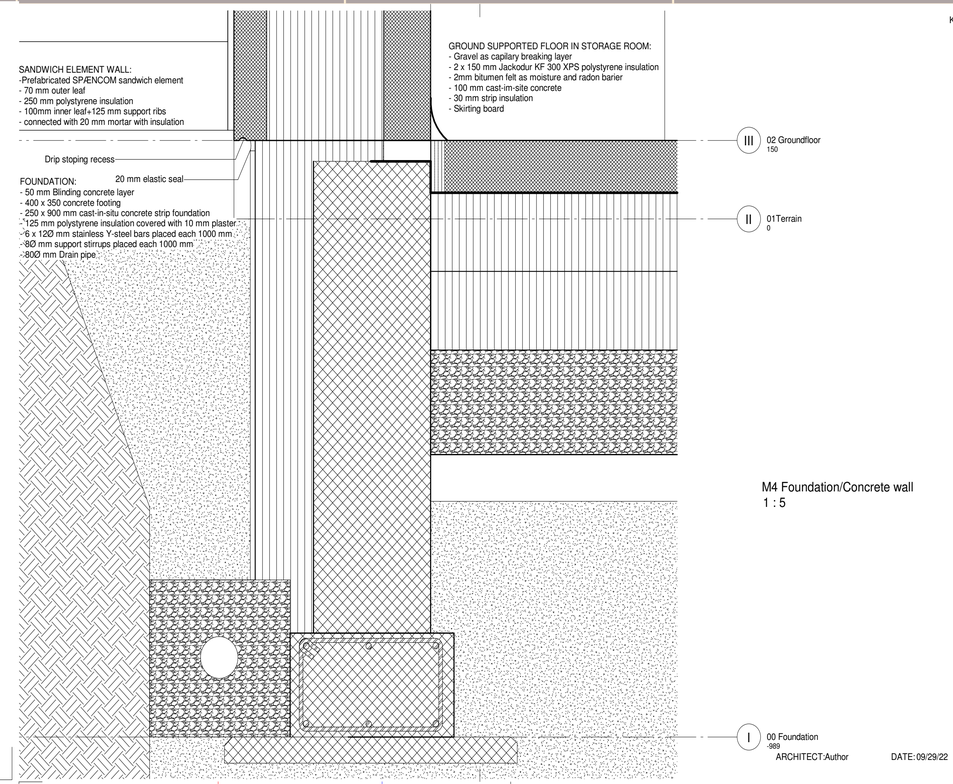


1. Prefabricated SPÆNCOM sandwich element
- 70 mm outer leaf
- 250 mm polystyrene insulation
- 100mm inner leaf+125 mm support ribs
2. BS Falsen fiber cement board in order to prevent thermal bridge
3. Simpson bracket
4. 11 mm x 100 mm steel flat bar fixed on site to sandwich wall
5. 70 mm x 10 mm pregalvanized concrete anchor - screwed each 1000 mm along the middle of the profile
6. Backfilling with ROCKWOOL facadebatt mineral wool insulation
7. Ceiling gypsum board fixed with edge rails to sandwich wall and end mullion
8. Mounting bracket fixing mullion to steel bar
9. SAPA 5050 triple glazed roof with 15° slope to avoid high snow load
- mullions with built-in drainage channels
- pressure-resistant, air- and vapor-tight
10. Head flashing sealed to the wall

M1 Concrete wall/Glass hall
1 : 5

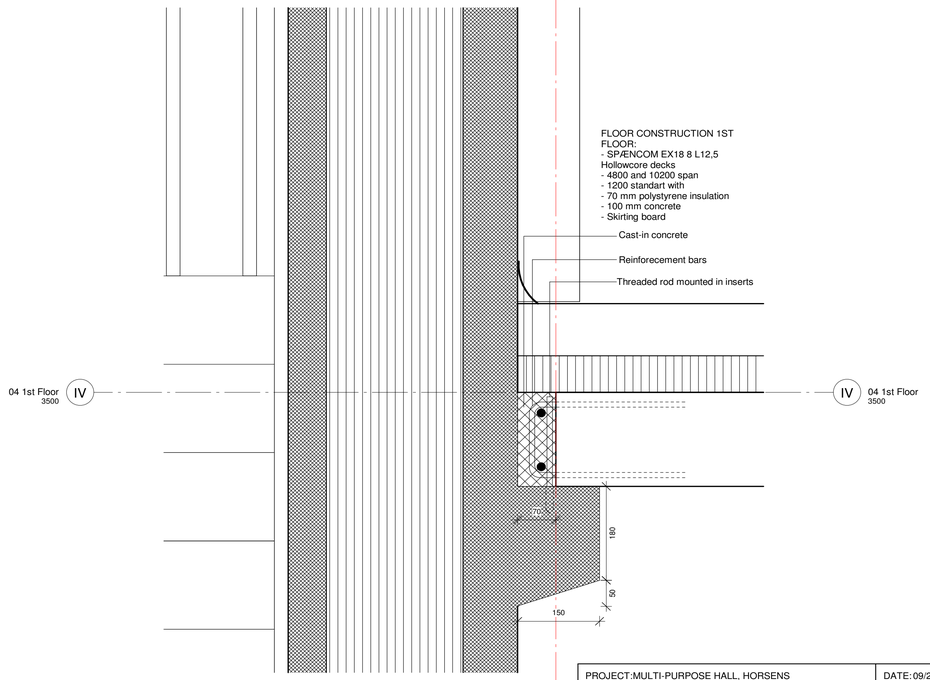
PROJECT:MULTI-PURPOSE HALL, HORSENS	DATE:09/29/22	K01_TXX_H1_EX_N14
SUBJECT:Concrete/Glass Hall connection	SCALE: 1 : 5	
DRAWN BY: Author	CLASS:	

K01_TXX_H1_EX_N15

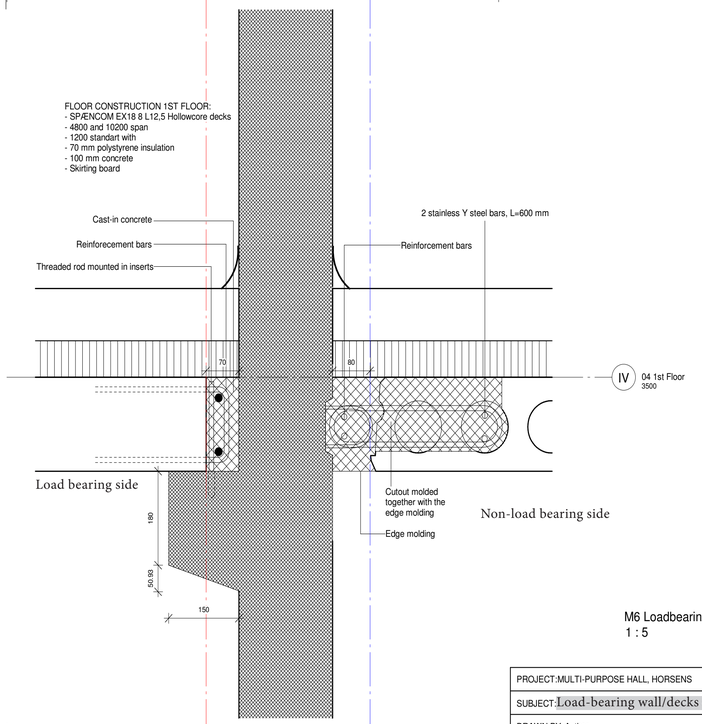


M4 Foundation/Concrete wall
1 : 5

K01_TXX_H1_EX_N19



PROJECT:MULTI-PURPOSE HALL, HORSENS	DATE:09/29/22	K01_TXX_H1_EX_N15
SUBJECT:Load-bearing Facade/Deck connection	SCALE: 1 : 5	
DRAWN BY: Author	CLASS:	



M6 Loadbearing wall/ decks
1 : 5

PROJECT:MULTI-PURPOSE HALL, HORSENS	DATE:09/29/22	K01_TXX_H1_EX_N19
SUBJECT:Load-bearing wall/decks connection	SCALE: 1 : 5	
DRAWN BY: Author	CLASS:	

DETAILS

GROUND SUPPORTED FLOOR IN STORAGE ROOM:
- Gravel as capilary breaking layer
- 2 x 150 mm Jackodur KF 300 XPS polystyrene insulation
- 2mm bitumen felt as moisture and radon barier
- 100 mm cast-im-site concrete
- 30 mm strip insulation
- Skirting board

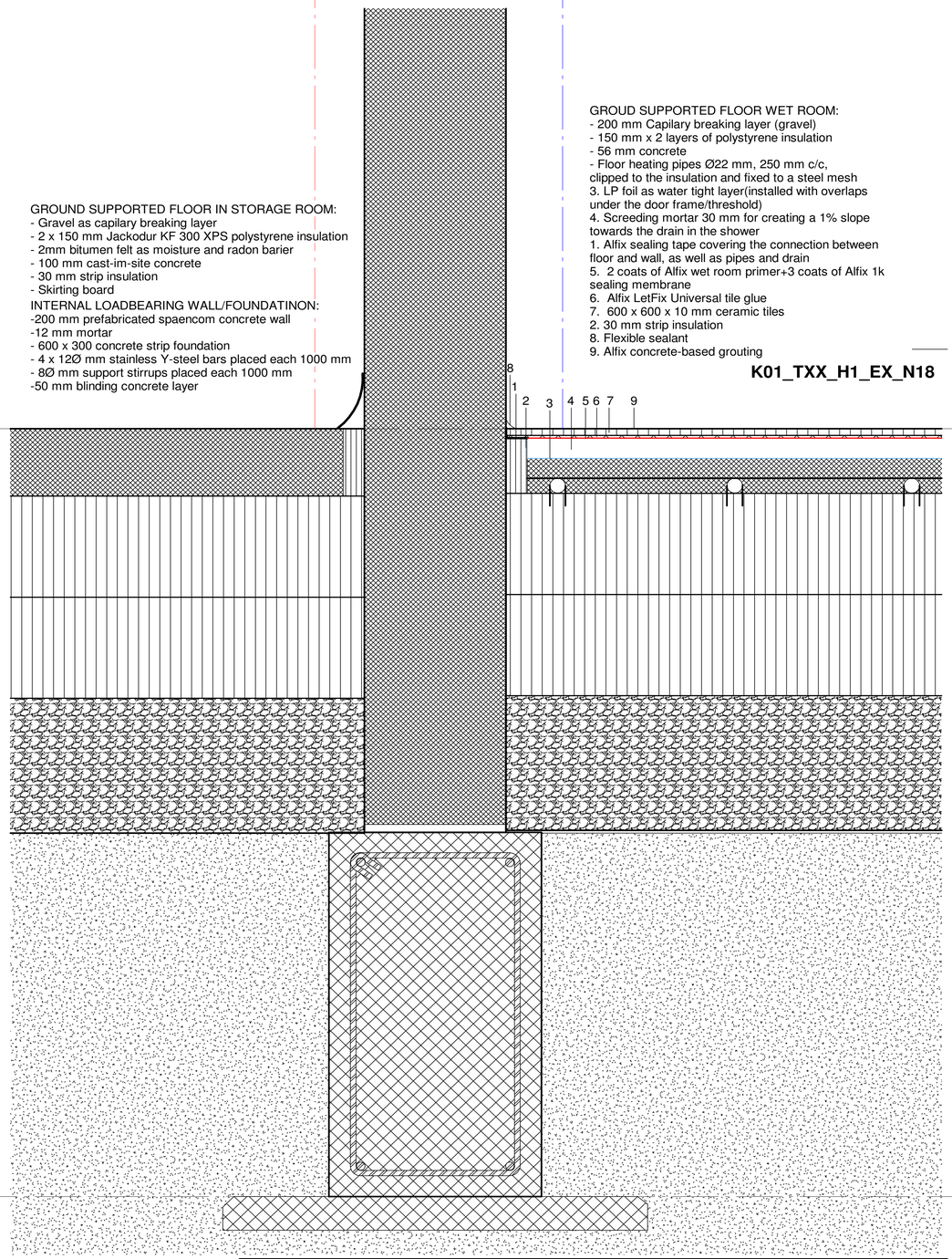
INTERNAL LOADBEARING WALL/FOUNDATINON:
-200 mm prefabricated spaencom concrete wall
-12 mm mortar
- 600 x 300 concrete strip foundation
- 4 x 12Ø mm stainless Y-steel bars placed each 1000 mm
- 8Ø mm support stirrups placed each 1000 mm
-50 mm blinding concrete layer

GROUD SUPPORTED FLOOR WET ROOM:
- 200 mm Capilary breaking layer (gravel)
- 150 mm x 2 layers of polystyrene insulation
- 56 mm concrete
- Floor heating pipes Ø22 mm, 250 mm c/c, clipped to the insulation and fixed to a steel mesh
3. LP foil as water tight layer(installed with overlaps under the door frame/threshold)
4. Screeding mortar 30 mm for creating a 1% slope towards the drain in the shower
1. Alfix sealing tape covering the connection between floor and wall, as well as pipes and drain
5. 2 coats of Alfix wet room primer+3 coats of Alfix 1k sealing membrane
6. Alfix LetFix Universal tile glue
7. 600 x 600 x 10 mm ceramic tiles
2. 30 mm strip insulation
8. Flexible sealant
9. Alfix concrete-based grouting

K01_TXX_H1_EX_N18

ifloor 150 — III

I — ation -989



M5 Foundation/internal wall concrete
1 : 5

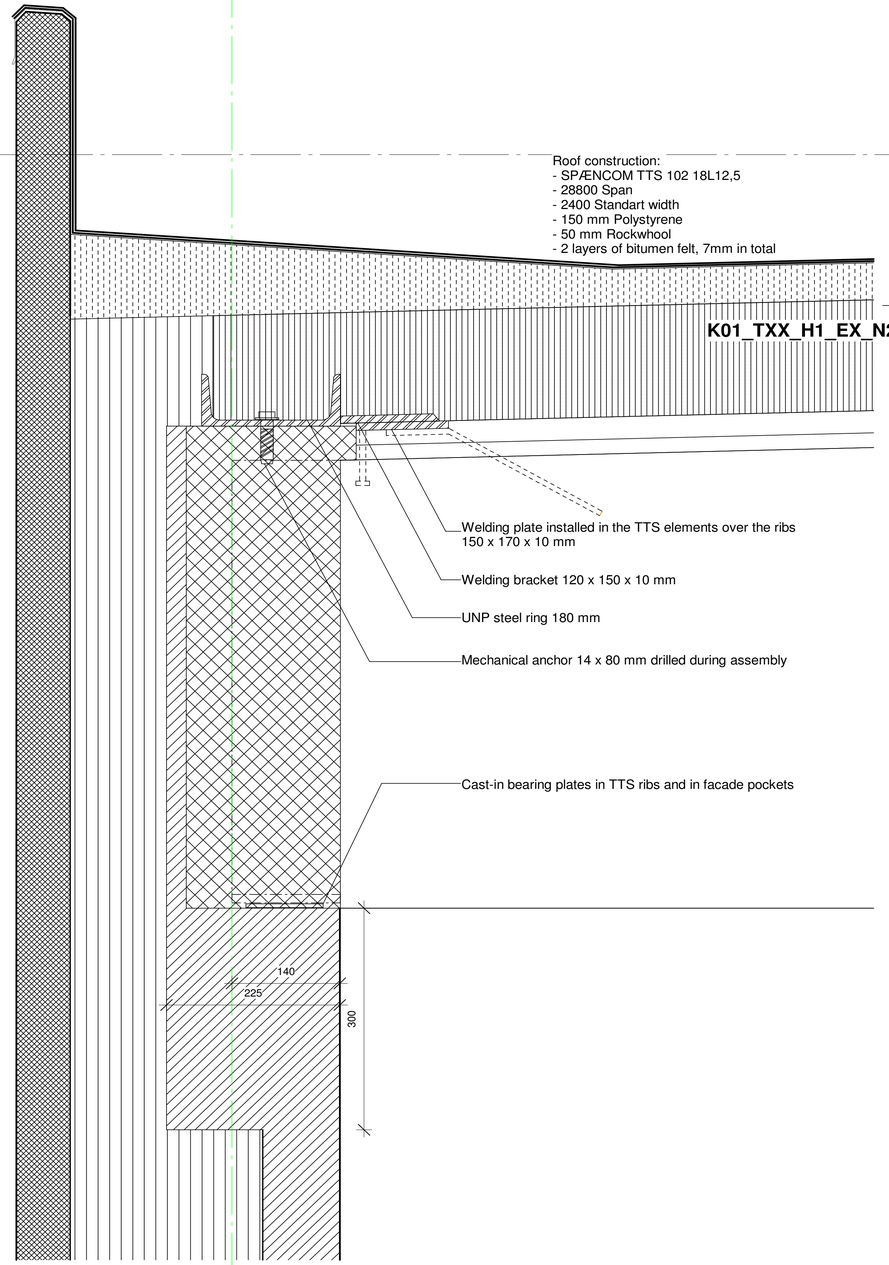
PROJECT:MULTI-PURPOSE HALL, HORSENS	DATE: 09/29/22	**K01_TXX_H1_EX_N18**
SUBJECT:Foundation Load-bearing internal wall	SCALE: 1 : 5	
DRAWN BY: Author	CLASS:	

90

07 Roof Sal 9200 — V

Roof construction:
- SPÆNCOM TTS 102 18L12,5
- 28800 Span
- 2400 Standart width
- 150 mm Polystyrene
- 50 mm Rockwhool
- 2 layers of bitumen felt, 7mm in total

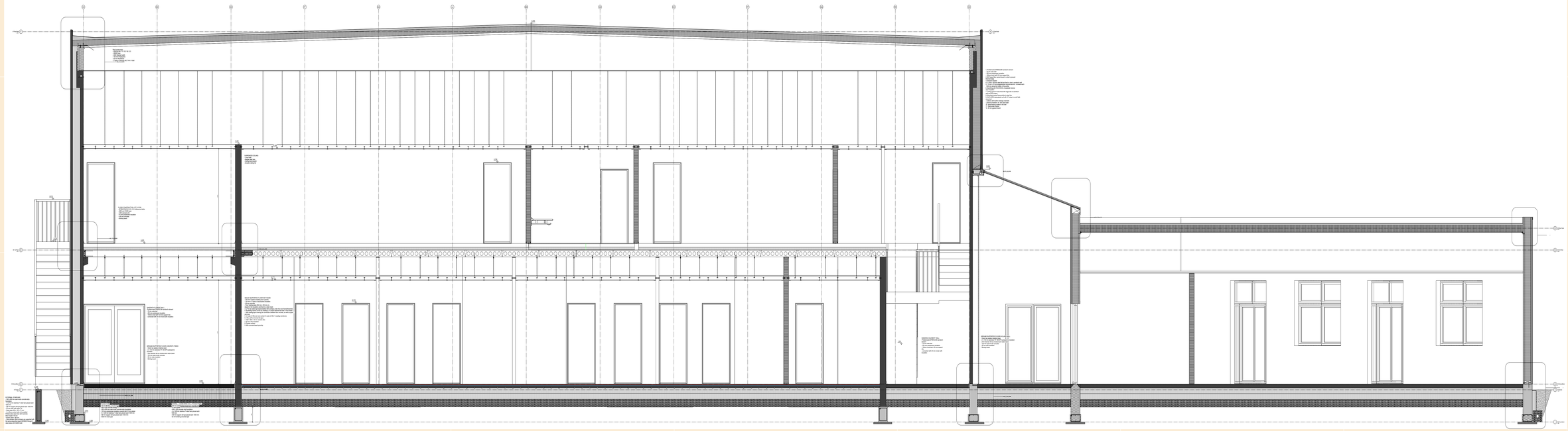
K01_TXX_H1_EX_N20



M7 TTS/Loadbearing side
1 : 5

PROJECT:MULTI-PURPOSE HALL, HORSENS	DATE: 09/29/22	**K01_TXX_H1_EX_N20**
SUBJECT:TTS/Facade connection load bearing side	SCALE: 1 : 5	
DRAWN BY: Author	CLASS:	

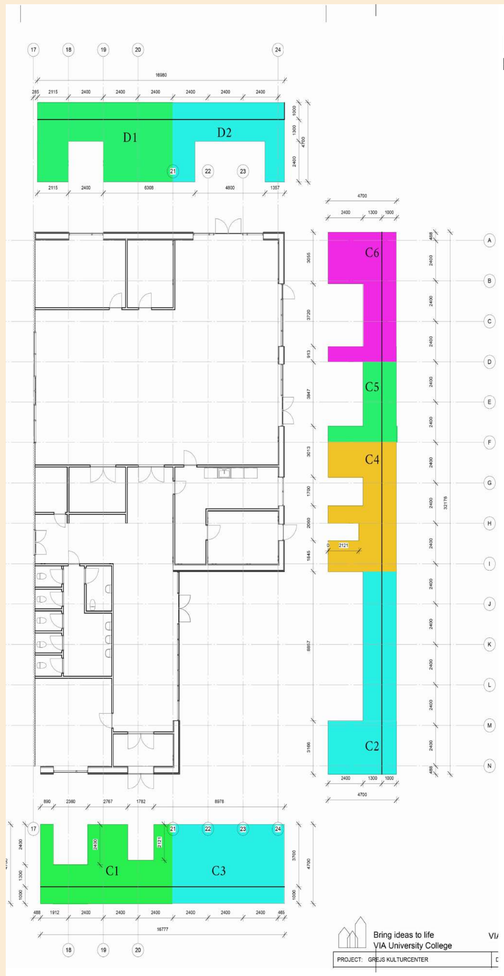
SECTION



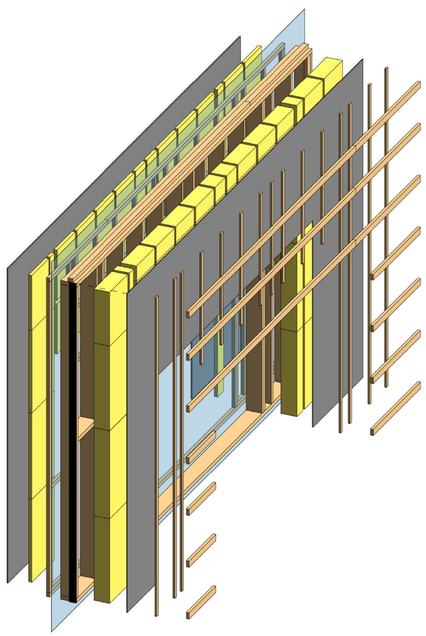
PROJECT 3
MULTIPURPOSE SPORTS HALL-INDIVIDUAL PART

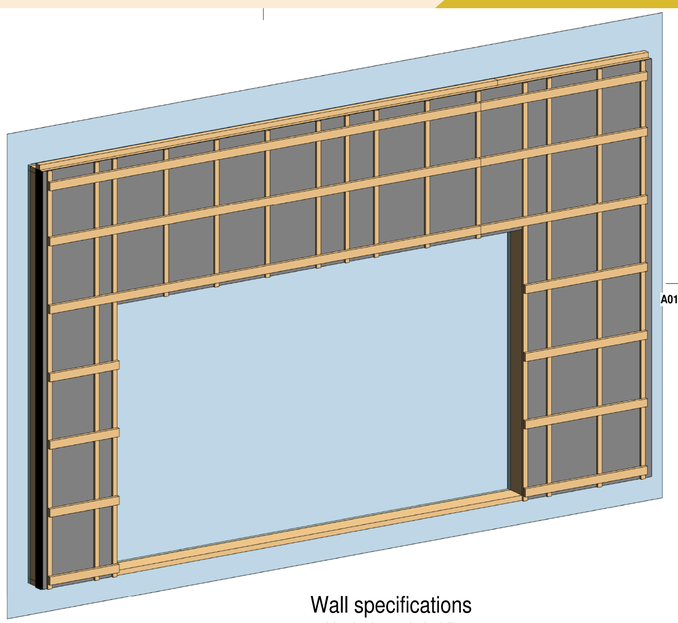
Scan this QR code or follow the link below to open the whole production booklet of the element.

https://drive.google.com/file/d/1WjluANHBo_59dTQtGjOVOTVzo5s_p_C2/view?usp=drive_link



INTRODUCTION
Project general information





General specifications

ID. NUMBER:	D2
PROJECT:	GREJS KULTURCENTER
ELEMENT TYPE:	WALL - EXTERIOR FACADE
MANUFACTURER:	REDDINGTON
ADRESS:	VEJLE 8700

Wall specifications

1. Vertical wood cladding-15 mm
2. Isover Tæt insulation - 20 mm
3. Horizontal Battens-38 x 73 mm c/c 600 mm
4. Distance strips-25 x 50 mm c/c 600 mm
5. Cembrit windboard basic -9 mm
6. Load bearing studs - 220 x 45 mm c/c 600 mm
7. Rockwool flexibatts 37 insulation - 220 mm
8. DPM(Dafa)
9. Rockwool flexibatts 37 insulation - 45 mm
10. Non load-bearing stud 45 x 45 mm c/c 600 mm
11. OSB3 boards-15 mm

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PROJECT: Grejs kulturcenter	DATE: 12/06/22	A01
SUBJECT: Wooden facade introduction	SCALE: 1 : 20	
DRAWN BY: Mihai Railean	CLASS: AH31-22S	

In this semester's individual component, I acted as a facade element producer for a peer project from the Aarhus campus, focusing on the production planning of a prefabricated wooden facade system. This required deep understanding of material properties, local market options, and fabrication constraints to ensure feasible, well-detailed technical drawings.

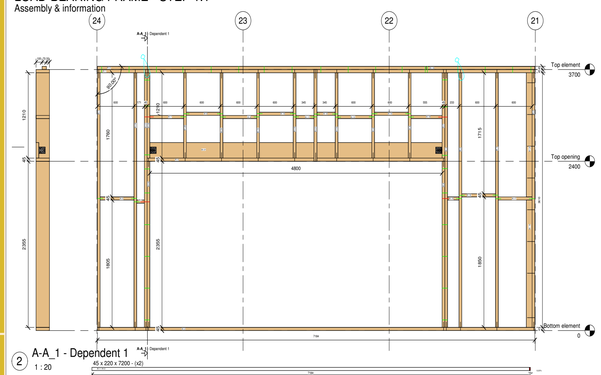
Collaborating with Danish manufacturers provided insight into local products, mounting methods, and health and safety practices. I gained practical knowledge in delivery logistics, installation procedures, quality assurance, and the full documentation chain—specifications, time schedules, and compliance paperwork.

Serving as a producer sharpened my ability to work at the intersection of design and manufacturing, and gave me lasting appreciation for the precision and creativity involved in façade construction. It was a key step in developing my confidence and capability in real-world architectural production.

LOAD-BEARING STUDS

LOAD-BEARING FRAME - STEP 1.1

Assembly & information



2 A-A_1 - Dependent 1
1 : 20

Cuts for load bearing frame are as shown. Percentages represent waste from each timber dimension. The bigger waste planks could be used in fabrication of other elements in the project.

Information
Manufacturer: Södra
Material: Spruce Timber
Quality: C14 / C18
Bending Strength: 14 MPa
Surface: Planned
Fire resistance: D-s2, d0

Screws:
NKT Universal Spun+ 5,0x120*
NKT Universal Spun+ 5,0x90*
NKT Universal Spun+ 5,0x150*

A05

Use class: 1

Rope: Randers 3-Strand Danaflex O02-0280-004B

Assemble frame in mounting sequence order, and be sure to check frame diagonal measurement before adding cross bracings in between studs. This way if adjustment is required it can be done with bracings.

All screws should be drilled into timber as straight as possible to avoid issues when attaching other layers of the wall element to the timber frame.

A1.3 Should be screwed to top beam of frame with screws NKT Universal Spun+ 5,0x90 approximately 450mm* c/c where possible, taking care to avoid screws already in top beam.

B1.19, B1.20 should be screwed with corresponding screw size (see colors) and with 450mm* c/c distance where possible.

Lifting ropes need to be installed equidistant from the center of gravity of the element. The rope holes should be drilled minimum 150mm* down from top of stud so as to avoid interfering with frame screws and putting too much pressure of that connection. Placement for the rope holes through the top beam are shown in section to the left, denoted by a red line with measurements for exact center point the ropes should pass through.
*To be calculated in engineering project.

Quality control	
Wood frame assembly	
Correct studs used	☐
Properly fixed	☐
Correct dimensions	☐
No damages on wood	☐
Name:	
Date:	Signature:

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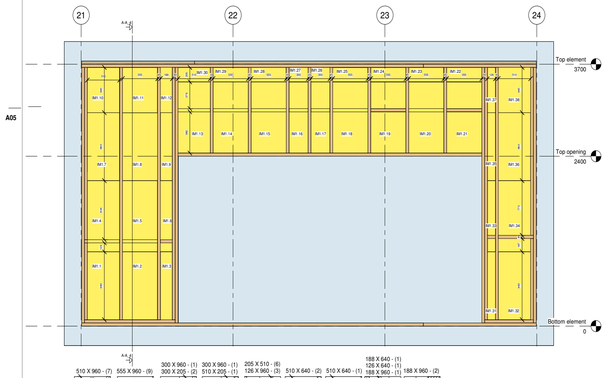
VIA Built Environment & Engineering

PROJECT: Grejs kulturcenter	DATE: 11/24/22	A05
SUBJECT: Wood facade step 1.2	SCALE: 1 : 20	
DRAWN BY: Mina Raiken	CLASS: AHDI-225	

INSULATION

ROCKWOOL FLEXIBATTS 37 INSULATION - STEP 4.1

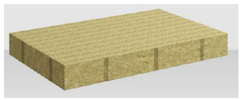
Assembly & information



3,12% Waste from 45 mm insulation

Information

Manufacturer: Rockwool
Material: Stone wool
Dimensions: 570 x 960 x 45 mm
Thermal conductivity: 0,037 W/m.k
Fire classification: A1



A11

Rockwool flexibatts 37 insulation comes in batts with a standart size of 570 x 960, which means that each batt should be cut up to the specific requirments.

Cut using a serrated drywall or bread knife.
IM1.4, IM1.5, IM1.6, IM1.13, IM1.14, IM1.15, IM1.16, IM1.17, IM1.18, IM1.19, IM1.20, IM1.21 require some extra cutting due to the cross barcing, they should be cut across according to measurments and fit inbetween the cross bracings.

Flexibatts 37 can flex up to 20 mm in lenght and width, meaning that some pannels would not require cutting as they can be squezed in the right place. Bigger pieces of waste material could be later used in fabrication of other elements in the project.

When working with stone wool always wear safety gear: gloves to prevent skin irritation, face mask that covers nose and mouth to prevent inhaling or swallowing stone wool particles, and safety glasses to protect eyes from irritating stone wool fibers that may come loose when cutting or installing insulation.

Quality control	
Insulation assembly	
Correct batt size used	☐
Properly fixed	☐
Correct dimensions	☐
All cavities properly filled	☐
Name:	
Date:	Signature:

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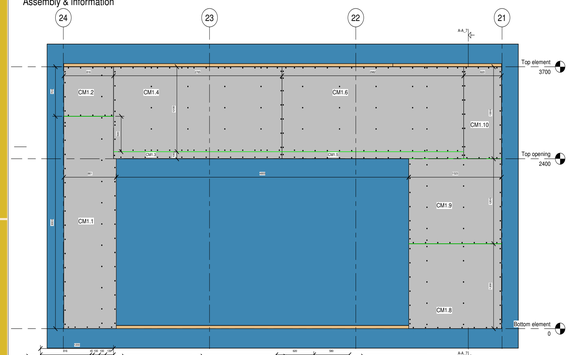
VIA Built Environment & Engineering

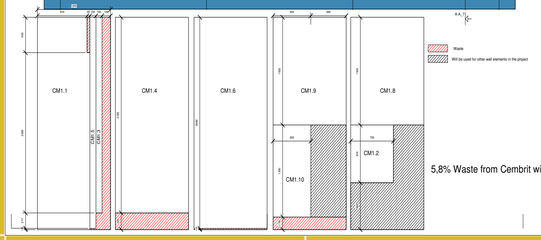
PROJECT: Grejs kulturcenter	DATE: 12/01/22	A11
SUBJECT: Wooden facade step 4.1	SCALE: 1 : 20	
DRAWN BY: Mina Raiken	CLASS: AHDI-225	

WINDBOARD

CEMBRIT WINDBOARD BASIC - STEP 7.1

Assembly & information

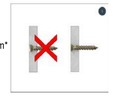




5,8% Waste from Cembrit windboards

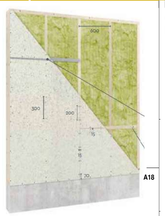
Information

Manufacturer: Cembrit
Material: Fiber cement board
Dimensions: 9x1200x2400mm
Fire classification: A2-s1,d0



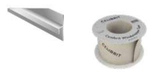
Screws: Cembrit 38 Universal Screw 3,9 x 38mm*

Assembly



A18

Cembrit windboards are screwed along all edges 200mm* c/c and 300mm* c/c along the inner or middle supports of the boards. The first screw from the corners is placed minimum 70mm* from the end of the edge of the boards. All other edge distances, not in the corner and/ or along the edges of the board should have a minimum distance of 15mm* from edge.



Along all horizontal joints a Cembrit 12 h-steel profile should be fixed to studs with a maximum distance of 600mm* c/c (it is noted with a green line in the ilustration). The steel profiles come in length 2400mm and must be cut to required lengths listed below.

Cembrit h-steel profile:
1x 2400mm
1x 816mm
2x 1523mm
1x 946mm
1x 1823mm

All board joints must be taped over with Cembrit windstopper tape 75mm. The tape must be placed so that there is an overlap at corners where multiple boards meet.

Cembrit Windstopper Basic 9 mm
can be cut using Cembrit Scratch Knife and the score & snap method. It is enough to score the board from one side for the snap

Quality control	
Cembrit windboards assembly	
Correct boards used	☐
Properly fixed	☐
Correct dimensions	☐
No damages on boards	☐
Name:	
Date:	Signature:

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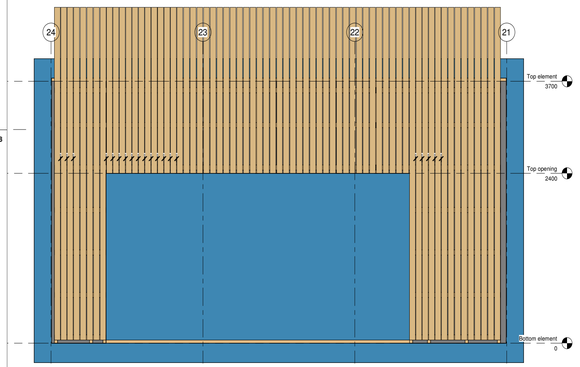
PROJECT: Grejs kulturcenter	DATE: 12/05/22	A18
SUBJECT: Wooden facade 7.1	SCALE: 1 : 20	
DRAWN BY: Mina Raiken	CLASS: AHDI-225	

FACADE CLADDING

CLADDING ON SITE - STEP 11

Element visualization / Information & Assembly

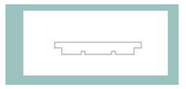


1 13 Cladding on site
1 : 20

Note:

The cladding is not to be done prefabricated at producers factory.
The cladding boards must be stored in the warehouse, not in contact with soil or sun, until they are ready for transport to the building site.

Information
Manufacturer: Frøslev
Material: T&G Spruce Heatwood
Profile ID: 1505
Surface: Planned
Fire resistance: K1 10 D-s2, d2
Dimension: 15x93x4400mm



Screws: NKT SPUN+ SUH, Stainless A4
4,5x50*
Use class: 3

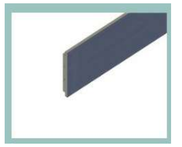
A24

Assembly
The tongue and groove cladding is to be mounted onsite after the wall elements and parapet elements are attached on site. Since the cladding comes in full building height length no cutting is required.

Cladding boards should be mounted with a distance of approximately 12mm in between each board, though it can vary from 8mm-12mm depending on openings. On the drawing, all of the gaps are 12 mm besides the ones indicated.
Adjustments should be made for spacing onsite. At all openings an overlap of approximately 30mm must be left in towards the opening. That is so that the edges of these boards can be cut away and leave a squared edge around window and door openings.

Each cladding board should be attached to underlying battens with 1* screw per batten crossed.

*To be calculated in engineering project.



Quality control	
Cladding assembly - ON SITE	
Correct boards ordered	☐
Properly stored	☐
Correct dimensions	☐
No damages on wood	☐
Delivery on time	☐
Delivery intact	☐
Name:	
Date:	Signature:

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PROJECT: Grejs kulturcenter	DATE: 12/06/22	A24
SUBJECT: Wooden facade step 11	SCALE: 1 : 20	
DRAWN BY: Mina Raiken	CLASS: AHDI-225	

*Visualization made by Natália Gdovinova

PROJECT 2
TWO STOREY FAMILY HOUSE WITH BASEMENT

SUNGARDSVEJ 95, HORSENS, DENMARK

This semester focused on designing a cost-effective, low-maintenance family home that prioritized openness, daylight, and a healthy indoor climate. The concept emphasized practicality and simplicity, with large windows for passive heating and visual connection to the surrounding landscape.

Unlike other groups, we chose to challenge ourselves by incorporating custom prefabricated concrete facade elements, typically reserved for later semesters. This decision introduced technical complexity but enabled a more refined and modular architectural expression—featuring a grey concrete exterior, slate roofing, and clean, geometric forms for a contemporary and durable home.

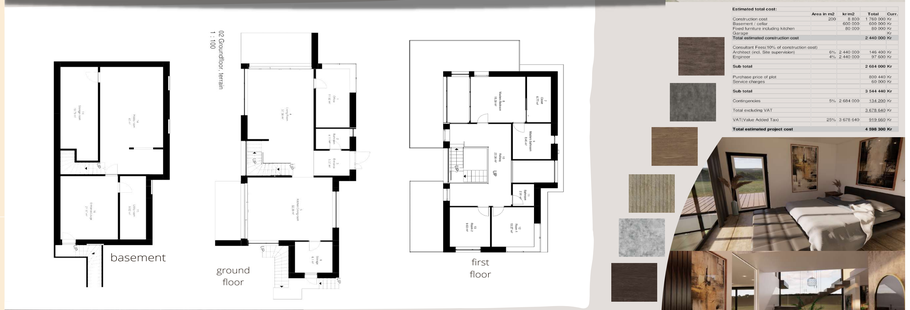
Key aspects included:
- **Use of prefabricated concrete for façade walls, enabling speed and precision**
- **Emphasis on modular and sustainable design principles**
- **Integration of natural materials for performance and aesthetics**
- **Efficient collaboration through Revit worksharing and standardized documentation using an ICT manual**
- **Initial experience working with Danish suppliers and product sourcing, which sparked my interest in local materials and smart, market-ready solutions**

This project significantly strengthened my technical, collaborative, and project coordination skills—particularly

*Outline elaborated as a group

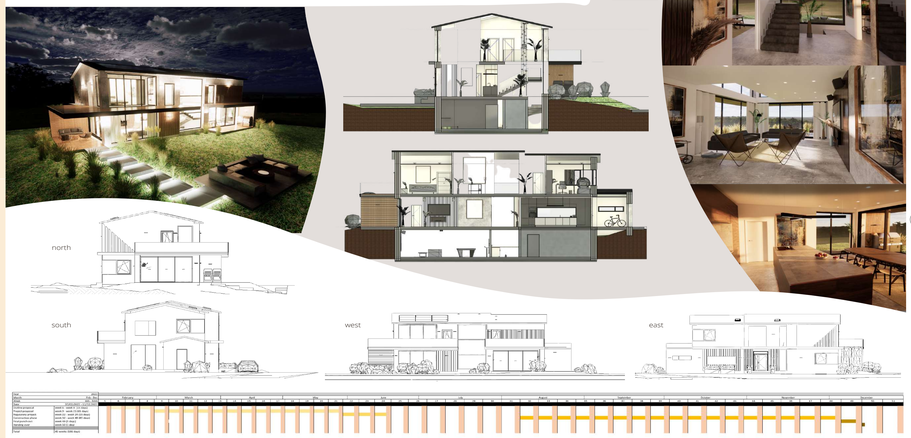
OUTLINE

DETAILS

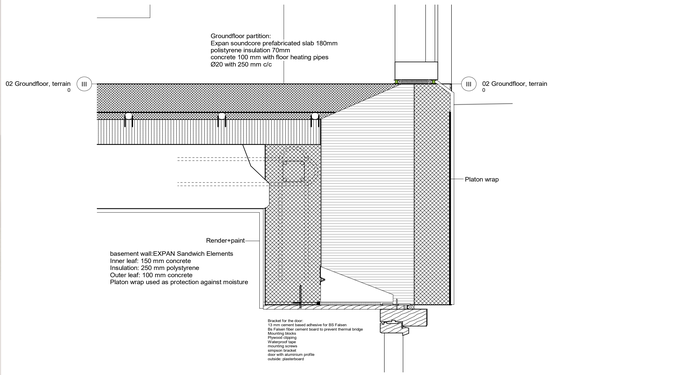


Estimated total cost:

	Area in m2	kr/m2	Total	Curr.
Construction cost	200	3 500	1 750 000	Kr
Basement / cellar		400 000	400 000	Kr
Fixed furniture including kitchen		80 000	80 000	Kr
Garage			0	Kr
Total estimated construction cost			**2 440 000**	**Kr**
Consultant Fees(10%, of construction cost):				
Architect (Incl. Site supervision)	6%	2 440 000	146 400	Kr
Engineer	4%	2 440 000	97 600	Kr
Sub total			**2 684 000**	**Kr**
Purchase price of plot			800 440	Kr
Service charges			60 000	Kr
Sub total			**3 544 440**	**Kr**
Contingencies	5%	2 684 000	134 200	Kr
Total excluding VAT			3 678 640	Kr
VAT(Value Added Tax)	25%	3 678 640	919 660	Kr
Total estimated project cost			**4 598 300**	**Kr**



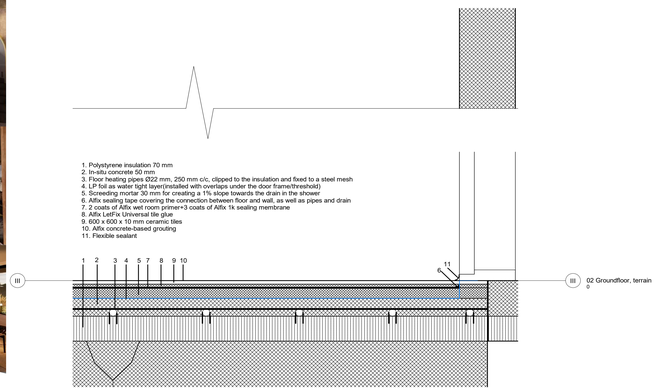
(M3



Mihai-basement wall/curtain wall
1 : 5

Author: Mihai Railean	Mihai - Curtain wall
Single family house	Project number 2
	Date 14. 09. 2022
	Drawn by Mihai Railean
	Checked by Group nr. 7
	(M2)(1_TXX)M_H1_E2_N2XX
	Scale 1 : 5

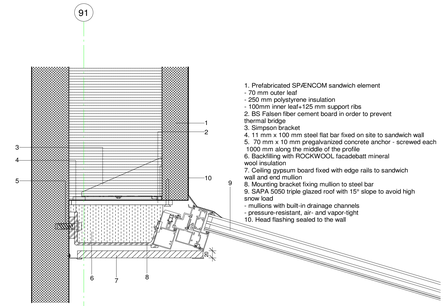
(M2)K



Mihai Bathroom groundfloor
1 : 5

Author: Mihai Railean	Mihai - Wet room Groundfloor
Single family house	Project number 2
	Date 14. 09. 2022
	Drawn by Mihai Railean
	Checked by Group nr. 7
	(M2)(1_TXX)M_H1_E2_N2XX
	Scale 1 : 5

K01_TXX_H1_EX_N14



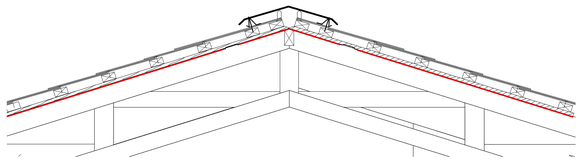
1. Prefabricated SPÆNCOM sandwich element
- 70 mm outer leaf
- 250 mm polystyrene insulation
- 100mm inner leaf+125 mm support ribs
2. BS Falsen fiber cement board in order to prevent thermal bridge
3. Simpson bracket
4. 11 mm x 100 mm steel flat bar fixed on site to sandwich wall
5. 70 mm x 10 mm pregalvanized concrete anchor - screwed each 1000 mm along the middle of the profile
6. Backfilling with ROCKWOOL facadebatt mineral wool insulation
7. Ceiling gypsum board fixed with edge rails to sandwich wall and end mullion
8. Mounting bracket fixing mullion to steel bar
9. SAPA 5050 triple glazed roof with 15° slope to avoid high snow load
- mullions with built-in drainage channels
- pressure-resistant, air- and vapor-tight
10. Head flashing sealed to the wall

M1 Concrete wall/Glass hall
1 : 5

PROJECT:MULTI-PURPOSE HALL, HORSENS	DATE:09/29/22
SUBJECT:M1	SCALE: 1 : 5
DRAWN BY: Author	CLASS:
	K01_TXX_H1_EX_N14

(M4)K0

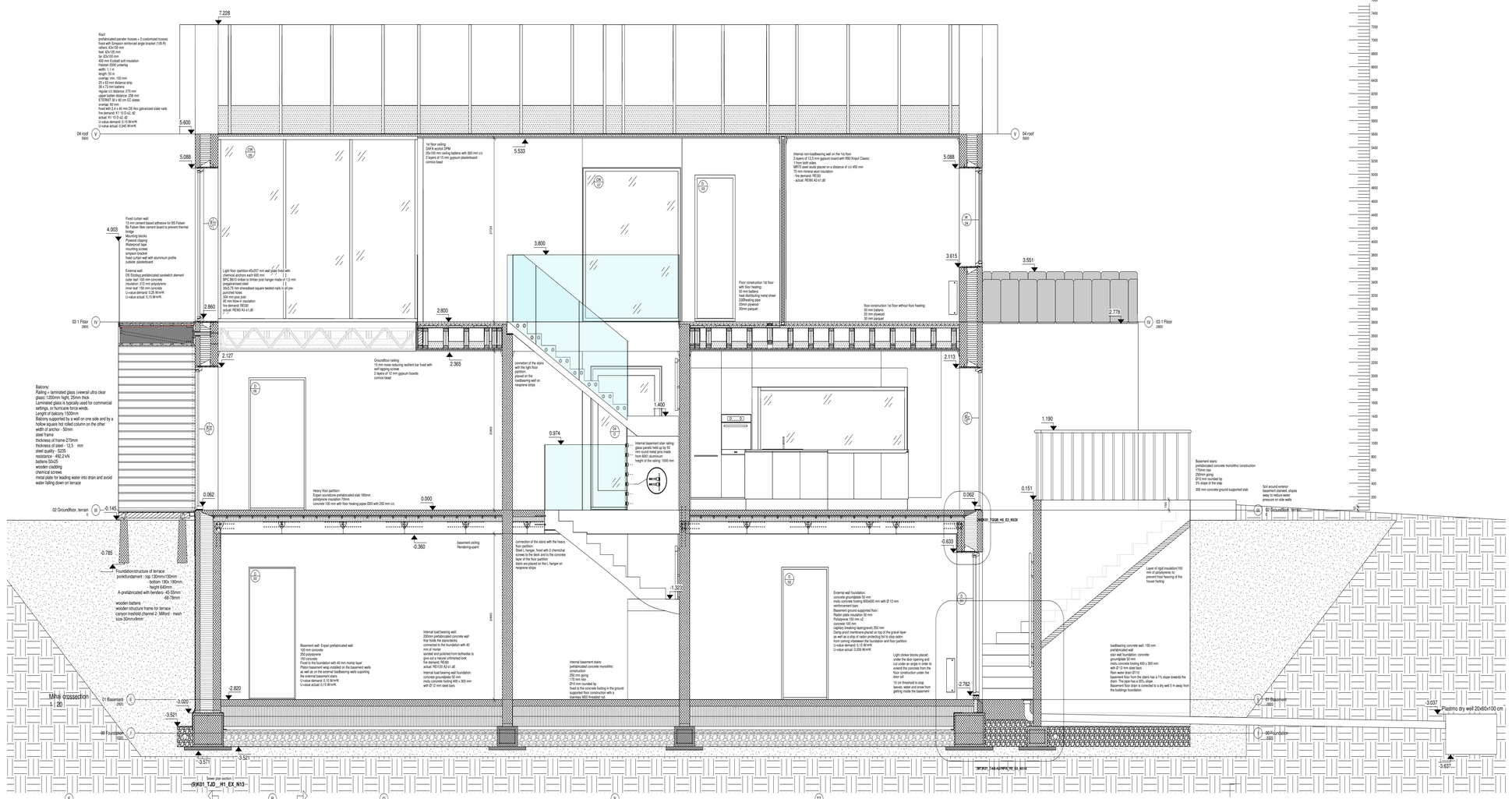
Distance strips: 25x25 mm timber
Haloten 2000 underlay roof with ventilation caps
Battens: 38x73 mm timber 270 mm c/c
Slates: Eternit 300x600 mm slates fixed with 2,4/40 mm galvenized slate nails
Ridge solution: DE-flex element
Roof pitch: 18°

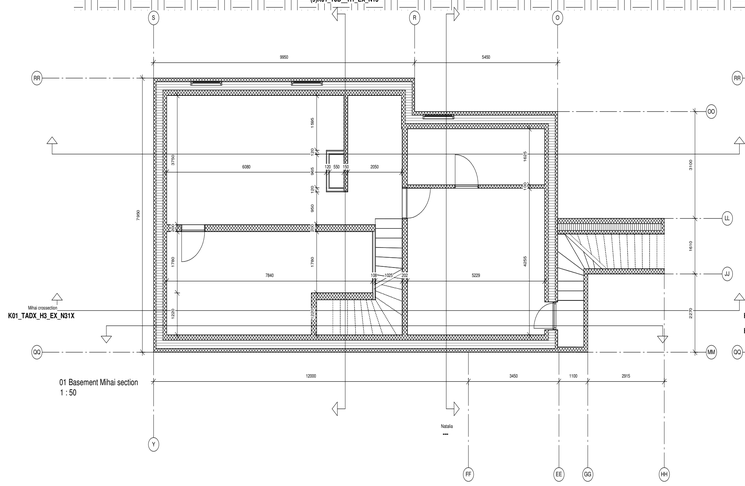


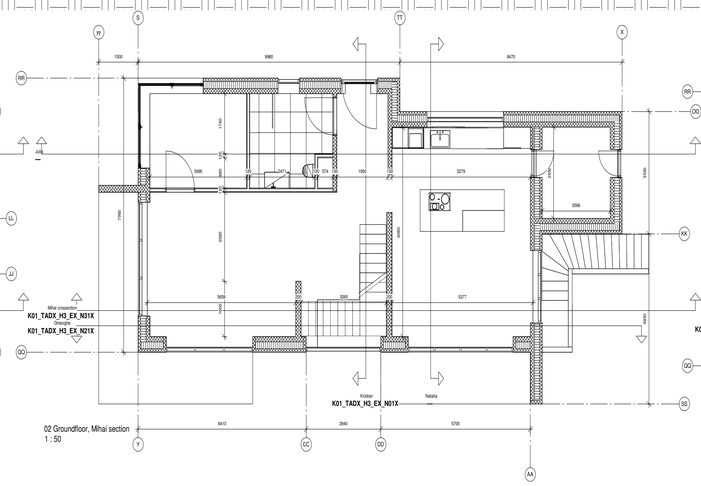
Mihai Roof ridge
1 : 10

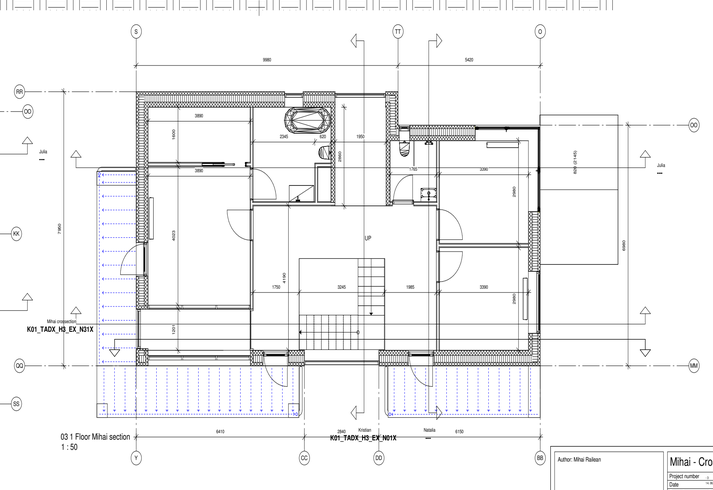
Author: Mihai Railean	Mihai - Roof ridge
Single family house	Project number 2
	Date 14. 09. 2022
	Drawn by Mihai Railean
	Checked by Group nr. 7
	(M4)(1_TXX)M_H1_EX_N14X
	Scale 1 : 10

SECTION









Author: Mihai Raileon	Mihai - Cross section
Single family house	Project number: 0
	Date: 14.06.2020
	Drawn by: Mihai Raileon
	Checked by: Checker
	K01_TADX_H3_EX_N01X
	Scale As indicated

*Visualization made by Ignas Naruševicius

PROJECT 1
SINGLE FAMILY HOUSE
FLINTEVÆNGET 15, HORSENS, DENMARK

This first-semester project involved designing a 120 m² single-family home in a scenic area surrounded by fields, woods, and a lake. Developed in collaboration with a student team at VIA University, the project emphasized traditional Danish construction methods, with the goal of building foundational skills in planning, technical drawing, and BIM modeling.

The client brief required us to:
- **Optimize sun orientation and landscape views**
- **Separate public and private zones within the home**
- **Provide direct terrace access from the living/kitchen area**
- **Use sustainable, locally sourced materials such as brick, timber, and clay tiles**

The house featured a brick exterior, pitched roof with clay tiles, and a bold design choice— a fully glazed gable— challenging us to translate architectural ideas into digital models using BIM software for the first time. This decision pushed our technical learning curve, especially in modeling non-standard geometry and coordinating connection details.

Throughout the semester, I gained essential knowledge in:
- **Traditional Danish building components (foundations, roof, wall, and floor systems)**
- **Construction sequencing and material selection**
- **Basic project documentation and professional communication practices**

This project marked the beginning of my journey as a constructing architect, and the first opportunity to develop and detail construction elements that reflect both tradition and ambition.

*Outline elaborated as a group

OUTLINE

DETAILS

VIA University College

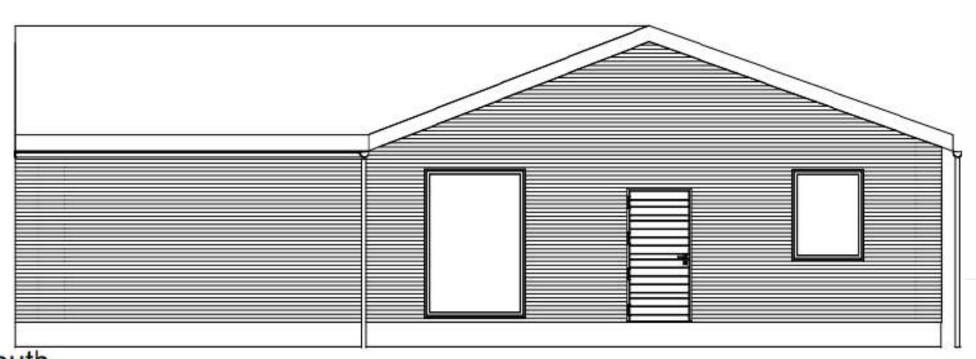
Date:

11-10-2021

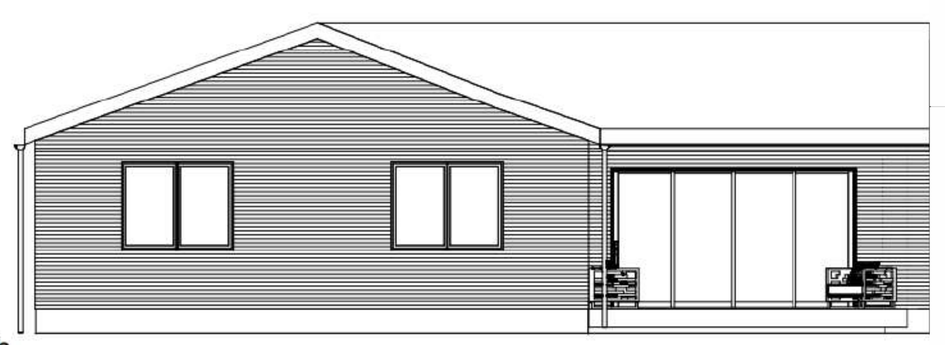
Made by:

Ieva, Ignas, Lekhya & Mihai

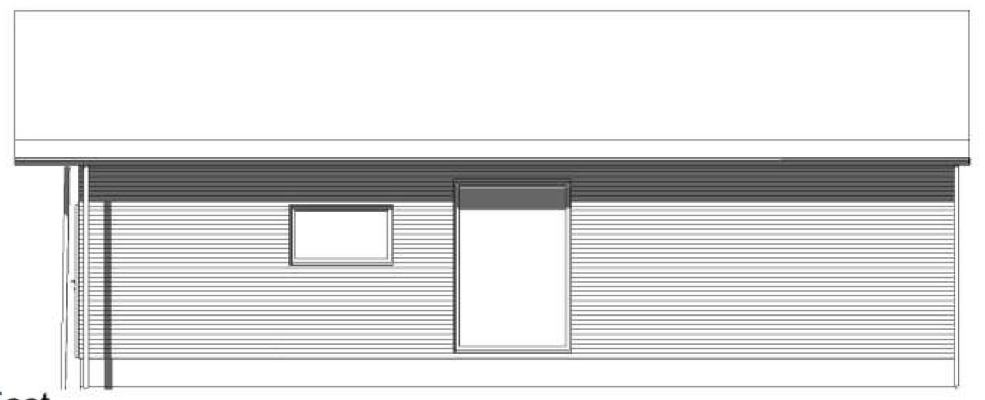
Flintevænget 15, 8700



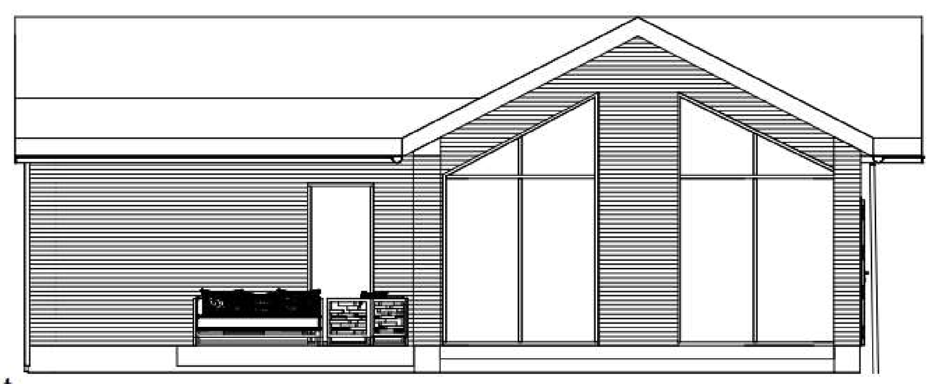
South
1 : 100



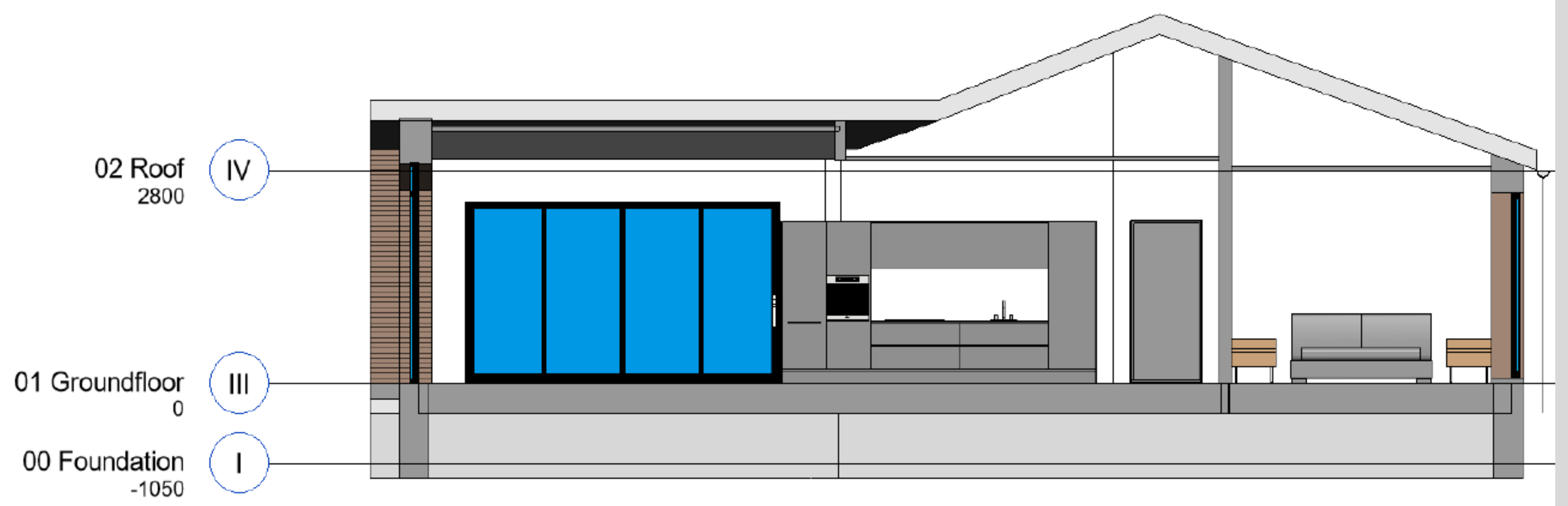
North
1 : 100

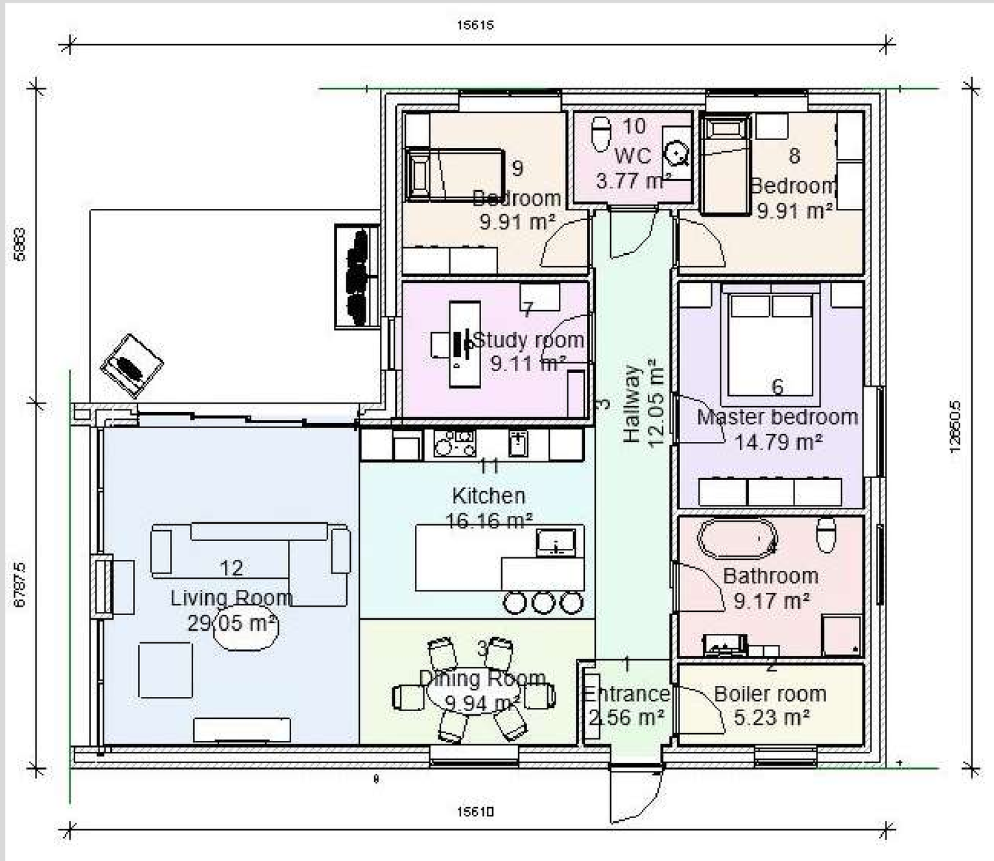


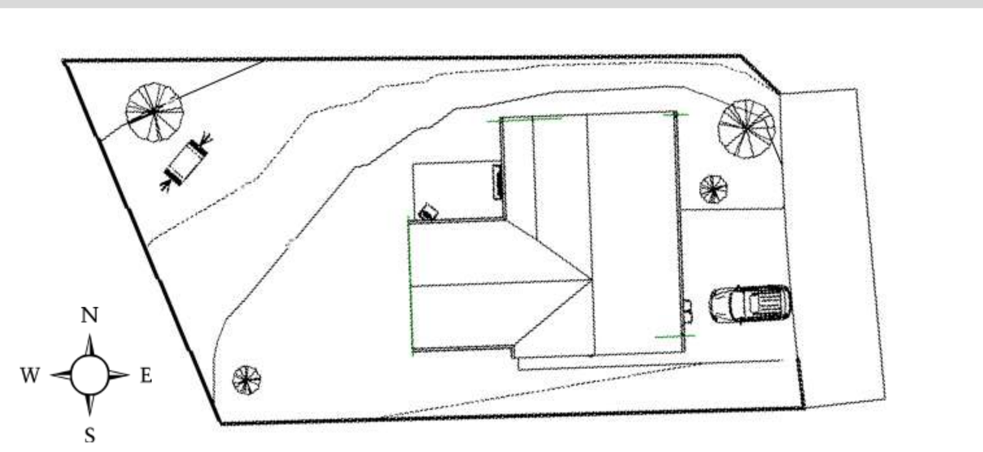
East
1 : 100



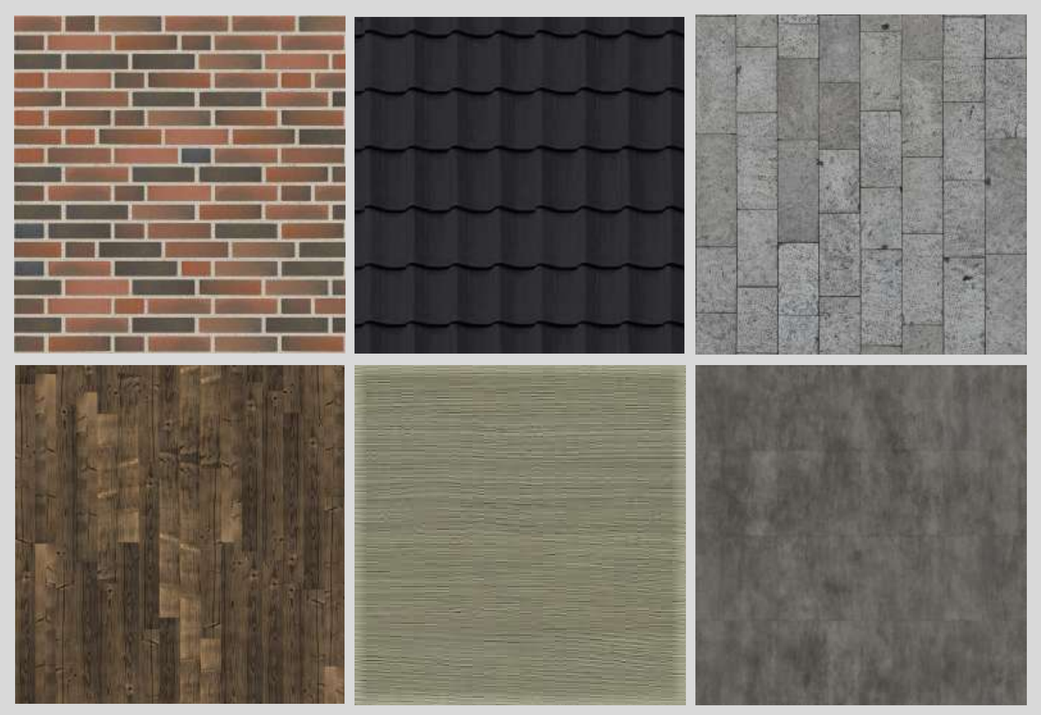
West
1 : 100





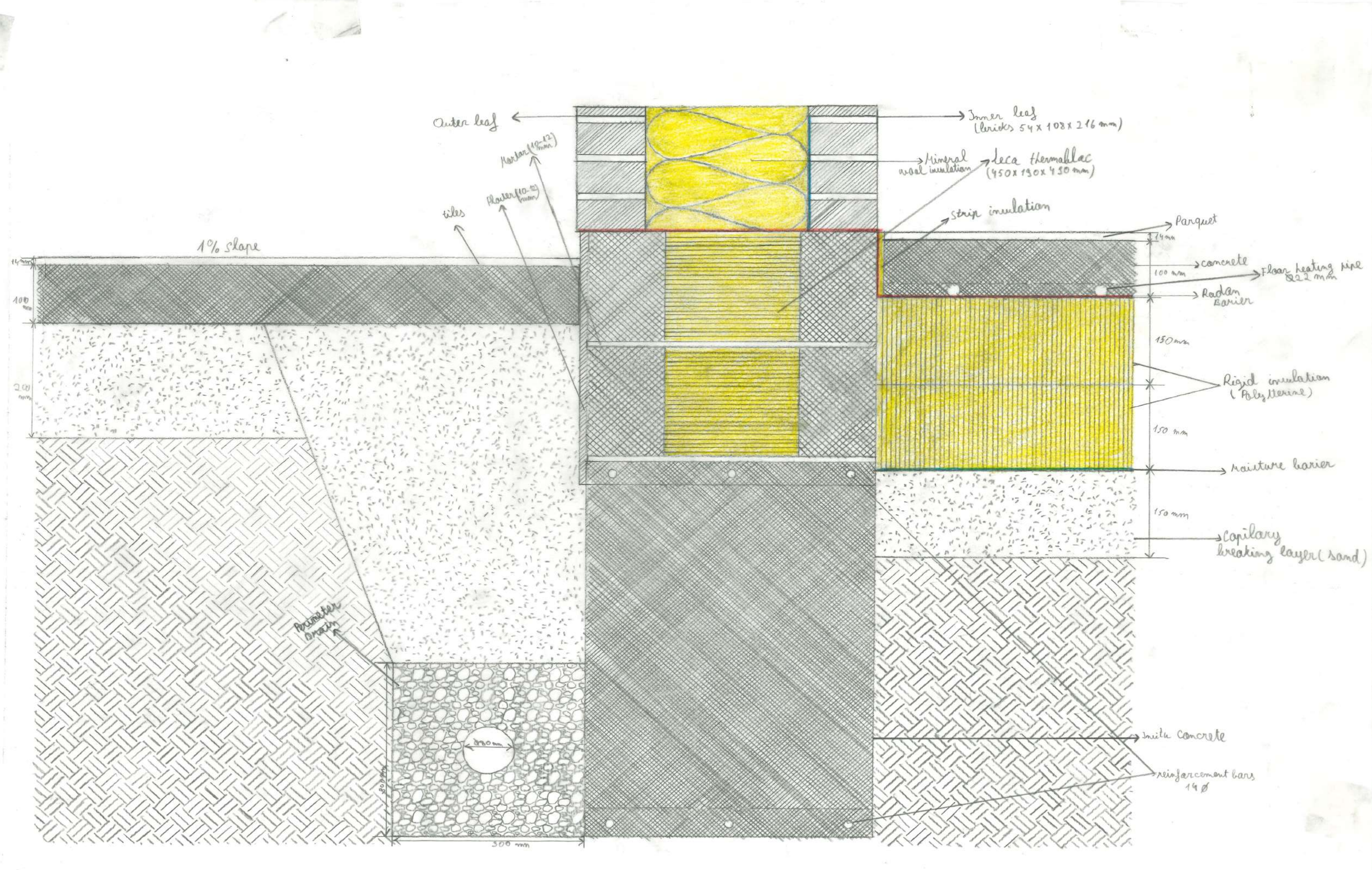


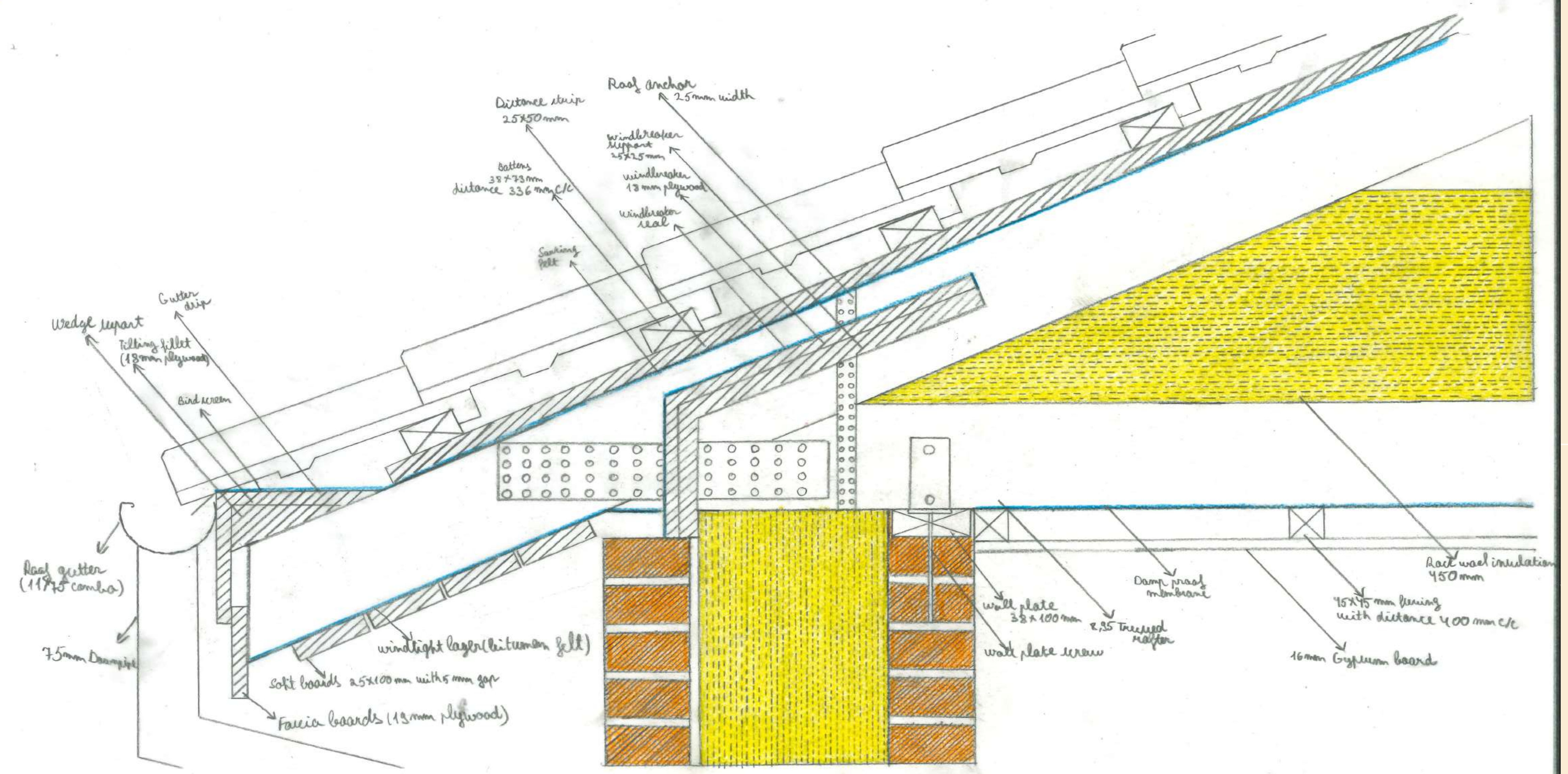
Materials



Contruction Cost	1.606.441,90
Plot Price	950.000
Total Cost Estimation including 15% of fees for the consultants	2.939.908,19
Total Cost Estimation including 15% of fees for the consultants and VAT.	3.858.629,49

	2021																																						
Month	March				April				May					June				July				August					September				October					November			
Week	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48
Strip Topsoil	■																																						
Foundation and Ground work		■	■	■	■																																		
Walls						■	■	■	■																														
Roof										■	■	■																											
Utilities Installations													■	■	■	■																							
Doors and Windows																	■	■	■																				
Heavy Interior Walls																				■	■	■																	
Floor																							■	■															
Light Interior Walls																									■	■	■												
Installations of the Boiler and other Heating Devices																											■	■	■										
Interior and Painting of the House																														■	■	■	■	■					
Furnishing																																			■	■	■	■	
Cleaning																																							■





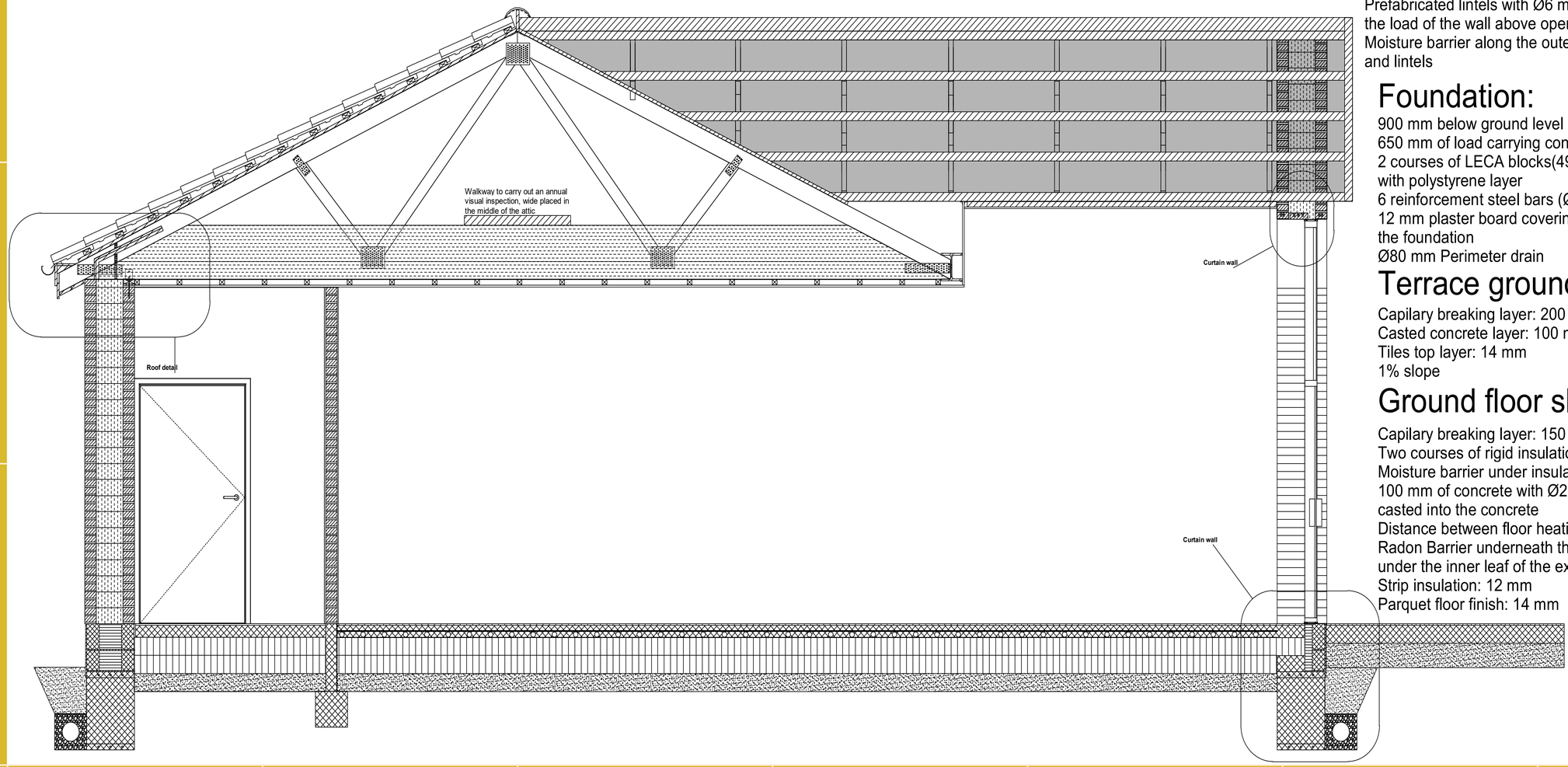
SECTION

Roof Construction:

Roof pitch: 25 degrees
Battens: 38x73 mm with distance 336 mm c/c
Distance strips: 25x50 mm
Sarking felt: 2 mm
Insulation: Rock wool 450 mm
Trusses: Rafter 63x125
Foot 63x125
Tie 63x100
Distance between trusses: 1000 mm
Support beam for trusses : 200 mm
Truss anchors: 25 mm x 2
wall plate: 38x100 mm achored to the inner leaf of external wall with screws
Tilting fillet: 18 mm plywood
Fascia Boards: 19 mm plywood
wind breaker: 18 mm plywood sealed all around
Soffit boards: 25 x 120 with 5 mm gap
Roof anchors: 25 mm and 40 mm at corners

Ceiling Construction:

Damp proof membrane(2mm) between trussses and battens
Battens: 45x45 mm with distance between them 400 mm c/c
Plasterboard:15 mm
Vertical gypsum board covering the support beam fixed with angle brakets



External walls:

468 mm brick wall
Brick dimensions: 228x108x54 mm
Outer/Inner leaf: 108 mm brick wall
Insulation: 252 mm(Mineral whool)
Wall ties: 4mm inserted at intervals of 120 mm
Knudsen brackets are inserted in the inner leaf to hold windows and doors
Prefabricated lintels with Ø6 mm steel rods are carrying the load of the wall above openings like windows and doors
Moisture barrier along the outer leaf and above all openings and lintels

Foundation:

900 mm below ground level
650 mm of load carrying concrete
2 courses of LECA blocks(490x450x190mm) with polystyrene layer
6 reinforcement steel bars (Ø14)
12 mm plaster board covering the outside of the foundation
Ø80 mm Perimeter drain

Terrace ground slab:

Capilary breaking layer: 200 mm
Casted concrete layer: 100 mm
Tiles top layer: 14 mm
1% slope

Ground floor slab:

Capilary breaking layer: 150 mm
Two courses of rigid insulation, 150 mm each
Moisture barrier under insulation
100 mm of concrete with Ø22 mm floor heating pipes casted into the concrete
Distance between floor heating pipes: 200 mm c/c
Radon Barrier underneath the concrete layer extending under the inner leaf of the external wall
Strip insulation: 12 mm
Parquet floor finish: 14 mm

CONTACT ME

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+45 53 93 21 01

HORSENS, DENMARK