Cross section

Concrete external walls:

Gable:
420mm sandwich element
Minimum U VALUE: 0.30W/m^{2}K
Actual U value:0.18W/m^{2}K
Fire demand: REI 60

Facade:
420mm sandwich element
Minimum U VALUE: 0.30W/m^{2}K
Actual U value:0.18W/m^{2}K
Fire demand: REI 60
2 types of prefabricated concrete facades:
Load-bearing facade and non-load bearing facade
Load-bearing facade has a special cut in shape of TTS ribs,
which are resting on it. There has to be placed 2 steel plates
between TTS ribs and the cut.
The rest of the gap is filled with concrete.
Non-load bearing facade is without a special cut.

Concrete roof:

Facade:
Roof starts and ends with TTS element in the corner,
between each TTS there is always a Waffle element
TTS elements rest on load-bearing facade, 2 steel platesare between the ribs and facade. The rest of the gap in facade is filled with concrete.
Waffle element rests on non-load bearing facade.
TTS element 2400x50mm, ribs 1020x100mm
Waffle elements 2400x2400mm
Vapor barrier 1,5mm
Rockwool hard insulation 300mm on the top of the TTS/Waffle elements
2 layers of roofing felt. One is 3mm DPC and
second one is 4mm Asphalt Felt torched-in.
Fire demand: EI60
Minimum U VALUE: 0.20W/m^{2}K
Actual U VALUE: 0.12W/m^{2}K

Downpipe:
8 PVC downpipes placed 14400mm apart, Ø 110mm
Slope to downpipes is made with sloped hard insulation

Suspended ceiling

Rockfon Skinnesystem/justerbar strop 315-590mm
davidsenshop.dk/
Battens 38X73mm under deck element
Wooden plate
Gysum board 13mm

Floor Partition:

10mm linoleum
30mm screed
320mm hollow core deck element
Hollow Core Deck Elements:
Reinforced concrete
Connected to load bearing facade
by concrete hanger (prefabricated)
70mm attached to wall
Connected to other deck elements by concrete joint
Modular Lines for deck elements are 1200mm
Fire demand: REI 30

Windows:

Signal brown tripple-glazzed windows.
Finger-jointed/knot-free and laminated pine heartwood.
vinduesgrossisten.dk, Scandi line. 2 types
1200x2080mm and 1500x620mm
U value: not more than 1.80W/m^{2}K

Doors:

vinduesgrossisten.dk
Fire demand: EI 30

Fire escape door:
Fire demand: EI 60
Minimum U VALUE: 1.50W/m^{2}K

Steel column:
HEB Profile 100

Steel beam:
HE-B profile 240

Ridge detail:

Open ridge
150mm x 7mm plywood holding metal ridge
Plywood is attached to roof cassetes

Suspended ceiling:

38X73mm ceiling battens
brackets that attach battens wooden hanger
Gypsum 12,5mm boards with 470mm of lenght

Wooden roof cassetes:
13mm plywood
50mm air gap
350mm mineral wool
0.2mm DPM layer
Roof finish:
DPC layer
2 layers of roofing felt,
1st is 3mm DPC,
2nd is 4mm Asphalt Felt torched-in

Eave:

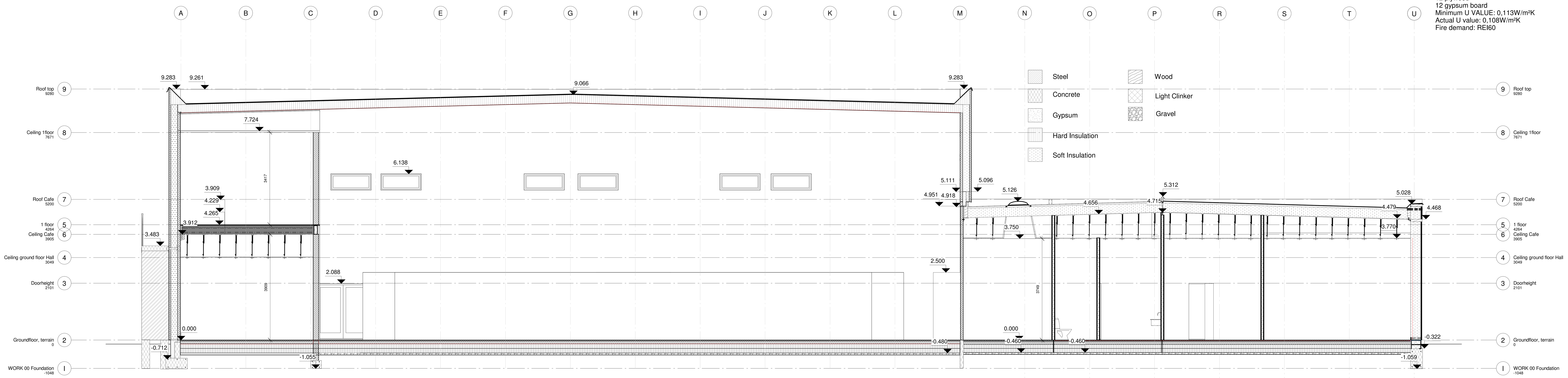
50mm opening on external facade to allow air flow
Flashing overlapping facade
DPC layer and roofing felt layers

Wooden cladding:

froeslev.dk
Raw wood dimension :19x200mm
Pine / spruce with planed front.
Surface treatment: Black RAL 9005 primed and painted

External wall:

417mm pre fabricated wooden wall
19mm vertical wooden cladding
12mm air gap
12mm plywood
12mm gypsum board
140mm mineral wool
160mm mineral wool
0.5mm DPM
45mm mineral wool
12 plywood
12 gypsum board
Minimum U VALUE: 0,113W/m^{2}K
Actual U value: 0,108W/m^{2}K
Fire demand: REI60



External stairs

Steel External stairs
Width:1000mm
rise:175mm
going:280mm
railing:1100mm steel
Connection:
Landing connect to the internal wall.
Use the steel anchor.
Foundation:
Concrete foundation.

Concrete foundation
External wall-Sandwich element.
Footing
400x800mm cast in situ concrete reinforced with 6 12 Ø reinforcement bars
Foundation
200mmx600mm concrete foundation
150mm polysterne insulation
10mm Rendering
Hard insulation 150mm next to the concrete foundation and concrete floor

Internal wall-Concrete element
Footing
300mmx400mm cast in suit concrete reinforced with 4 12Ø reinforcement bars

Foundation
200mm width.
900mm deep below the ground level,in frost free zone
30mm hard insulation of both side next to the concrete foundation.
DPM 0.5mm under the concrete floor.
DPM 0.5mm between the concrete foundation and 30mm hard insulation
DPM 0,5mm under the concrete internal wall

Concrete building

Ground supported slab:
10mm Linoleun
30mm Screed
100mm Concrete
150mm Polystyrene
150mm Polystyrene
70mm Gravel
Sports Hall:
Floor finish is Polyurethane
Minimum U VALUE: 0.10W/m^{2}K
Actual U value:0.112W/m^{2}K

Concrete internal walls:

Internal non- load bearing walls:
100mm aerated concrete
Fire demand: EI 30

Internal load bearing walls:
200mm Concrete
Fire demand: REI 60

Glass hall foundation:

500mmx250mm concrete reinforced
with 6 12ø reinforcement bars
2x 190mmx250mm light clinker block,
75mm insulation
10mm mortar on top of first light clinker block
Plaster on external side of light clinker block

Glass hallway:

Curtain walls
50x115mm mullions

Skylight:
Plasteco,
skylight double glazed cc/1
installed accoring to manefacturer
Ventilation in roof cassete stops before skylight
and is led out by a pipe
going around the skylight and entering the cassete again
13mm gypsum on sides connecting to gypsum ceiling
Uvalue: 0,56W/m^{2}K

Doors:
Fire demand: EI 30

Ground supported slab

Wooden building:
10mm wooden floor finish
20mm plywood
0,5mm DPM
30mm screed
100mm concrete slab
150mm polystyrene
150mm polystyrene
70mm gravel
Minimum U VALUE: 0.10W/m^{2}K
Actual U value:0.10W/m^{2}K

Internal walls:

120mm pre fabricated wooden internal walls
13mm gypsum board
13mm gypsum board
70mm mineral wool
13mm gypsum board
13mm gypsum board
5mm above gypsym ceiling internal wall continues up as:
13mm gypsum board
70mm mineral wool
13mm gypsum board
Connected to roof cassetes by steel bracket

Wooden foundation:

Concrete footing 450x730mm, 900mm deep below the ground level, in frost free zone
2 layers of Leca blocks 150x345mm with mortar between them
8mm layer of plaster around Leca blocks on the outer side
Hard insulation 35x315mm next to Leca blocks on the inner side
Radon barrier on the top of Leca blocks, it goes 100mm inside the ground supported slab on the top of screed
DPC 0,5mm on top of the Leca blocks
DPM 0,5mm on top of the screed and goes up to the wall, between insulation in the wall
1 Sole plate 45x300 in-situ-cast, on the top of leca bocks and membranes
Pre fabricated wooden wall element, placed on top of the sole plate and screwed together

I100_F6_H1_N09

VIA UNIVERSITY COLLEGE
SCHOOL OF TECHNOLOGY AND
INDTAST BY
PROJECT: Multipurpose hall
22/04/2022
SUBJECT: RP1 SECTION
SCALE: 1 : 50
I100_F6_H1_N09
DRAWN BY: Ana, Klaudia, Zixuan
CLASS: AH31

Cross section

Concrete external walls:

Gable:
420mm sandwich element
Minimum U VALUE: 0.30W/m²K
Actual U value:0.18W/m²K
Fire demand: REI 60

Facade:
420mm sandwich element
Minimum U VALUE: 0.30W/m²K
Actual U value:0.18W/m²K
Fire demand: REI 60
2 types of prefabricated concrete facades:
Load-bearing facade and non-load bearing facade
Load-bearing facade has a special cut in shape of TTS ribs,
which are resting on it. There has to be placed 2 steel plates
between TTS ribs and the cut.
The rest of the gap is filled with concrete.
Non-load bearing facade is without a special cut.

Concrete roof:

Gable:
Roof starts and ends with TTS element in the corner,
between each TTS there is always a Waffle element.
TTS elements rest on load-bearing facade.
Waffle element rests on non-load bearing facade.
TTS element 2400x50mm, ribs 1020x100mm
Waffle elements 2400x2400mm
Vapor barrier 1,5mm
Rockwool hard insulation 300mm on the top of the TTS/Waffle elements
2 layers of roofing felt. 1 is 3mm and second one is 4mm.
TTS and Waffle elements are welded together by 2 steel plates.
Steel railing is placed in inner leaf. TTS is fixed to inner leaf with
L-shaped steel hanger screwed to steel railing.
Fire demand: EI60
Minimum U VALUE: 0.20W/m²K
Actual U VALUE: 0.12W/m²K

Downpipe:
8 PVC downpipes placed 1440mm apart, Ø 110mm
Slope to downpipes is made with sloped hard insulation

Suspended ceiling

Rockfon Skinnesystem/justerbar strop 315-590mm
davidsenshop.dk/
Battens 38X73mm under deck element
Wooden plate
Gysum board 13mm

Windows:

Signal brown tripple-glazzed windows.
Finger-jointed/knot-free and laminated pine heartwood.
vinduesgrossisten.dk, Scandi line. 2 types
1200x2080mm and 1500x620mm
U value: not more than 1.80W/m²K

Doors:

vinduesgrossisten.dk
Fire demand: EI 30

Fire escape door:
Fire demand: EI 60
Minimum U VALUE: 1.50W/m²K

Wooden roof cassetes:
13mm plywood
50mm air gap
350mm mineral wool
0.2mm DPM layer
Roof finish:
DPC layer
2 layers of roofing felt,
1st is 3mm DPC,
2nd is 4mm Asphalt Felt torched-in

Ridge detail:

Open ridge
150mm x 7mm plywood holding metal ridge
Plywood is attached to roof cassetes

External wall:

417mm pre fabricated wooden wall
19mm vertical wooden cladding
12mm air gap
12mm plywood
12mm gypsum board
140mm mineral wool
160mm mineral wool
0.5mm DPM
45mm mineral wool
12 plywood
12 gypsum board
Minimum U VALUE: 0,113W/m²K
Actual U value: 0,108W/m²K
Fire demand: REI60

Wooden cladding:

froeslev.dk
Raw wood dimension :19x200mm
Pine / spruce with planed front.
Surface treatment: Black RAL 9005 primed and painted

Suspended ceiling:

38X73mm ceiling battens
brackets that attach battens wooden hanger
Gypsum 12,5mm boards with 470mm of lenght

Steel beam:
HE-B profile 240

Concrete Column:
Circular concrete column
ø240mm

Steel column:
HEB Profile 100

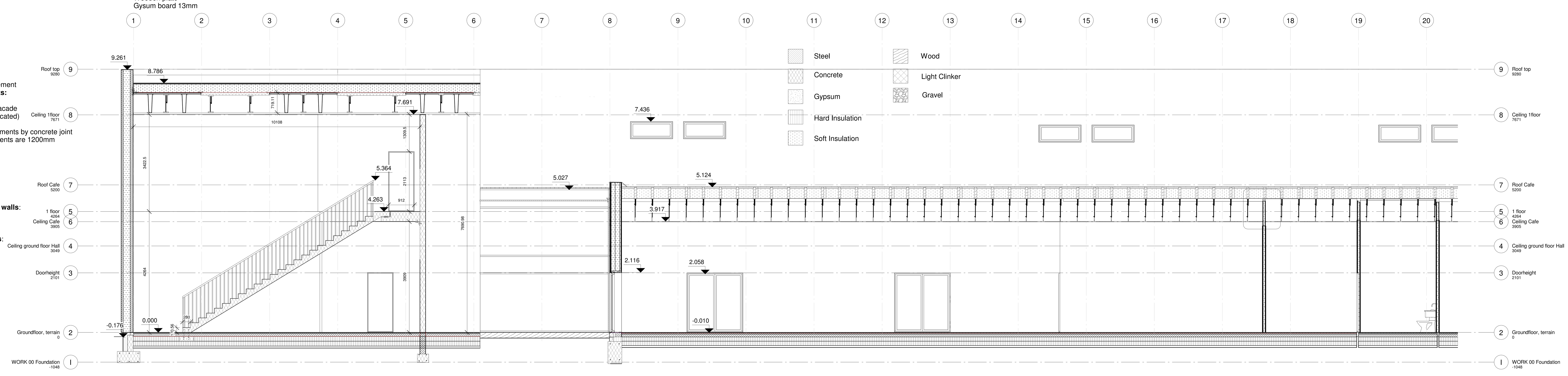
Floor Partition:

10mm linoleum
30mm screed
320mm hollow core deck element
Hollow Core Deck Elements:
Reinforced concrete
Connected to load bearing facade
by concrete hanger (prefabricated)
70mm attached to wall
Connected to other deck elements by concrete joint
Modular Lines for deck elements are 1200mm
Fire demand: REI 30

Concrete internal walls:

Internal non- load bearing walls:
100mm aerated concrete
Fire demand: EI 30

Internal load bearing walls:
200mm Concrete
Fire demand: REI 60



Concrete foundation
External wall-Sandwich element.
Footing
400x800mm cast in situ concrete reinforced with 6 12 Ø reinforcement bars
Foundation
200mmx600mm concrete foundation
150mm polysterne insulation
10mm Rendering
Hard insulation 150mm next to the concrete foundation and concrete floor

Internal wall-Concrete element
Footing
300mmx400mm cast in suit concrete reinforced with 4 12Ø reinforcement bars

Foundation
200mm width.
900mm deep below the ground level,in frost free zone
30mm hard insulation of both side next to the concrete foundation.
DPM 0.5mm under the concrete floor.
DPM 0.5mm between the concrete foundation and 30mm hard insulation
DPM 0,5mm under the concrete internal wall

Internal stairs

Prefabricated concrete stairs
width: 1000mm
rise: 170mm
going: 280mm
railing: 1100mm steel
Ground floor:
515x150mm concrete foundation cast in 150mm polystyrene layer.
4 reinforcement bars in foundation
1st floor:
stairs are screwed to 355mm thick concrete landing
with 2 steel plates and steel screws.

Concrete building

Ground supported slab:
10mm Linoleun
30mm Screed
100mm Concrete
150mm Polystyrene
150mm Polystyrene
70mm Gravel
Sports Hall:
Floor finish is Polyurethane
Minimum U VALUE: 0.10W/m²K
Actual U value:0.112W/m²K

Glass hallway:

Curtain walls
50x115mm mullions

Skylight:
Plasteco,
skylight double glazed cc/1
installed accoring to manefacturer
Ventilation in roof cassete stops before skylight
and is led out by a pipe
going around the skylight and entering the cassete again
13mm gypsum on sides connecting to gypsum ceiling
Uvalue: 0,56W/m²K

Doors:
Fire demand: EI 30

Glass hall foundation:

500mmx250mm concrete reinforced
with 6 12ø reinforcement bars
2x 190mmx250mm light clinker block,
75mm insulation
10mm mortar on top of first light clinker block
Plaster on external side of light clinker block

Wooden foundation:

Concrete footing 450x730mm, 900mm deep below the ground level,
in frost free zone
2 layers of Leca blocks 150x345mm with mortar between them
8mm layer of plaster around Leca blocks on the outer side
Hard insulation 35x315mm next to Leca blocks on the inner side
Radon barrier on the top of Leca blocks, it goes 100mm inside the
ground supported slab on the top of screed
DPC 0,5mm on top of the Leca blocks
DPM 0,5mm on top of the screed and goes up to the wall,
between insulation in the wall
1 Sole plate 45x300 in-situ-cast, on the top of leca bocks and membranes
Pre fabricated wooden wall element, placed on top of the sole plate
and screwed together

Ground supported slab

Wooden building:
10mm wooden floor finish
20mm plywood
0,5mm DPM
30mm screed
100mm concrete slab
150mm polystyrene
150mm polystyrene
70mm gravel
Minimum U VALUE: 0.10W/m²K
Actual U value:0.10W/m²K

Internal walls:

120mm pre fabricated wooden internal walls
13mm gypsum board
13mm gypsum board
70mm mineral wool
13mm gypsum board
13mm gypsum board
5mm above gypsym ceiling internal wall continues up as:
13mm gypsum board
70mm mineral wool
13mm gypsum board
Connected to roof cassetes by steel bracket

I100_F6_H1_N10

VIA UNIVERSITY COLLEGE
SCHOOL OF TECHNOLOGY AND
INDTAST BY

PROJECT:	Multipurpose hall		04/15/22
SUBJECT:	RP2 SECTION	SCALE:	1 : 50
DRAWN BY:	Ana, Klaudia, Zixuan	CLASS:	AH31

I100_F6_H1_N10

Cross section

Floor Partition:

10mm linoleum
30mm screed
320mm hollow core deck element
Hollow Core Deck Elements:
Reinforced concrete
Connected to load bearing facade
by concrete hanger (prefabricated)
70mm attached to wall
Connected to other deck elements by concrete joint
Modular Lines for deck elements are 1200mm
Fire demand: REI 30

Suspended ceiling

Rockfon Skinnesystem/justerbar strop 315-590mm
davidsenshop.dk/
Battens 38X73mm under deck element
Wooden plate
Gysum board 13mm

Concrete external walls:

Gable:
420mm sandwich element
Minimum U VALUE: 0.30W/m²K
Actual U value:0.18W/m²K
Fire demand: REI 60

Facade:
420mm sandwich element
Minimum U VALUE: 0.30W/m²K
Actual U value:0.18W/m²K
Fire demand: REI 60
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Load-bearing facade and non-load bearing facade
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which are resting on it. There has to be placed 2 steel plates
between TTS ribs and the cut.
The rest of the gap is filled with concrete.
Non-load bearing facade is without a special cut.

Concrete roof:

Facade:
Roof starts and ends with TTS element in the corner,
between each TTS there is always a Waffle element
TTS elements rest on load-bearing facade, 2 steel platesare between
the ribs and facade. The rest of the gap in facade is filled with concrete.
Waffle element rests on non-load bearing facade.
TTS element 2400x50mm, ribs 1020x100mm
Waffle elements 2400x2400mm
Vapor barrier 1,5mm
Rockwool hard insulation 300mm on the top of the TTS/Waffle elements
2 layers of roofing felt. One is 3mm DPC and
second one is 4mm Asphalt Felt torched-in.
Fire demand: EI60
Minimum U VALUE: 0.20W/m²K
Actual U VALUE: 0.12W/m²K

Downpipe:
8 PVC downpipes placed 14400mm apart, Ø 110mm
Slope to downpipes is made with sloped hard insulation

Windows:

Signal brown tripple-glazzed windows.
Finger-jointed/knot-free and laminated pine heartwood.
vinduesgrossisten.dk, Scandi line. 2 types
1200x2080mm and 1500x620mm
U value: not more than 1.80W/m²K

Doors:

vinduesgrossisten.dk
Fire demand: EI 30

Fire escape door:
Fire demand: EI 60
Minimum U VALUE: 1.50W/m²K

Glass hallway:

Curtain walls
50x115mm mullions

Skylight:
Plasteco,
skylight double glazed cc/1
installed accoring to manefacturer
Ventilation in roof cassete stops before skylight
and is led out by a pipe
going around the skylight and entering the cassete again
13mm gypsum on sides connecting to gypsum ceiling
Uvalue: 0,56W/m²K

Doors:
Fire demand: EI 30

Ridge detail:

Open ridge
150mm x 7mm plywood holding metal ridge
Plywood is attached to roof cassetes

Wooden roof cassetes:
13mm plywood
50mm air gap
350mm mineral wool
0.2mm DPM layer
Roof finish:
DPC layer
2 layers of roofing felt,
1st is 3mm DPC,
2nd is 4mm Asphalt Felt torched-in

Suspended ceiling:

38X73mm ceiling battens
brackets that attach battens wooden hanger
Gypsum 12,5mm boards with 470mm of lenght

External wall:

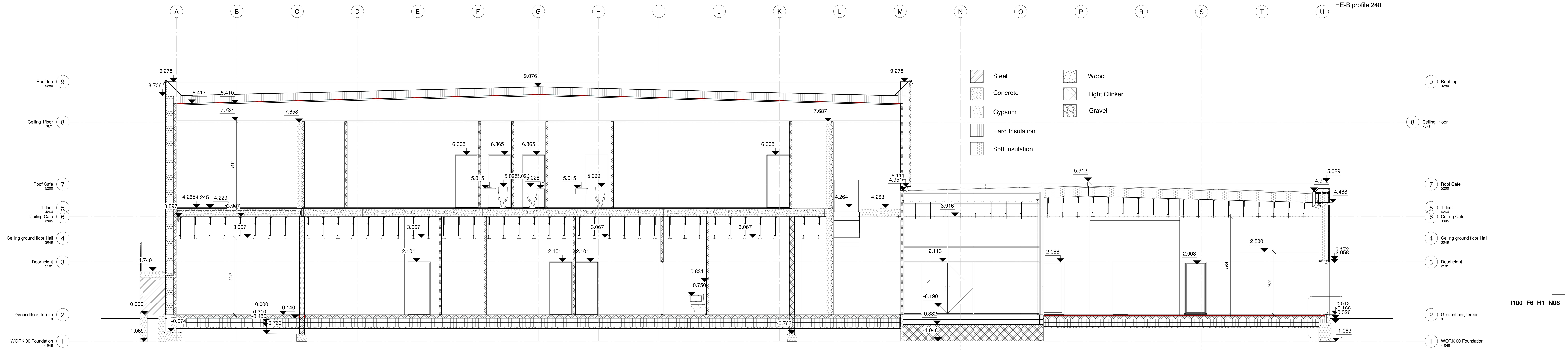
417mm pre fabricated wooden wall
19mm vertical wooden cladding
12mm air gap
12mm plywood
12mm gypsum board
140mm mineral wool
160mm mineral wool
0.5mm DPM
45mm mineral wool
12 plywood
12 gypsum board
Minimum U VALUE: 0,113W/m²K
Actual U value: 0,108W/m²K
Fire demand: REI60

Eave:

50mm opening on external facade to allow air flow
Flashing overlapping facade
DPC layer and roofing felt layers

Steel column:
HEB Profile 100

Steel beam:
HE-B profile 240



External stairs

Steel External stairs
Width:1000mm
rise:175mm
going:280mm
railing:1100mm steel
Connection:
Landing connect to the internal wall.
Use the steel anchor.
Foundation:
Concrete foundation.

Concrete foundation
External wall-Sandwich element.
Footing
400x800mm cast in situ concrete reinforced with 6 12 Ø reinforcement bars
Foundation
200mmx600mm concrete foundation
150mm polysterne insulation
10mm Rendering
Hard insulation 150mm next to the concrete foundation and concrete floor

Internal wall-Concrete element
Footing
300mmx400mm cast in suit concrete reinforced with 4 12Ø reinforcement bars

Foundation
200mm width.
900mm deep below the ground level,in frost free zone
30mm hard insulation of both side next to the concrete foundation.
DPM 0.5mm under the concrete floor.
DPM 0.5mm between the concrete foundation and 30mm hard insulation
DPM 0,5mm under the concrete internal wall

Concrete internal walls:

Internal non- load bearing walls:
100mm aerated concrete
Fire demand: EI 30

Internal load bearing walls:
200mm Concrete
Fire demand: REI 60

Concrete building

Ground supported slab:
10mm Linoleun
30mm Screed
100mm Concrete
150mm Polystyrene
150mm Polystyrene
70mm Gravel
Sports Hall:
Floor finish is Polyurethane
Minimum U VALUE: 0.10W/m²K
Actual U value:0.112W/m²K

Internal stairs

Prefabricated concrete stairs
width: 1000mm
rise: 170mm
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Ground floor:
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4 reinforcement bars in foundation
1st floor:
stairs are screwed to 355mm thick concrete landing
with 2 steel plates and steel screws.

Glass hall foundation:

500mmx250mm concrete reinforced
with 6 12ø reinforcement bars
2x 190mmx250mm light clinker block,
75mm insulation
10mm mortar on top of first light clinker block
Plaster on external side of light clinker block

Ground supported slab

Wooden building:
10mm wooden floor finish
20mm plywood
0,5mm DPM
30mm screed
100mm concrete slab
150mm polystyrene
150mm polystyrene
70mm gravel
Minimum U VALUE: 0.10W/m²K
Actual U value:0.10W/m²K

Wooden cladding:

froeslev.dk
Raw wood dimension :19x200mm
Pine / spruce with planed front.
Surface treatment: Black RAL 9005 primed and painted

Wooden foundation:

Concrete footing 450x730mm, 900mm deep below the ground level,
in frost free zone
2 layers of Leca blocks 150x345mm with mortar between them
8mm layer of plaster around Leca blocks on the outer side
Hard insulation 35x315mm next to Leca blocks on the inner side
Radon barrier on the top of Leca blocks, it goes 100mm inside the ground supported slab on the top of screed
DPC 0,5mm on top of the Leca blocks
DPM 0,5mm on top of the screed and goes up to the wall,
between insulation in the wall
1 Sole plate 45x300 in-situ-cast, on the top of leca bocks and membranes
Pre fabricated wooden wall element, placed on top of the sole plate
and screwed together

VIA UNIVERSITY COLLEGE
SCHOOL OF TECHNOLOGY AND
INDTAST BY
PROJECT: Multipurpose hall
04/15/22
SUBJECT: RP3 SECTION
SCALE: 1 : 50
I100_F6_H1_N08
DRAWN BY: Ana, Klaudia, Zixuan
CLASS: AH31