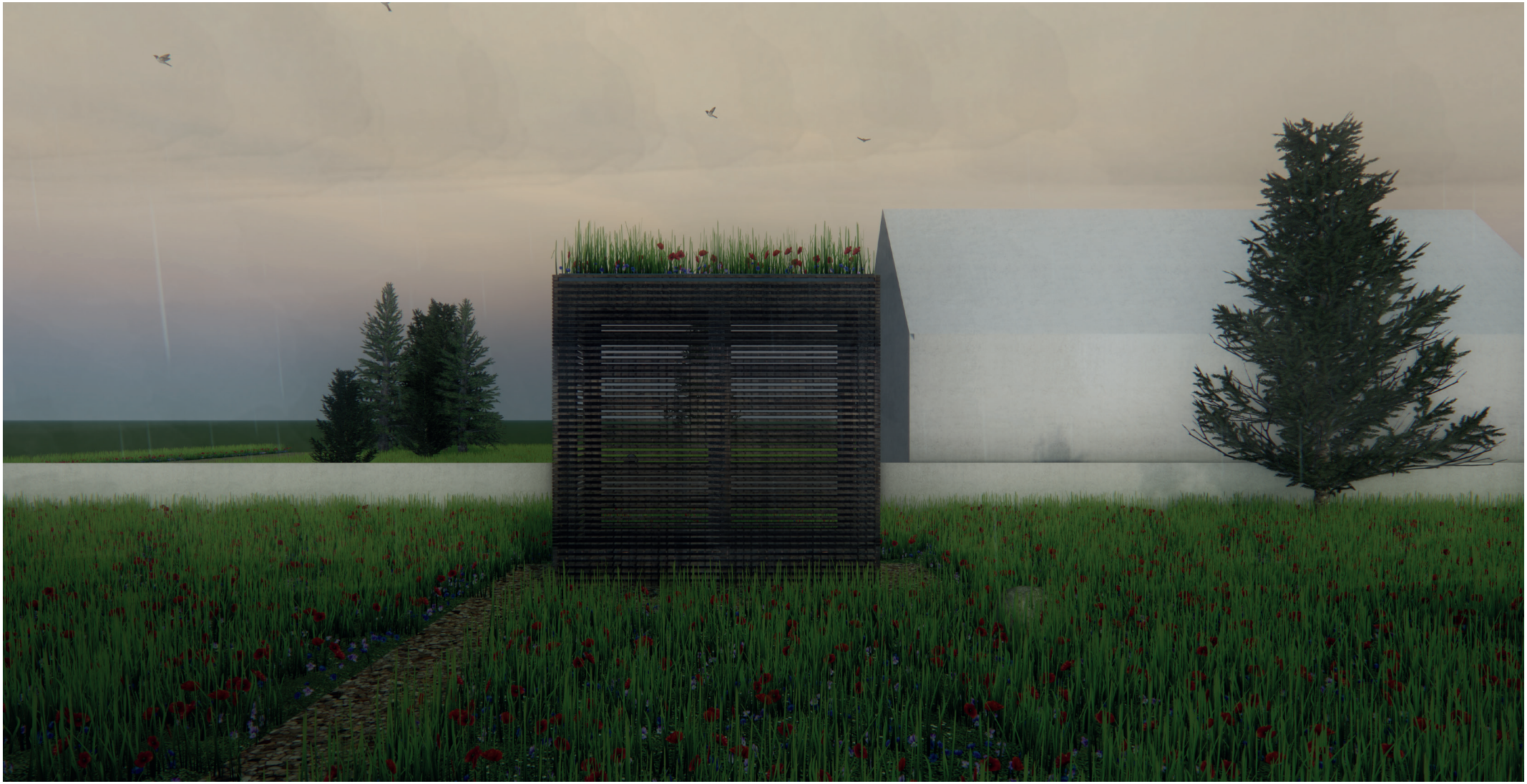

Urbaanin puuvajan piirustukset omatoimirakentajalle

Suunnittelija: Kristaps Sveisbergis, arkkitehtiopiskelija, Aalto-yliopisto

Julkaistu: kevät 2017

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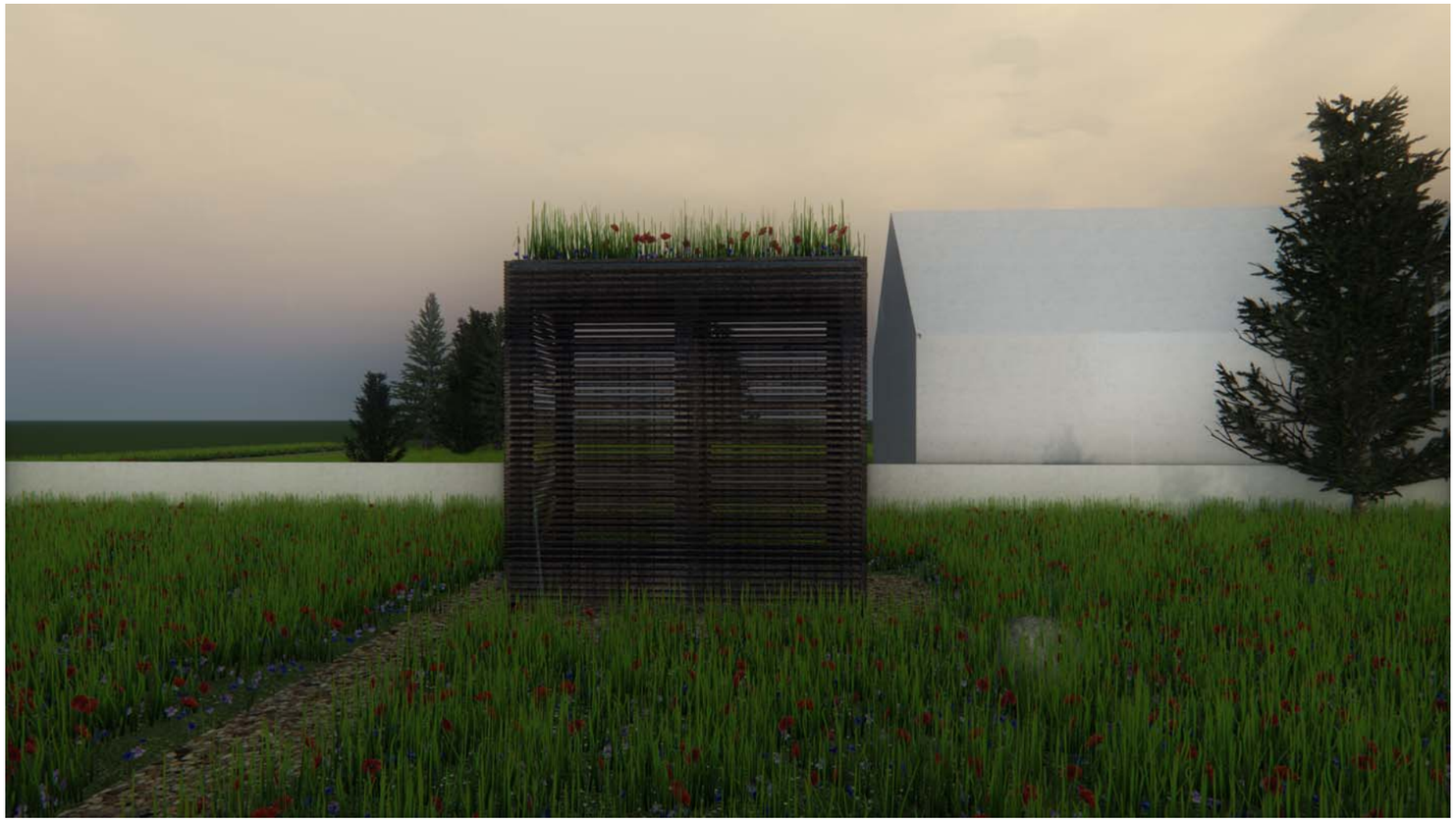
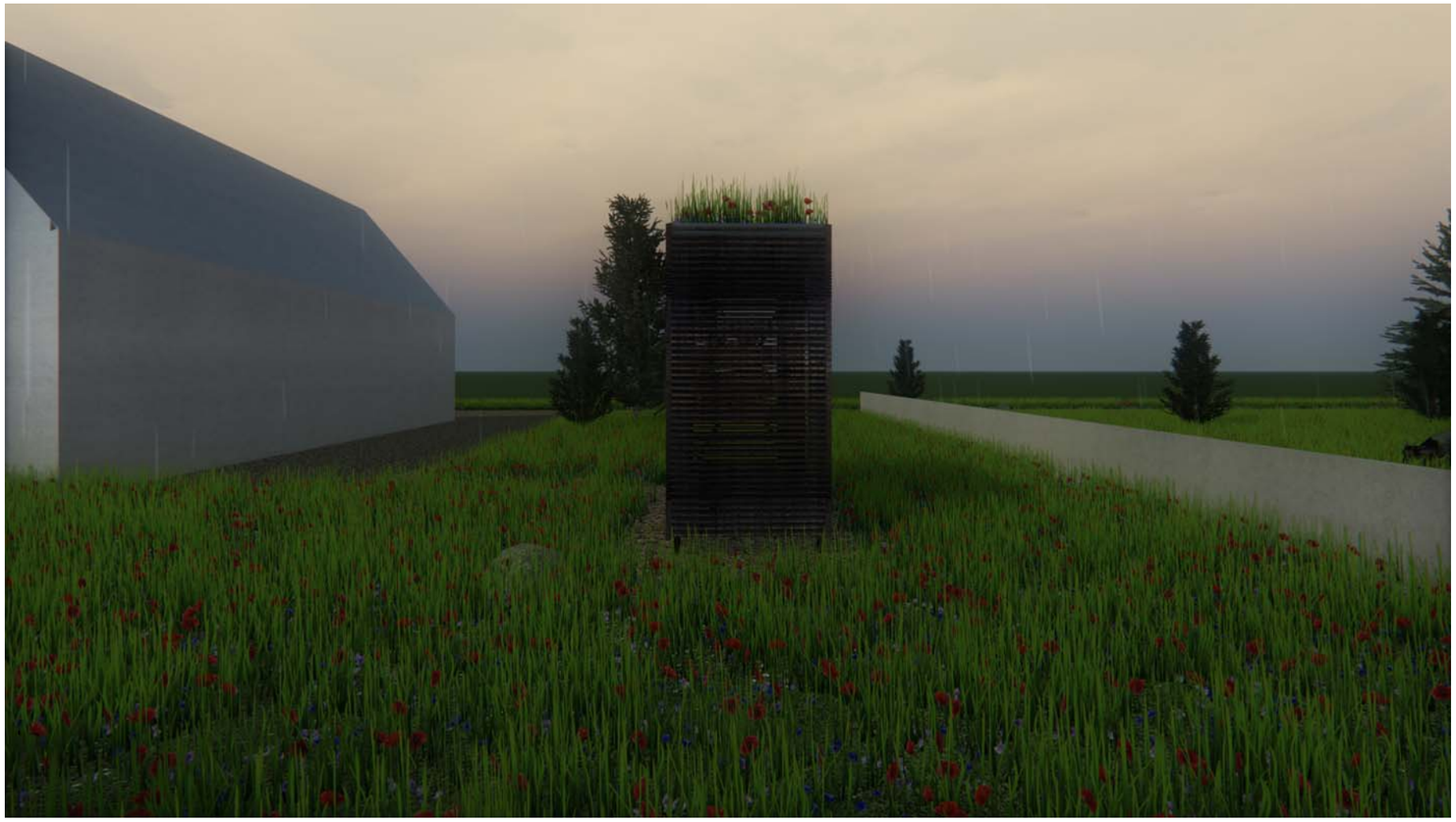
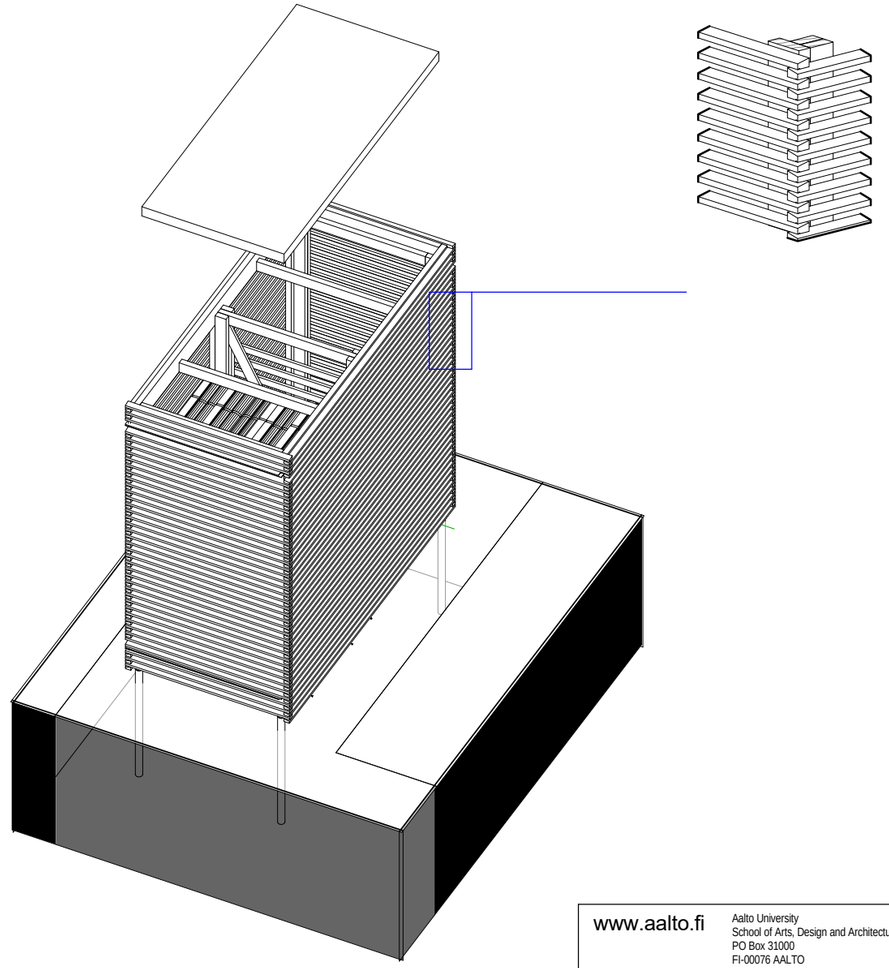




Both sides of the shed have 90 degree doors

Almost invisible connections between doors and walls



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Approved by:	Minna Kuusela	
Drawn by	Kristaps Sveisbergs	

SUBJECT:
Competition drawings

PROJECT:
Fire shed
Adrese: Helsinki

DRAWING NAME:
Axonometric

Stage	Date
Technical	02.08.02016.
Scale	Page OP_01

All wood and metal should be weather protected using:

Wood

Option 1 — Coffee and white vinegar with steel wool
1. Steel wool should be placed in vinegar for period of 2 months
2. Applying coffee on wood with brush
3. Applying vinegar mixture on wood with the brush
4. in 1 h wood should be darken and weather protected

relatively cheap method

Option 2 — shou-sugi-ban method

1. Wood is burned till it starts to coal
2. With water and brush coal is removed
3. dried wood is considered weather proof
for additional protection and darker color
wood could be painted with linen oil.

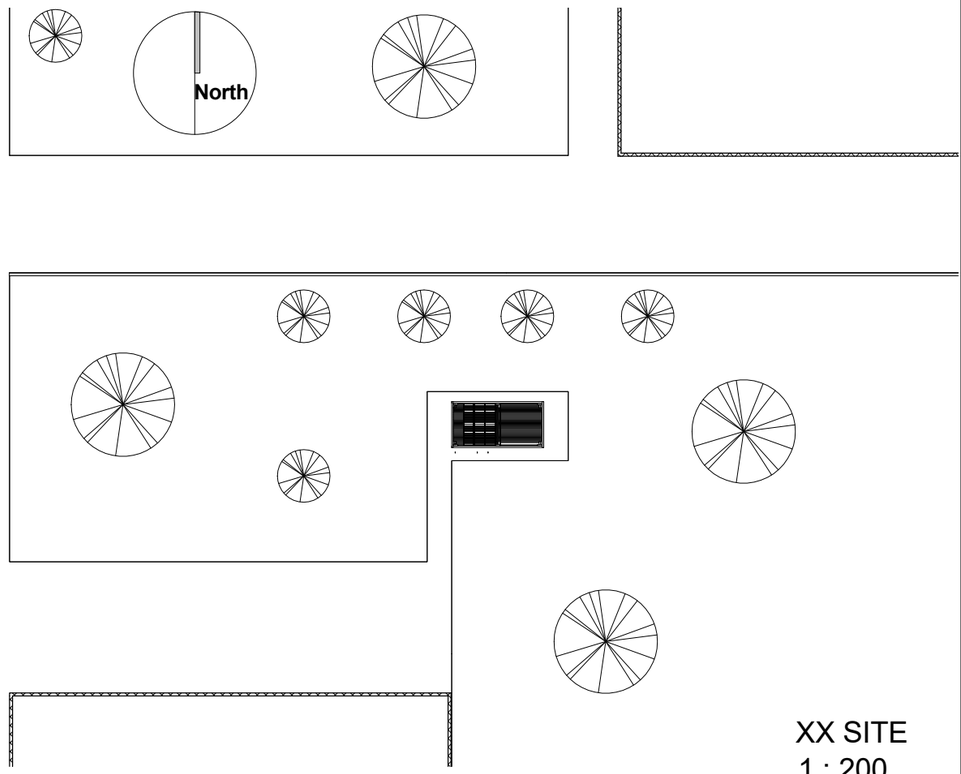
Labor intense method that provides wood with nice
feel on touch and color play in throe out seasons.

Option 3 — Applying tar or tar mixed with linen oil.

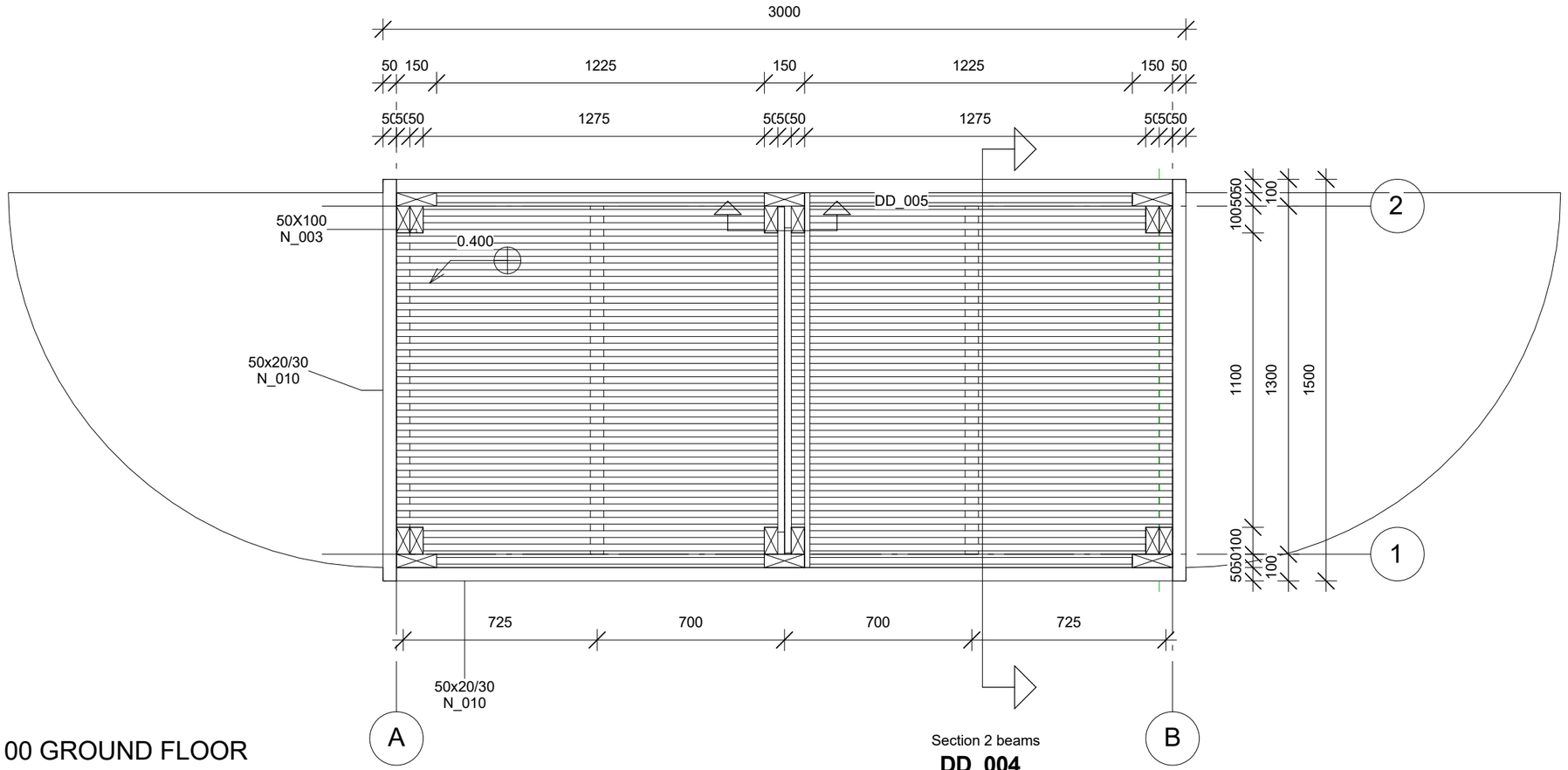
Natural treatment method

Metal — -Painted with black metal paint.

To choose suitable wood treatment method we recommend to make small test peace's.



XX SITE
1 : 200



Section 2 beams
DD_004

00 GROUND FLOOR
1 : 20

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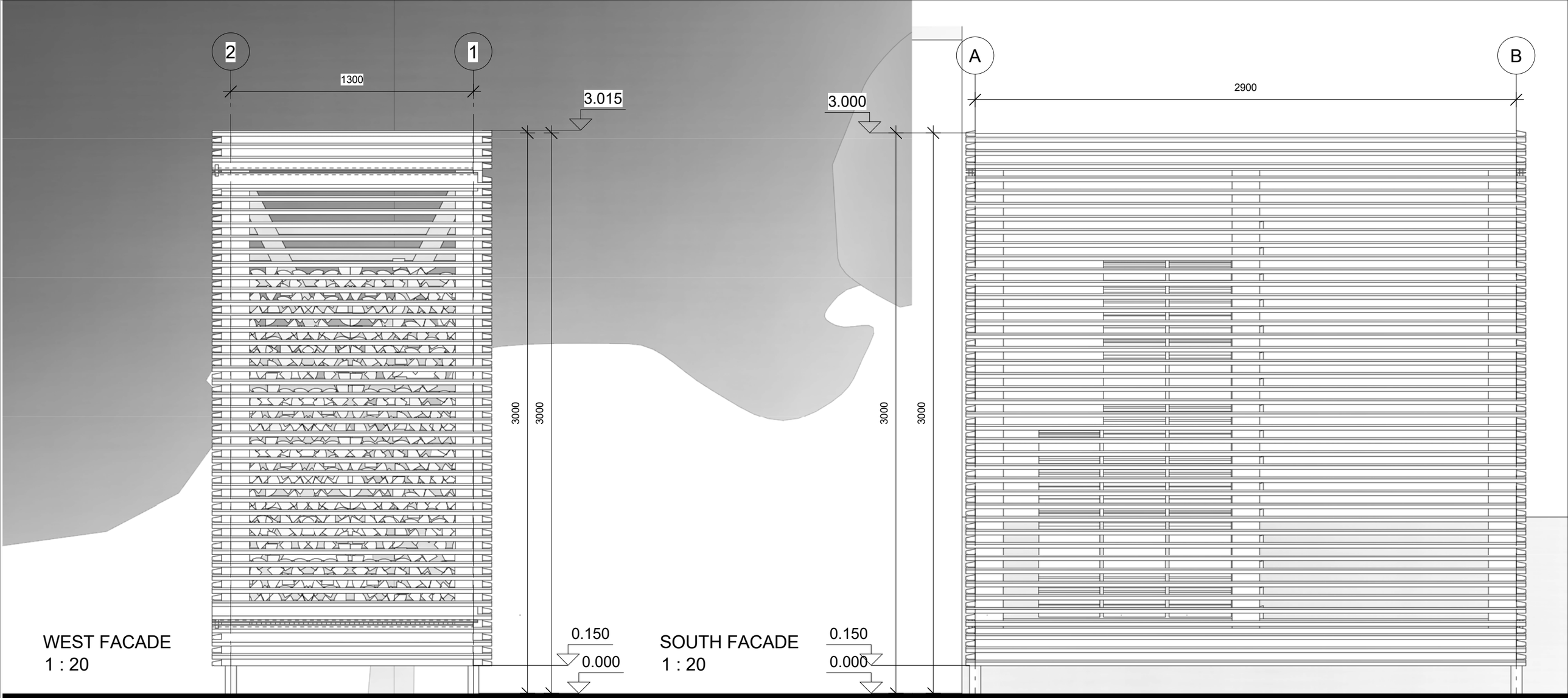
SUBJECT:
Competition drawings

PROJECT:
Fire shed
Adrese: Helsinki

DRAWING NAME:
Drawings

Stage	Date
Technical	02.08.02016.
Scale	Page
As indicated	OP_02



The base point of our design proposal was the standard size of firewood (320 mm x500 mm) and most common transportation and storage methods- EU palettes, stacking in frame and in piles or bags. The width of our proposal derives from possible stacking combinations. The building will be elevated from the ground by help of screw piles. The useable space will be maximized with a flat roof in maximum height 3m. According to the provided information, annual firewood use for one household is around 5 m3. Considering that firewood will be stacked, it will occupy 5 x 1.5 /2.3 = 3.25 m2 of space. If the wood remains in pile or in large bags it would take 6 m2 of space. Therefore it is possible to presume that most households will inquire enough firewood to last the whole season and will stack it. We decided to remain in 5 m2 borders for the building and no less than 8 m distance from the living quarters.

Facades

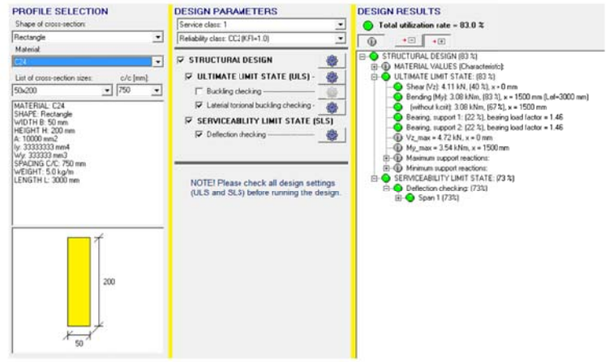
To give the design lightness the facade is built from 6*5 cm wooden boards that are split in half in 75 degree angle to support a French cleat system. We decided to use horizontal boards not vertical in favor of wood loading benefits, rain water protection and support of French cleat system.

All wood material is treated with fire (Japanese Shou-sugi-ban technique) and painted with line oil, bringing strong reference to nature and fire. Dimensions To ensure maximally advantageous use of material it was decided to use standard lumber cutting dimensions 3 m in length and 1.5 (half).

'Roof

For roof construction we decided to use green roofs. Vegetation on shed roof will help to blend it in surroundings

Manifacturer			
firewood size	320	500	
transport	EU palet with bag	pile in trailer	**stack in frame**
Owner			
storage	EU palet with bag	pile on ground	**stack in frame**
firewood anual consumsion	2.5x1 m3	2.5x1 m3 5 m2	1.5 x 1 m3
wood stack height in shed	2 m		
Space in shed ocupide m2	5.952380952	3.913043478	**3.26**
foundation	screw pile		
side panels	vertical	horizontal	
load structure	50x100 mm		
roof	green roof	**vertical wood planks**	policarbonate
In house			
transportation	trolly	**frame**	hands/bag
storage	2 days	5 days	
wood treatment	burned	**tar**	burned+linoil



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Drawn by	Kristaps Sveisbergs

SUBJECT:
Competition drawings

PROJECT:
Fire shed
Adrese: Helsinki

DRAWING NAME:
Facades

Stage	Date
Technical	02.08.02016.
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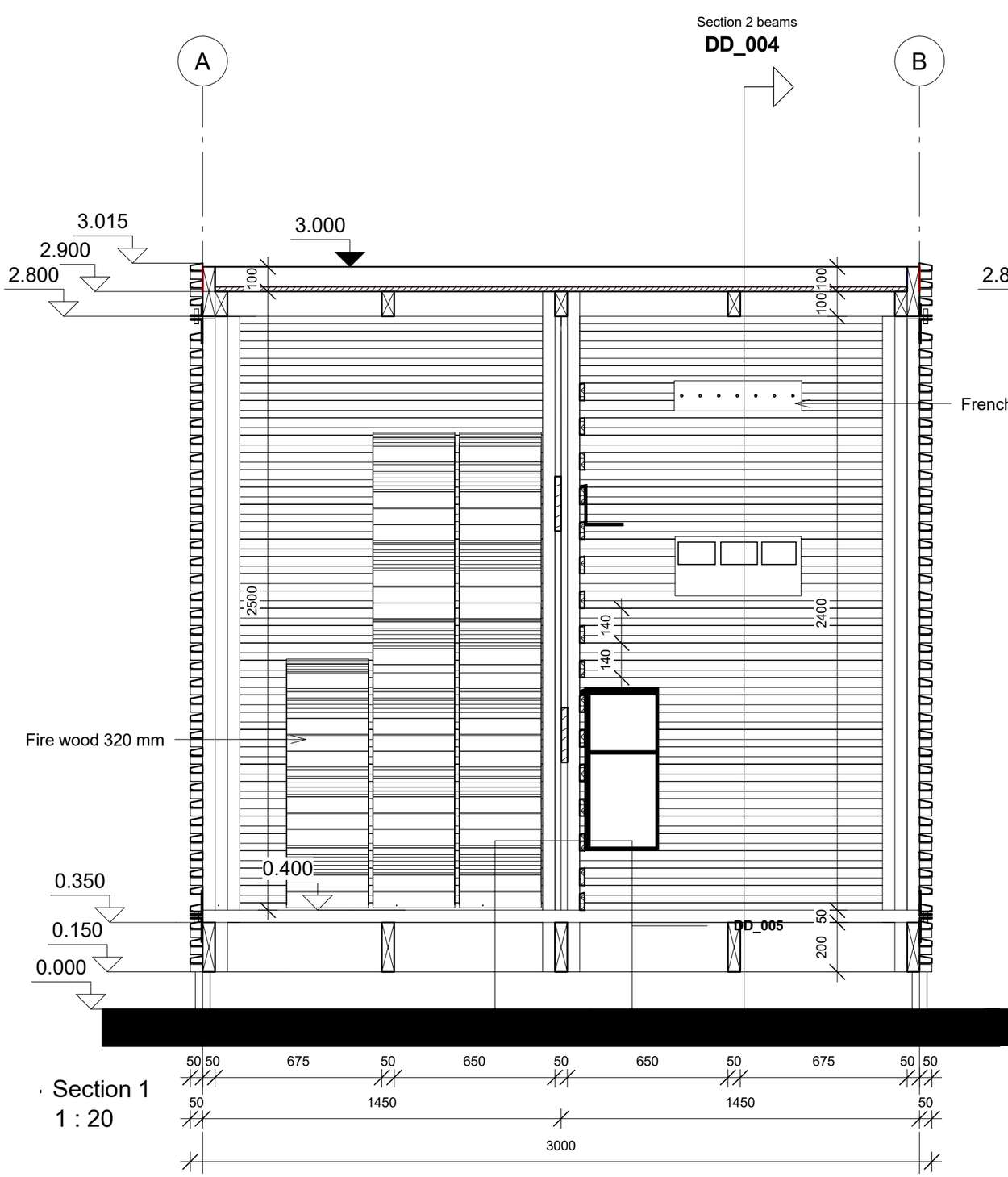
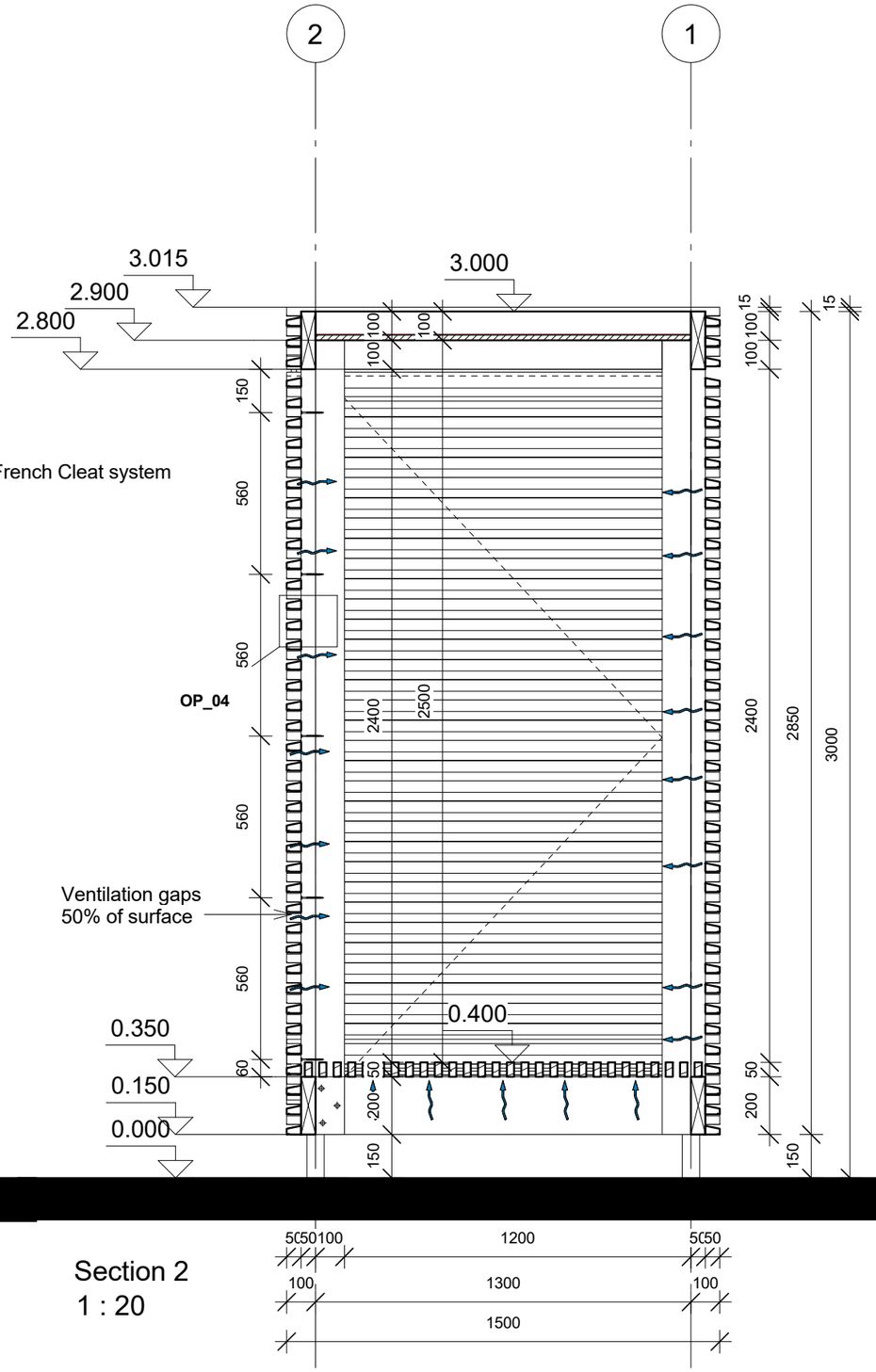
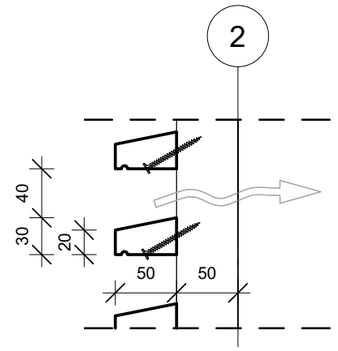
As indicated	OP_03



Section 1
1 : 20



Section 2
1 : 20



Detail 1
1 : 5

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Fire shed
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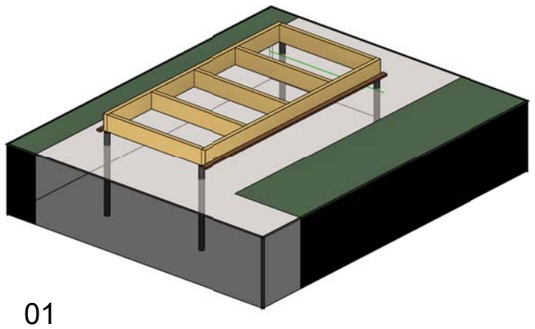
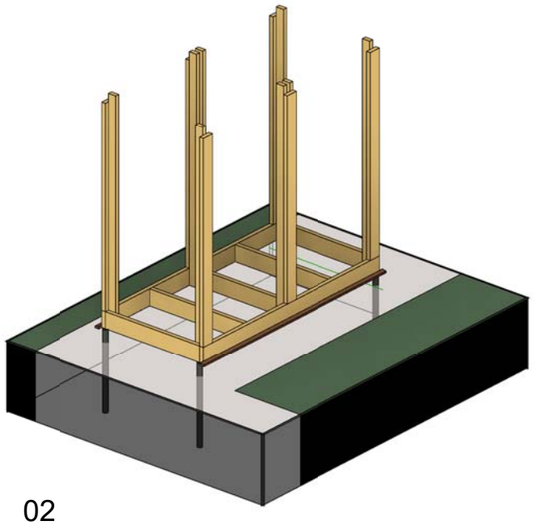
DRAWING NAME:
Sections

Stage	Date
Technical	02.08.02016.
Scale	Page
As indicated	OP_04



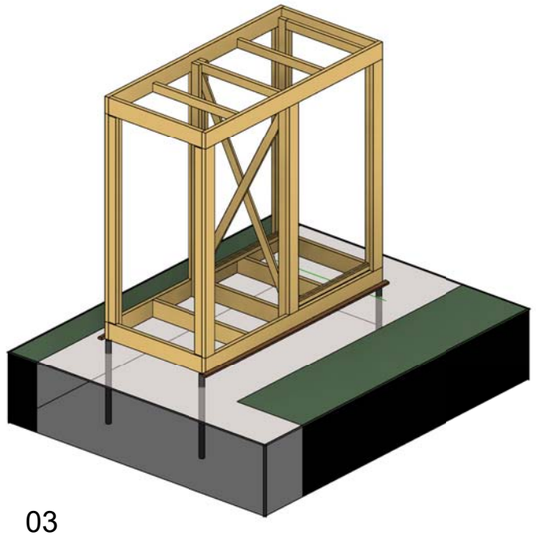
01

Wooden base frame is placed on foundations
Frame should be waterproofed with tar or
by burning (we recommend to clean coal from wood
afterwards)



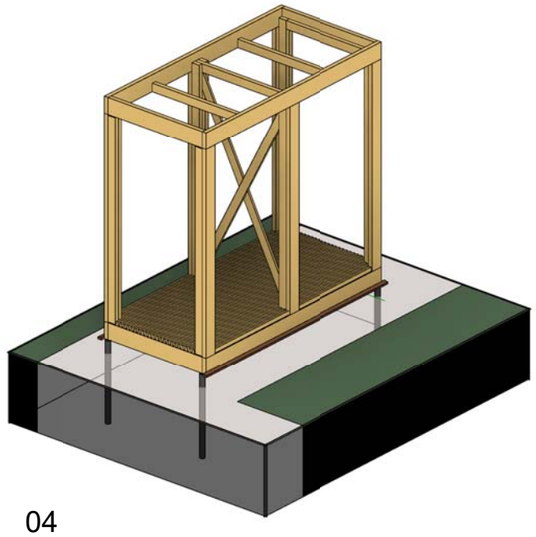
02

Vertical columns are mounted to frame with screws



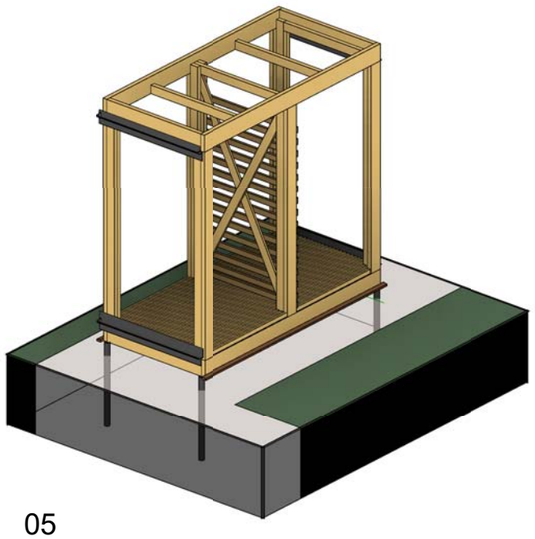
03

Upper frame and diagonal bracing's are placed



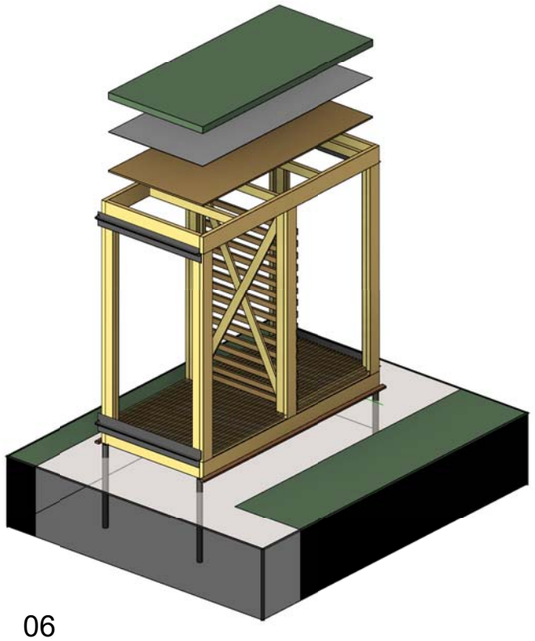
04

Timber 25x50 mm flooring with ventilation gaps
or flooring from 20 mm plywood.



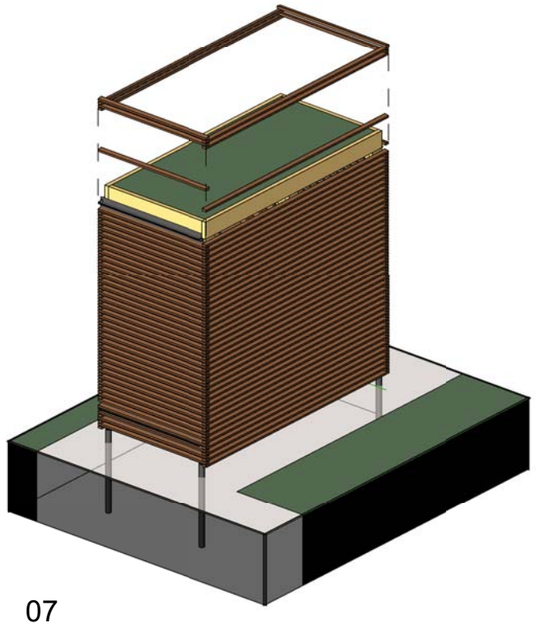
05

French cleat system from Plywood 20 mm board
and installation of door frame system.



06

Installation of all roof layers
Plywood
waterproofing
soil
vegetation



07

Installation of Facade boarding
starting from bottom.

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SUBJECT:
Competition drawings

PROJECT:
Fire shed
Adrese: Helsinki

DRAWING NAME:
Axonometric

Stage	Date
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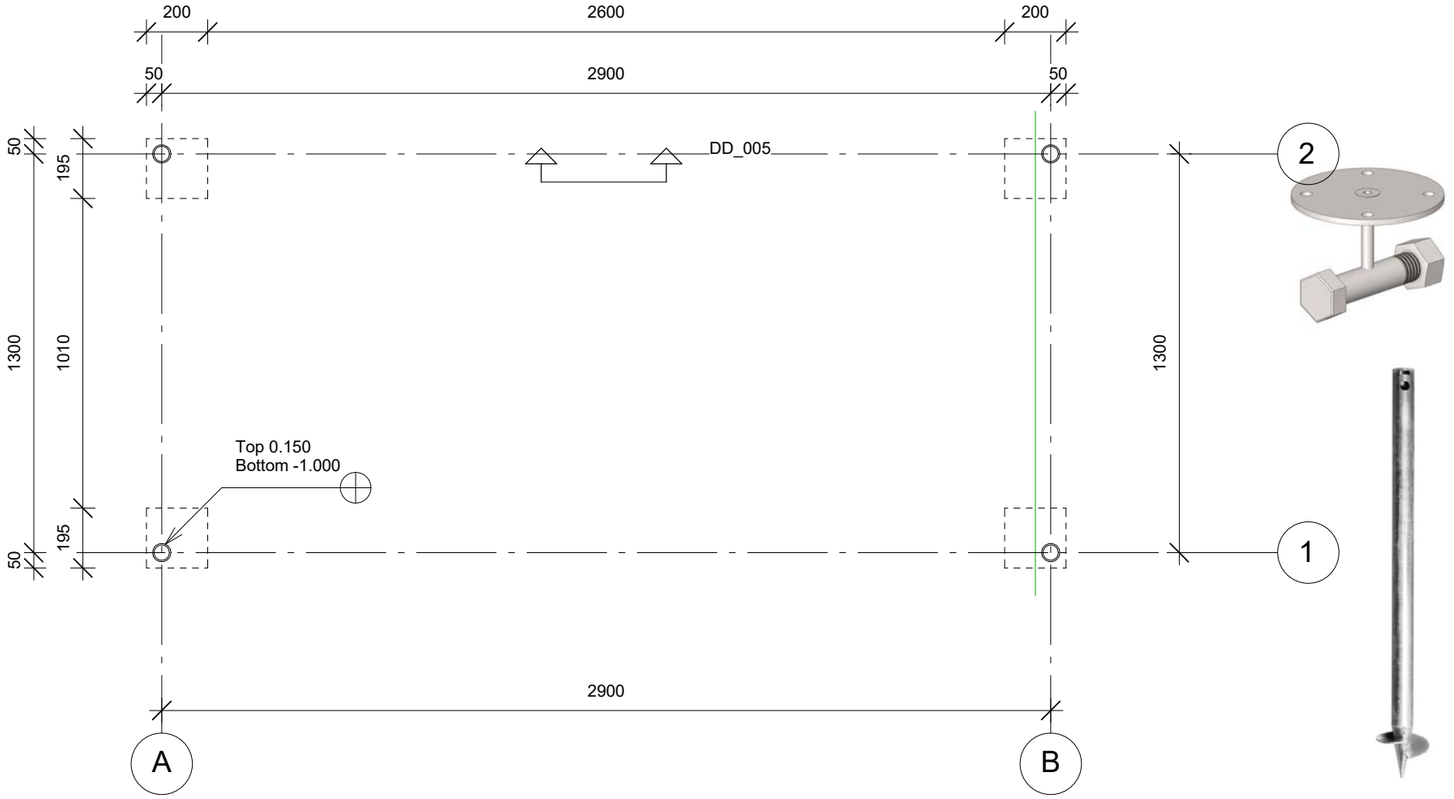
Scale	Page DD_001



Design option

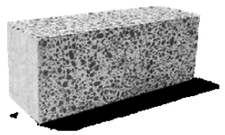
Screw piles

Top plate for connecting screw piles to wooden frame.
after placing wooden frame on top plate that is mounted to screw foundations
wooden frame needs to be fixed from bottom to top plate

STEEL SCREW PILE FOUNDATIONS
dim. 1150x60 mm with 150 mm wing diameter
The pile can, if necessary, also be pivoted up and re-used.
Twist Steel Screw Piles made from start to finish in Finland from high quality steel.

Alternative

Floating foundations



LECA Blocks
Dimensions (W x D x H): 200 x 498 x 195 mm
12 kg/pc

LECA block foundations could be used when

1. soil is strong
2. there is bedrock close to surface

Floating foundations will not be as rigid
as screw piles but they will be cheaper.

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SUBJECT:
Competition drawings

PROJECT:
Fire shed
Adrese: Helsinki

DRAWING NAME:
Foundations

Stage	Date
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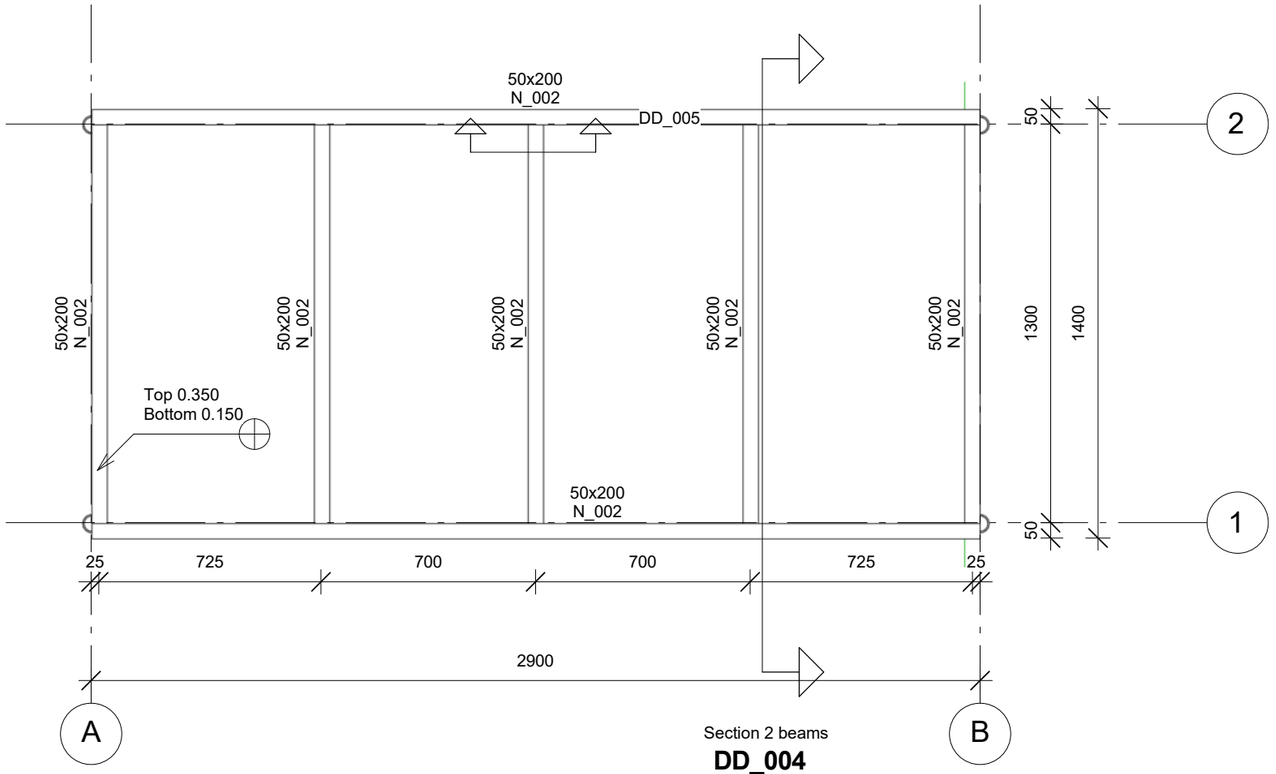
1 : 20	DD_002

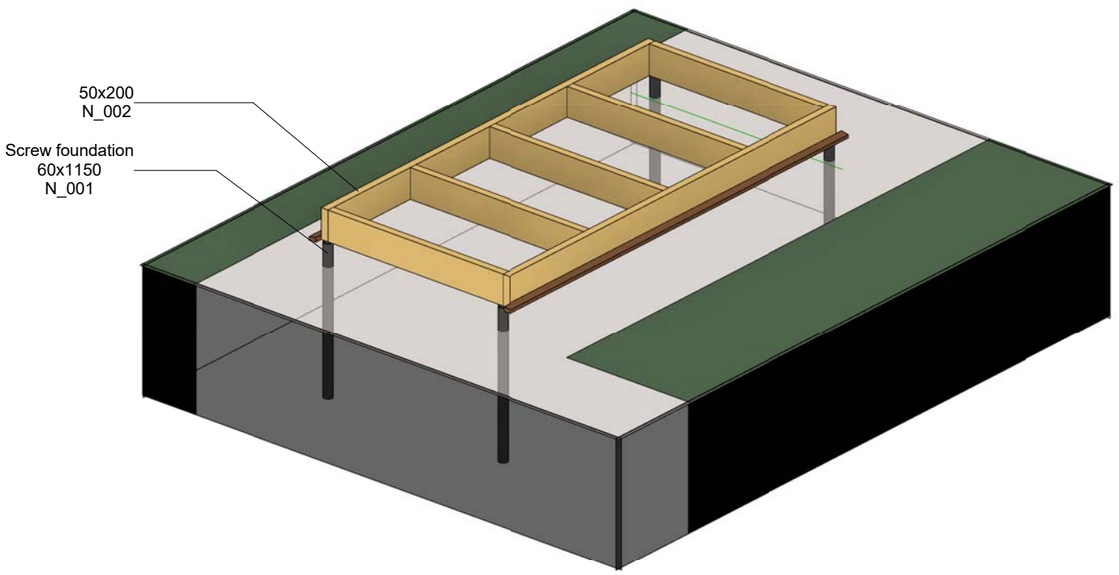


Section 2 beams

DD_004

01_FRAME

1 : 20



Wood base frame should be weather protected before assembly
Recommended wood treatment methods - tar, tar and linen oil or shou-sugi-ban method where wood is burned till coal and coal afterwards is cleaned with brush.

Wood frame should be connected to foundations cover caps

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SUBJECT:
Competition drawings

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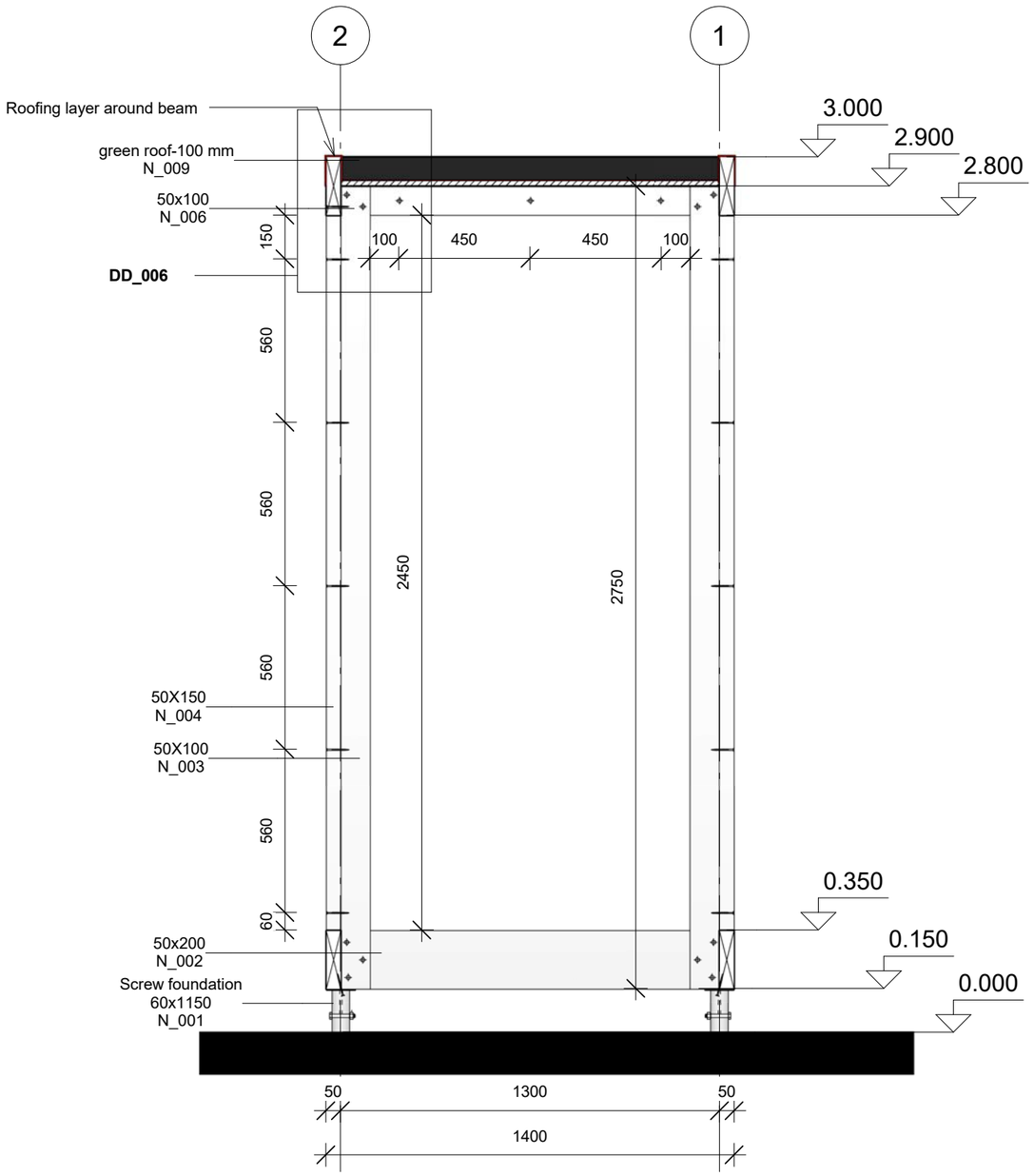
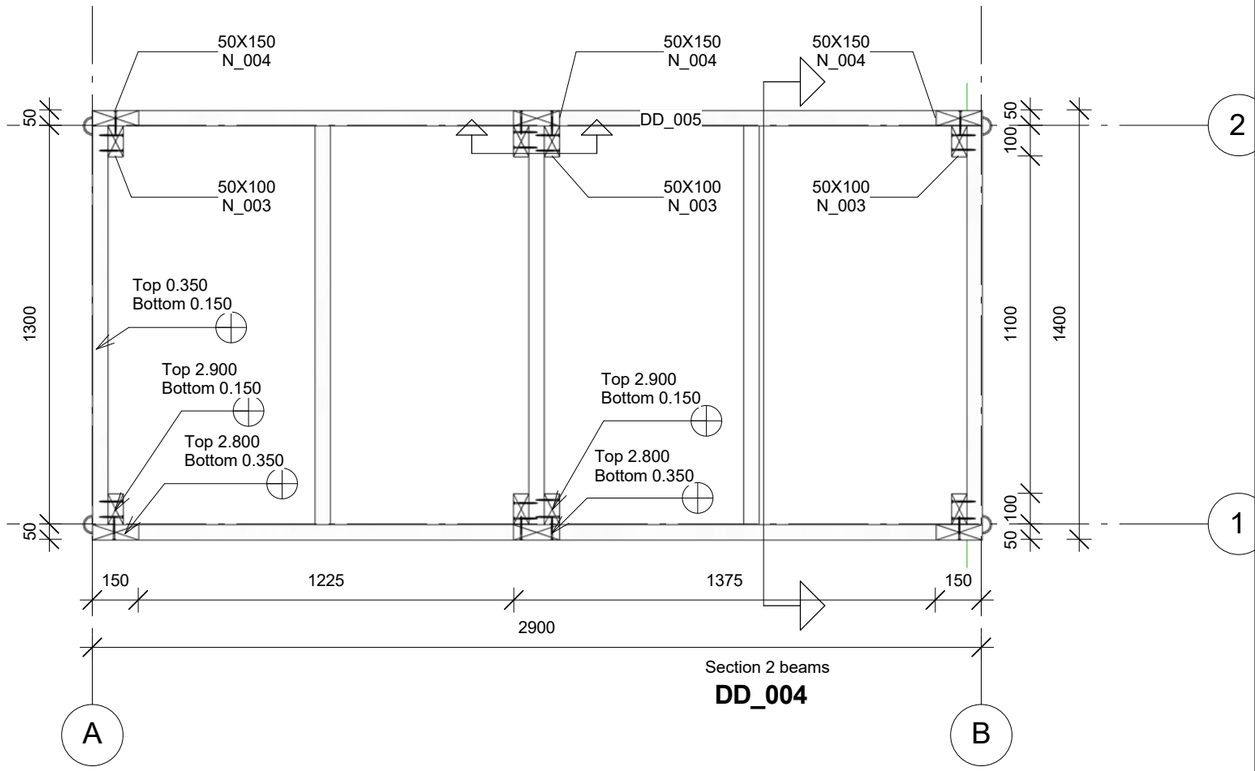
Fire shed
Adrese: Helsinki

DRAWING NAME:
Frame

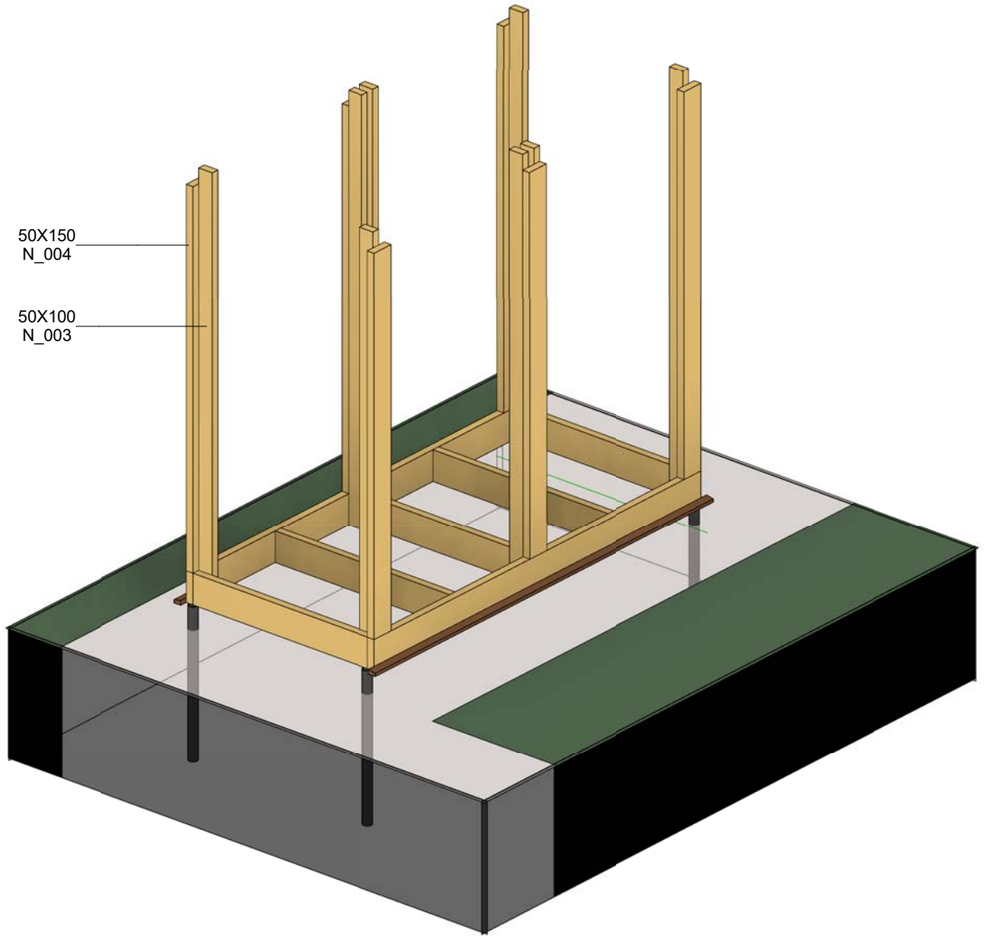
Stage	Date
Technical	02.08.02016.
Scale	Page
1 : 20	DD_003





Section 2 beams

DD_004



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Fire shed
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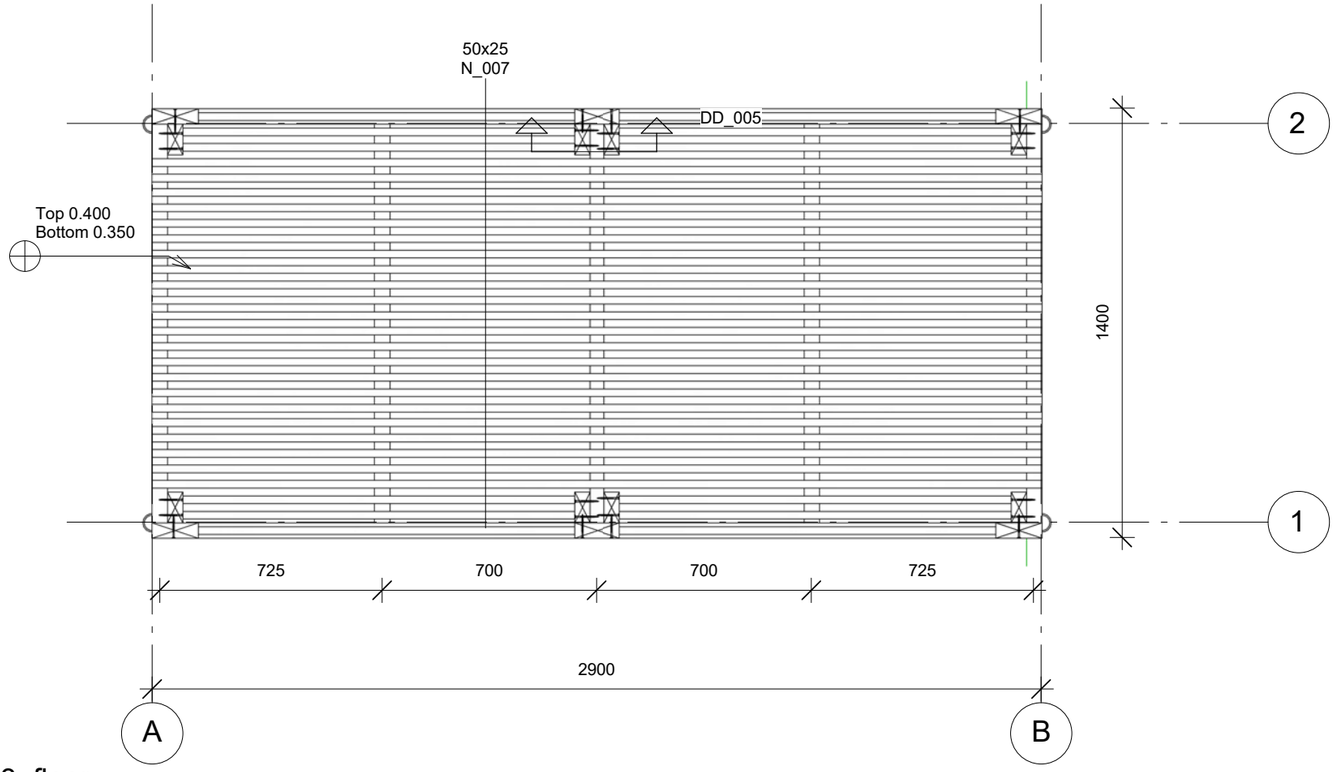
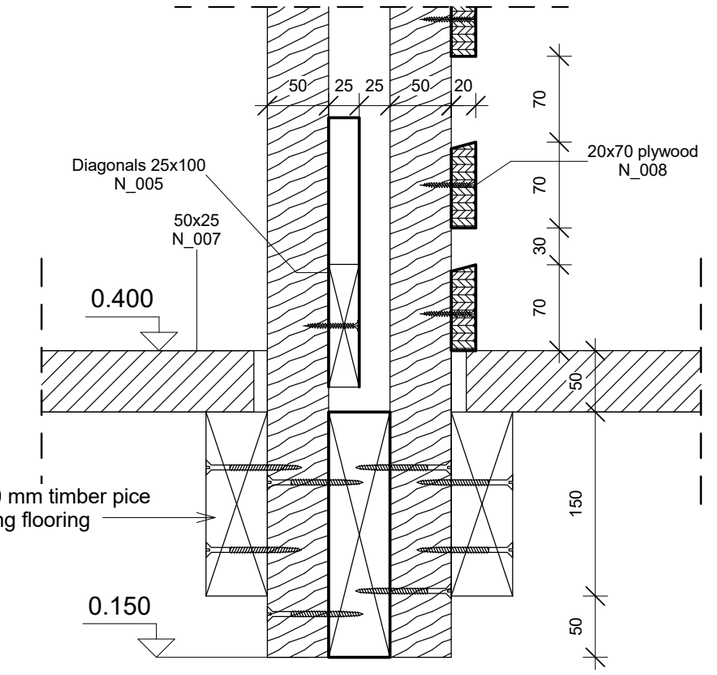
DRAWING NAME:
Columns

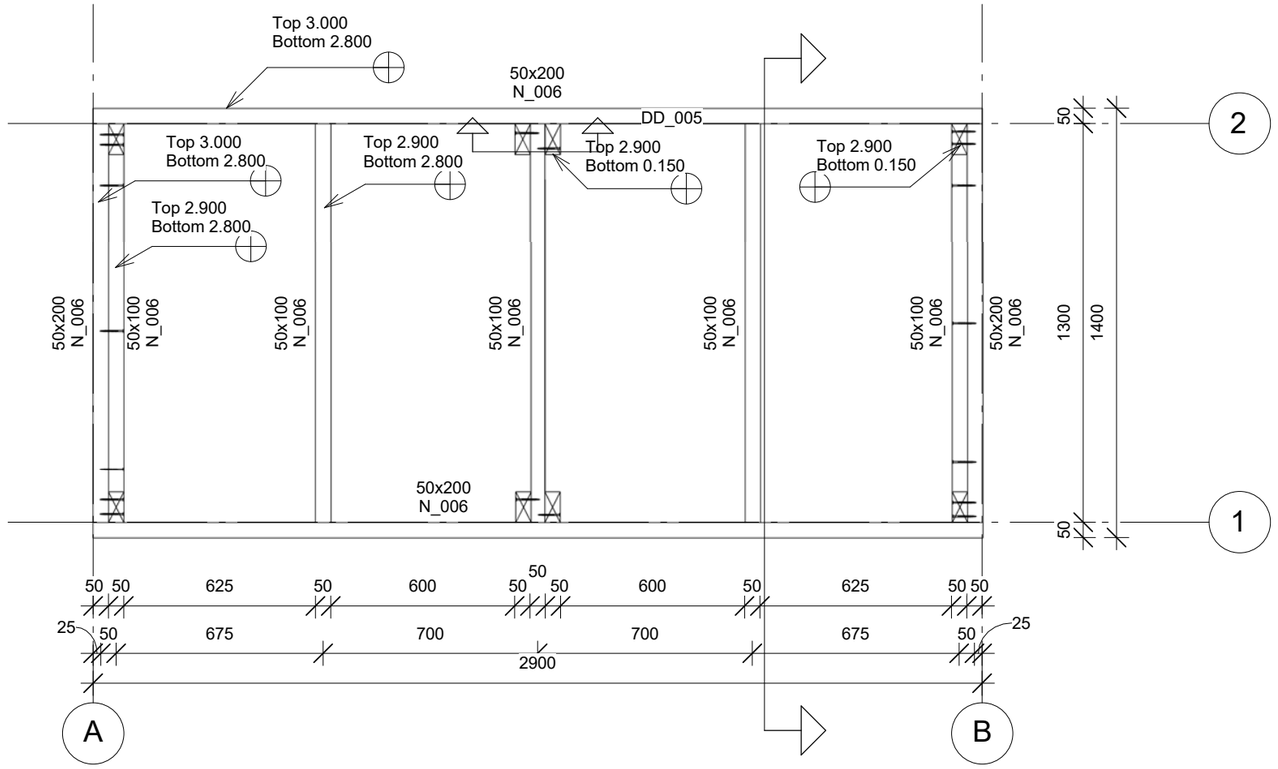
Stage	Date
Technical	02.08.02016.
Scale	Page
1 : 20	DD_004



03_floor
1 : 20



Detail 3
1 : 5



Section 2 beams
DD_004

04_upper frame
1 : 20

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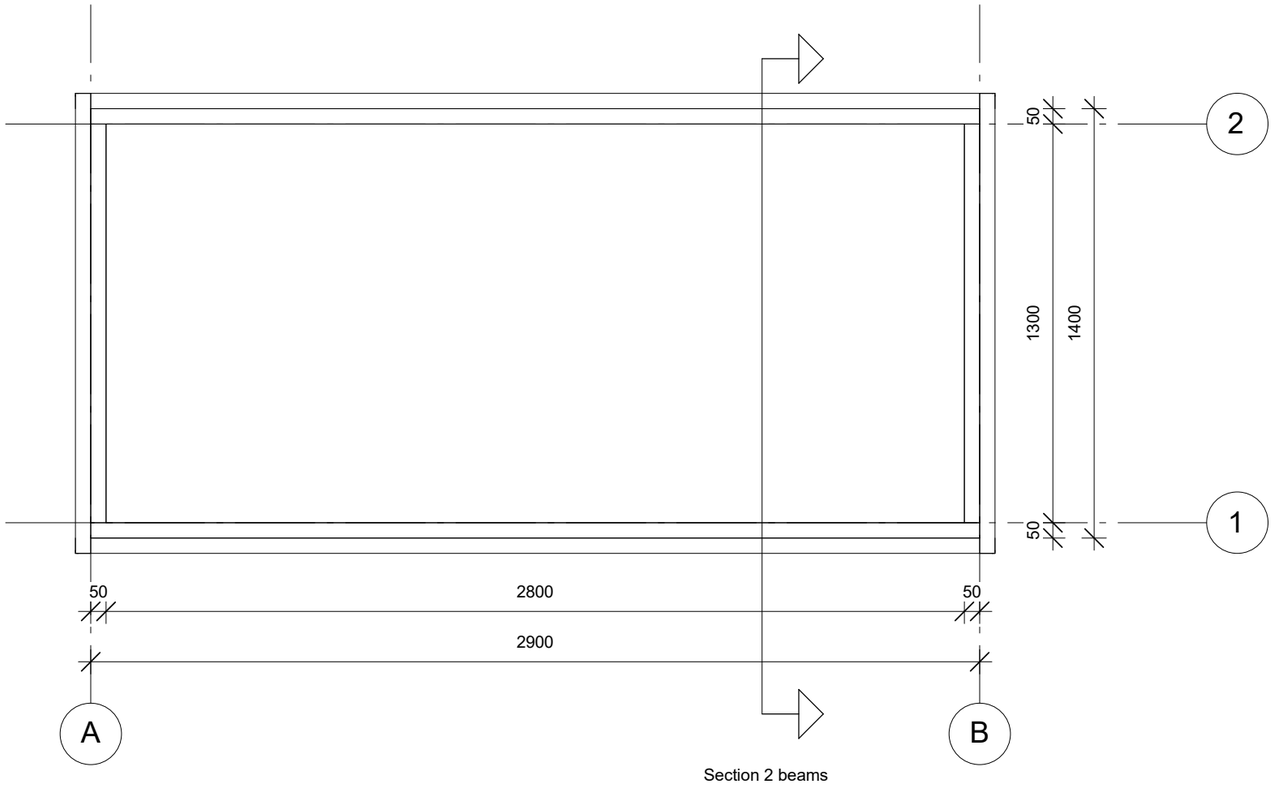
SUBJECT:
Competition drawings

PROJECT:
Fire shed
Adrese: Helsinki

DRAWING NAME:
Floor and Upper frame

Stage	Date
Technical	02.08.02016.
Scale	Page
As indicated	DD_005

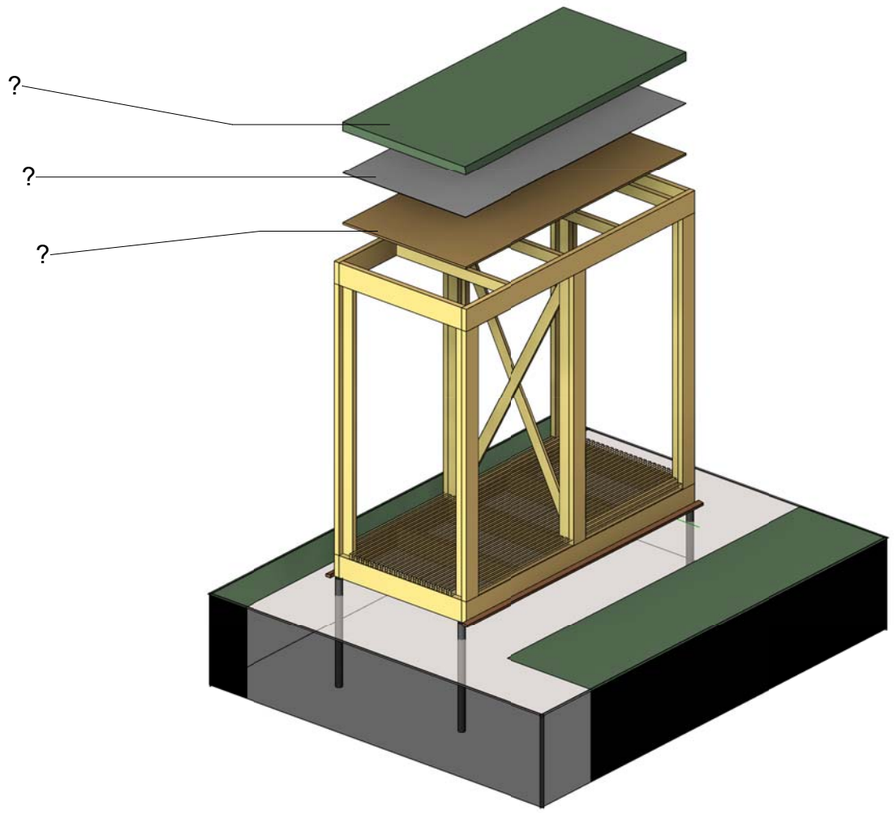


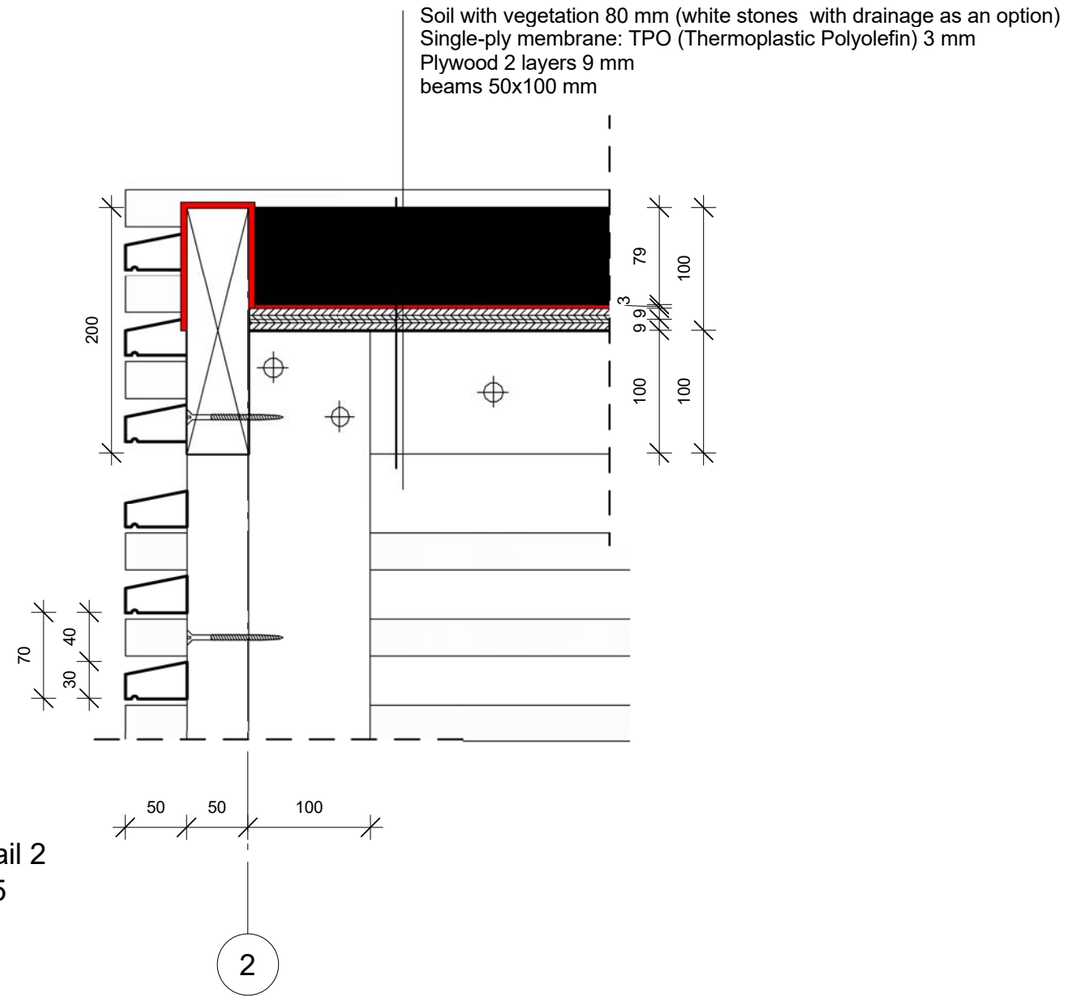
Section 2 beams

DD_004

05_roof

1 : 20





Detail 2

1 : 5

2 layers of 9 mm waterproof plywood with coverage area 2800x1300 mm is used as roof's base structure.

Waterproofing is done with roofing material Single-ply membrane: TPO (Thermoplastic Polyolefin) 3 mm material area 2000x3500 mm

Soil mixed with turf 0.3 m3 is used as growing bed for vegetation.

Vegetation - grass or spices with low root depth.

Alternative option is done by replacing vegetation and soil with light color stones. In this option there is need for drainpipe to avoid accumulation of unwanted rainwater on roof.

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SUBJECT:
Competition drawings

PROJECT:
Fire shed
Adrese: Helsinki

DRAWING NAME:
Roof

Stage	Date
Technical	02.08.02016.
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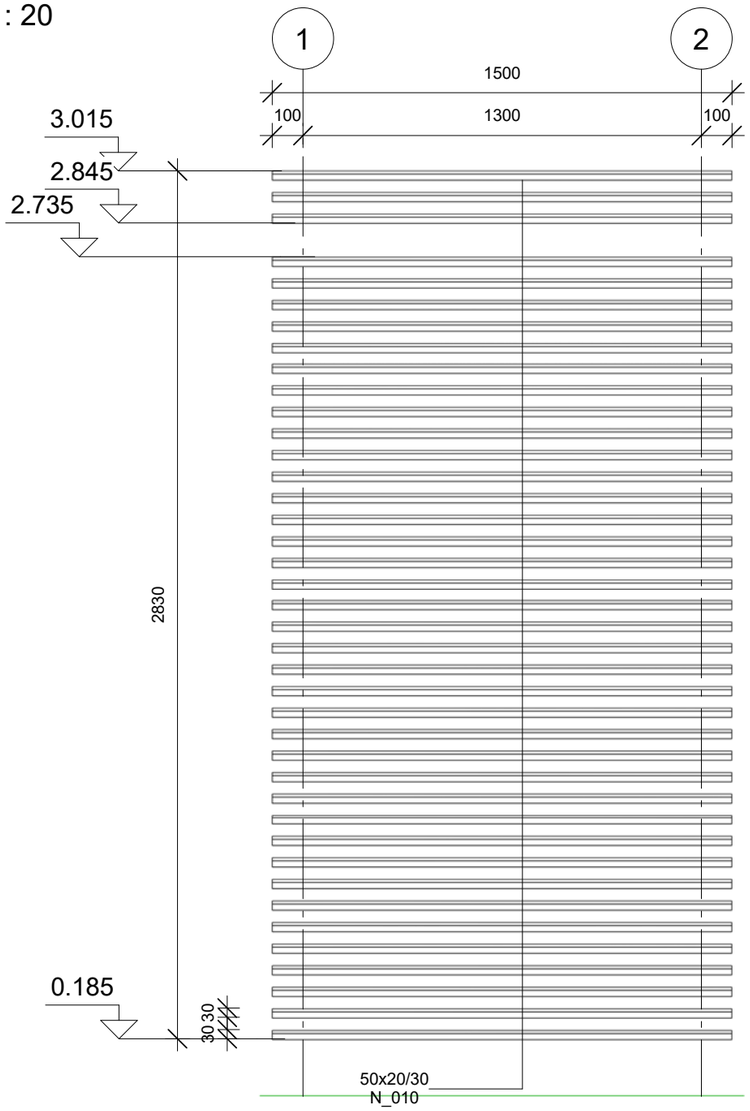
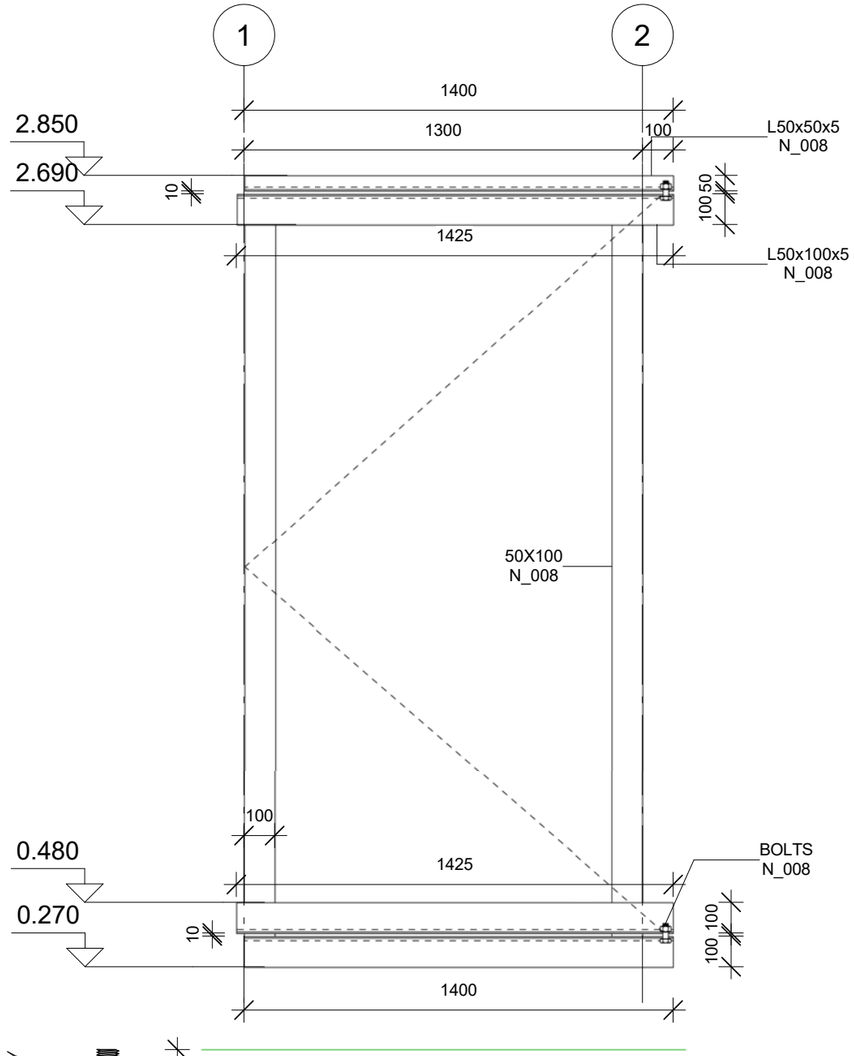
As indicated	DD_006

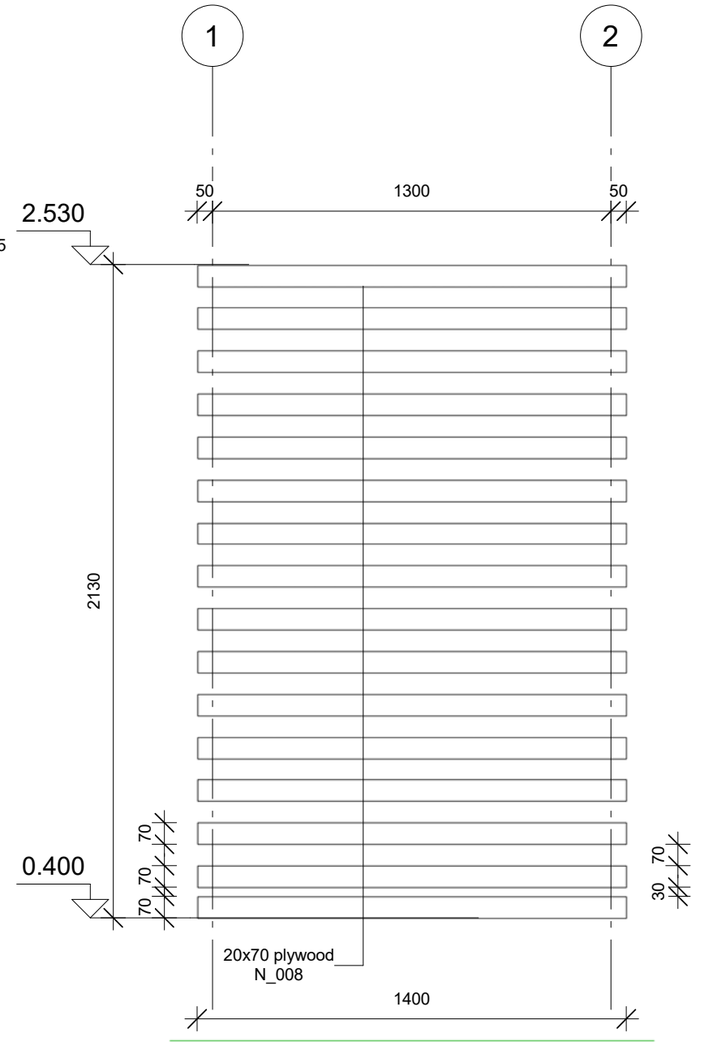
Facade boarding
1 : 20

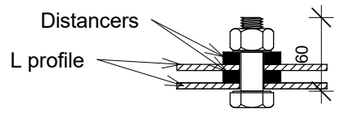


Door Frame
1 : 20



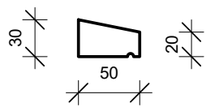
plywood french cleat system
1 : 20



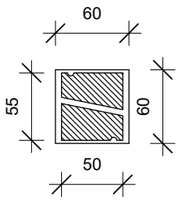


Bolts with distancers between L-shape metal profiles are used to connect frame.

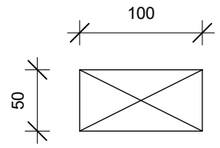
Material Profiles
1 : 5



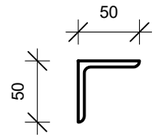
Facade boarding with treatment



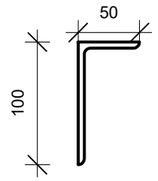
Two facade boards could be made from one 60x60x3000 mm board that is splited in angle and has milled 5 mm stage.



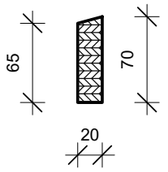
Vertical frame boards



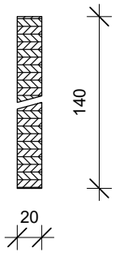
L- shape metal 50x50x5 mm profiles
should be weather protected with black metal paint



L- shape metal 50x100x5 mm profiles
should be weather protected with black metal paint



French cleat system
made from plywood



can be made from 20x140x1400mm plywood with cut in angle

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Approved by:	Minna Kuusela	
Drawn by	Kristaps Sveisbergs	

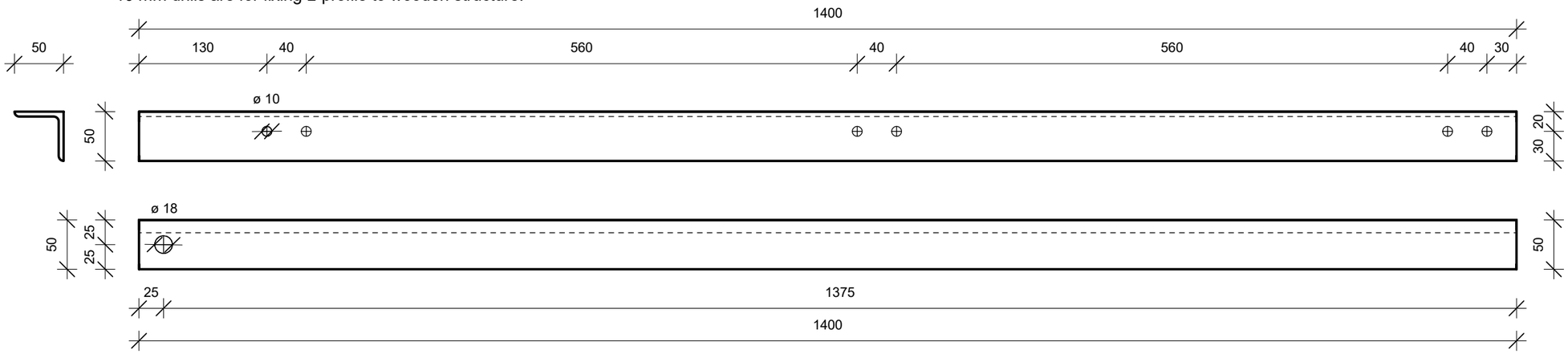
SUBJECT:
Competition drawings

PROJECT:
Fire shed
Adrese: Helsinki

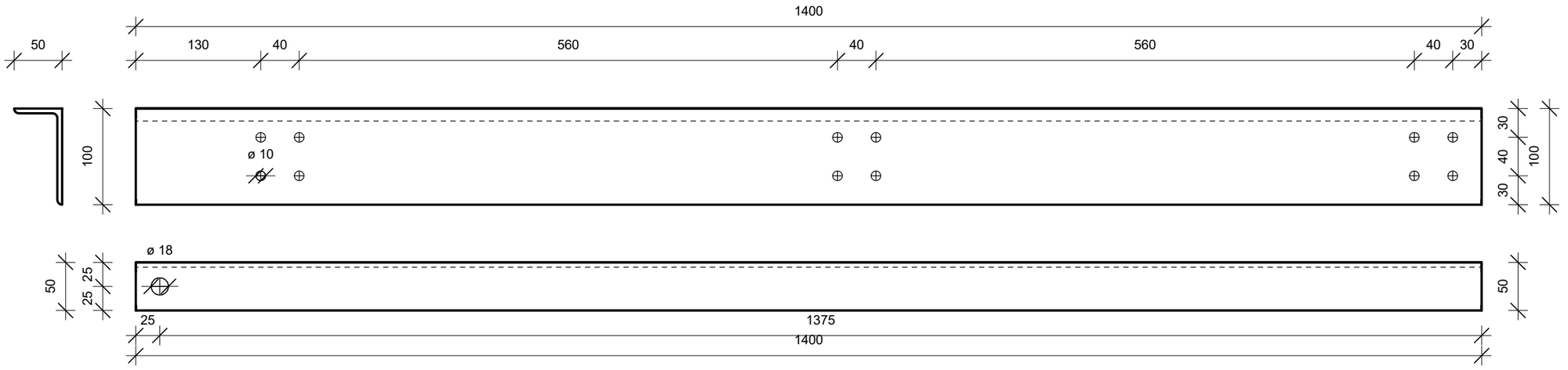
DRAWING NAME:
facade panels and frames

Stage	Date
Technical	02.08.02016.
Scale	Page
As indicated	DD_007

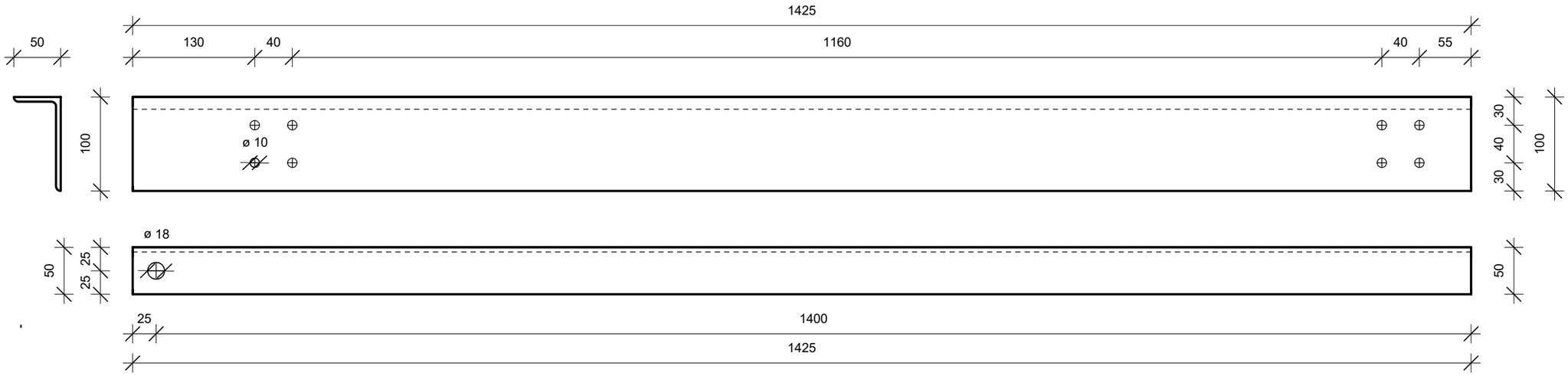
L-profile L50x50x5 amount 2 pc used for holding door frame from top.
18 mm drill is for mounting bolt that holds doors
10 mm drills are for fixing L-profile to wooden structure.



L-profile L50x100x5 amount 2 pc used for holding door frame from bottom.
18 mm drill is for mounting bolt that holds doors
10 mm drills are for fixing L-profile to wooden structure.



L-profile L50x100x5 amount 4 pc used for door frame.
18 mm drill is for mounting bolt that holds doors
10 mm drills are for fixing vertical timber frame boards.



Vertical material Schedule

Assambly no	Type	Length	Count
N_001	Screw foundation 60x1150	1150	4
N_003	50X100	2750	8
N_004	50X150	2450	6
N_008	50X100	2430	4

Horizontal material Schedule

Assembly No	Type	Length	Count
N_002	50x200	1300	5
N_002	50x200	2900	2
N_005	Diagonals 25x100	2675	2
N_006	50x100	1100	2
N_006	50x100	1300	3
N_006	50x200	1300	2
N_006	50x200	2900	2
N_007	50x25	1275	8
N_007	50x25	2600	2
N_007	50x25	2900	22
N_008	20x70 plywood	1400	16
N_008	BOLTS		1
N_008	BOLTS		1
N_008	BOLTS		1
N_008	BOLTS		1
N_008	L50x50x5	1400	2
N_008	L50x100x5	1400	2
N_008	L50x100x5	1425	4
N_010	50x20/30	1500	80
N_010	50x20/30	2800	3
N_010	50x20/30	2900	1
N_010	50x20/30	3000	78

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Approved by:	Minna Kuusela	
Drawn by	Kristaps Sveisbergs	

SUBJECT:
Competition drawings

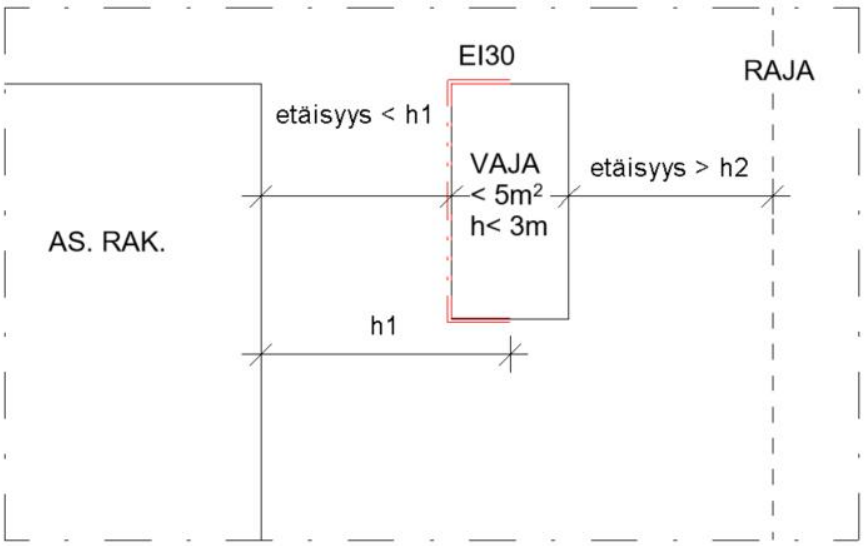
PROJECT:
Fire shed
Adrese: Helsinki

DRAWING NAME:
Metal shop drawings

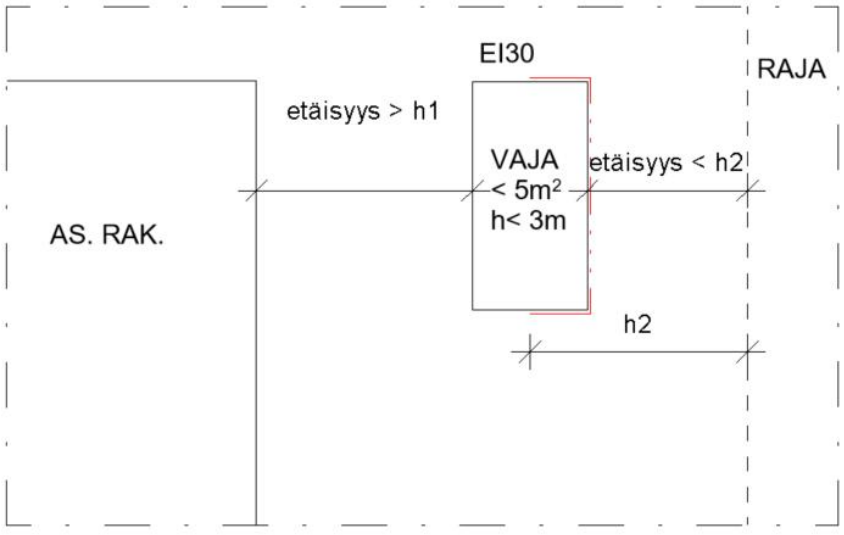
Stage	Date
Technical	02.08.02016.
Scale	Page
1 : 5	DD_008

PALOSEINÄ

-h1 ja h2 ovat rakennelman korkeus tarkasteltavassa suunnassa.



1. Vajan seinän ja vesikaton palo-osastointi, kun vaja on korkeuttaan lähempänä asuinrakennusta.



2. Vajan seinän ja vesikaton palo-osastointi, kun vaja on korkeuttaan lähempänä rajaa

Mikäli vaja sijoitetaan tontille siten, että se on korkeuttaan lähempänä asuinrakennusta tai rajaa, tulee seinät ja katto tehdä EI30 rakenteena. EI30 seinässä olevan oven tai ikkunan palonkestävyysajan tulee olla vähintään puolet osastoivan seinän palonkestoajasta, eli tässä tapauksessa EI15.

Vesikaton EI30 rakenne saavutetaan käyttämällä 30 mm paksuista vaneria kattopohjana. Seinissä EI30 rakenne saavutetaan levyttämällä ulkoseinä kahdella 12 mm paksulla Luja A-levyllä. Levytyksen tulee ulottua vesikattoon asti ja levykerrosten saumat tulee limittää. Puuvajan ilmankierron varmistamiseksi seinälevytys voidaan jättää 150 mm irti maasta.

Mikäli vaja sijoitetaan korkeuttaan lähemmäksi rajaa (kuva 2), tulee edelleen varmistua, että naapuritontilla ei ole rakennelmia korkeuttaan lähempänä rajaa ja että naapurin asuinrakennuksesta rajalle on > 4 metriä.

Kun suunnittelet puuvajan rakentamista tontillesi, ota hyvissä ajoin yhteyttä kuntasi rakennusvalvontaan. Sieltä saat opastusta puuvajan paloturvalliseen rakentamiseen.

Helsinki, Espoo, Vantaa, Kauniainen, yhtenäiset käytännöt pienten rakennelmien sijoittamisesta tontille.

https://www.pksrava.fi/doc/tulkintakortit/MRL-117b10B.pdf

https://www.pksrava.fi/doc/tulkintakortit/MRL-117b08D.pdf