

# Ramirent Modular Factory wooden environmental class C site huts

Lifting-; transportation- and assembly instructions

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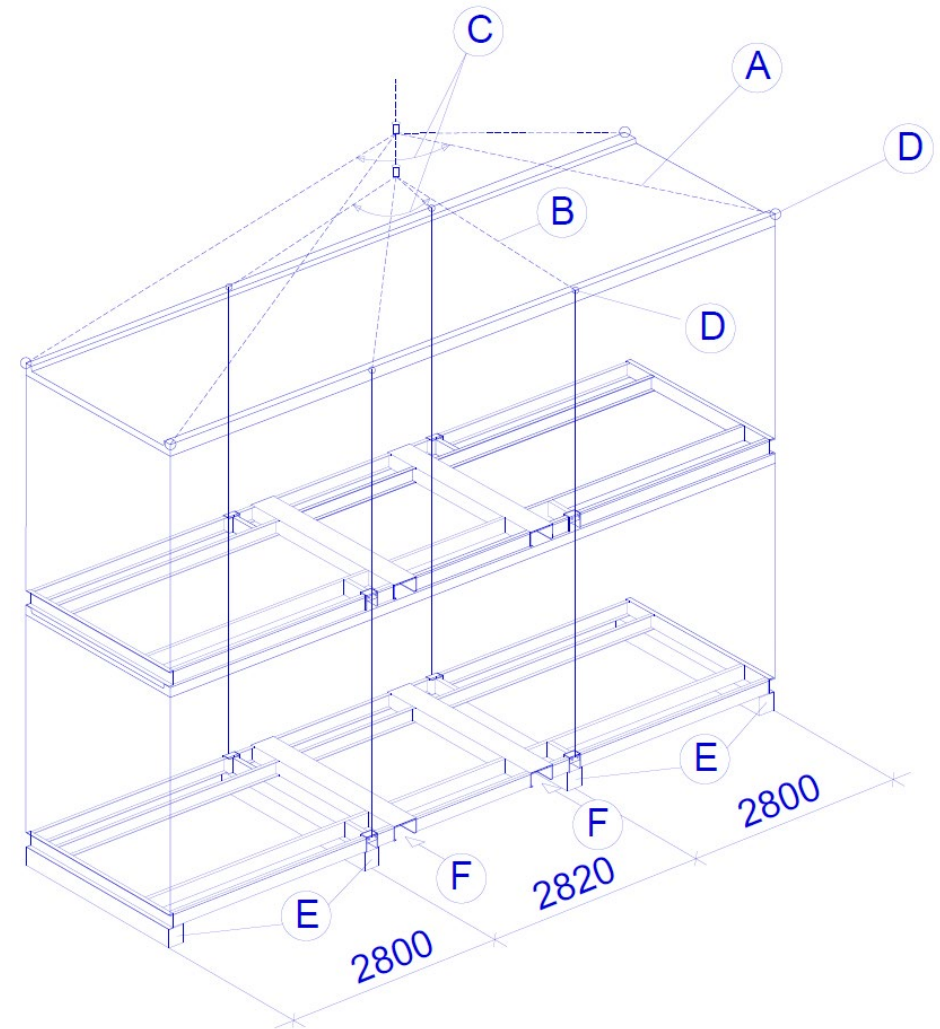
# 1. Lifting instructions

## 1.1 Lifting with chains or straps

- A – Strap length min. 5200mm when lifting from loops situated in the corner of the module
- B – Strap length min. 2750mm when lifting from the loops situated on the long wall of the module
- C – Maximum angle allowed between straps is  $120^\circ$
- D – Maximum weight per lifting loop is 1500kg

## 1.2 Lifting with forklifts

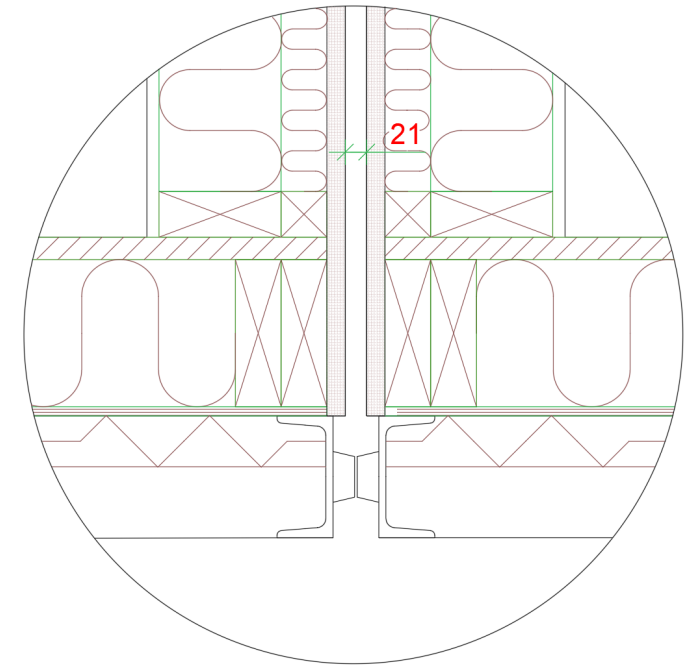
- F – Lifting with forklifts to be done through forklift pockets
- Minimum length of the forks is 2400mm



# 1. Lifting instructions

## 1.2 Placement - multiple modules

- In case of neighbouring modules:
  - The distance between two modules is determined by the metal frame -> see drawing
  - The distance between wooden claddings is about 20 mm
- In case of multiple stories:
  - The upper module is lifted on top of the lower modules long walls
  - While the module is lifted its position can be adjusted with the red hooks located on the metal frames (with a rope)
  - Up to three modules can be stacked on top of each other



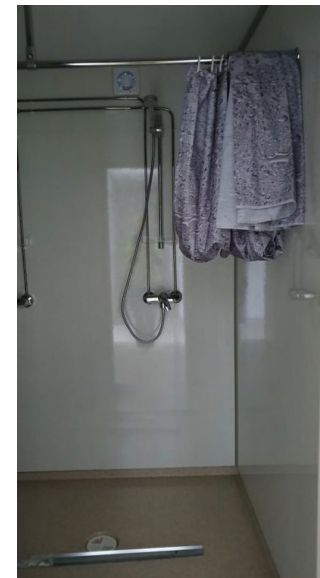
# 2. Transportation instructions

- To avoid any unnecessary damage to the module while transporting...
  - Any loose furniture has to be fixed to the module or laid flat on the floor while also placing padding under the furniture to prevent any damage to the floor or walls
  - All windows, doors have to be closed
  - Window blinds have to be raised
  - Cupboard doors have to be taped shut
  - Any smaller debris has to be removed from the module or placed into closed cupboards



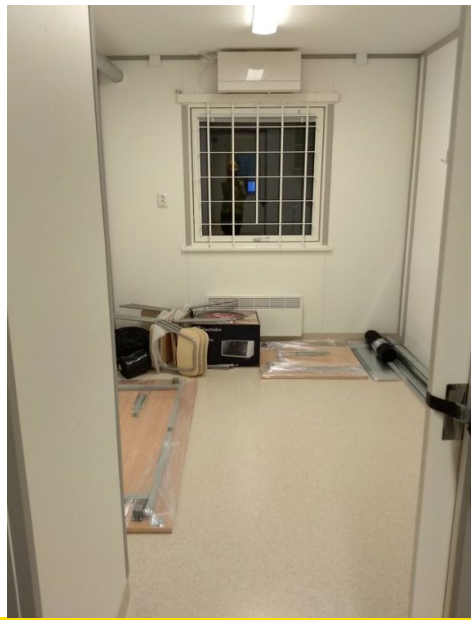
## 2. Transportation instructions

- To avoid any unnecessary damage to the module while transporting...
  - All doors have to be closed and taped shut if necessary
  - Any smaller debris has to be removed from the module or placed into cupboards/wardrobes
  - All pipes have to be drained empty using valves located in the lowest points of pipe systems.



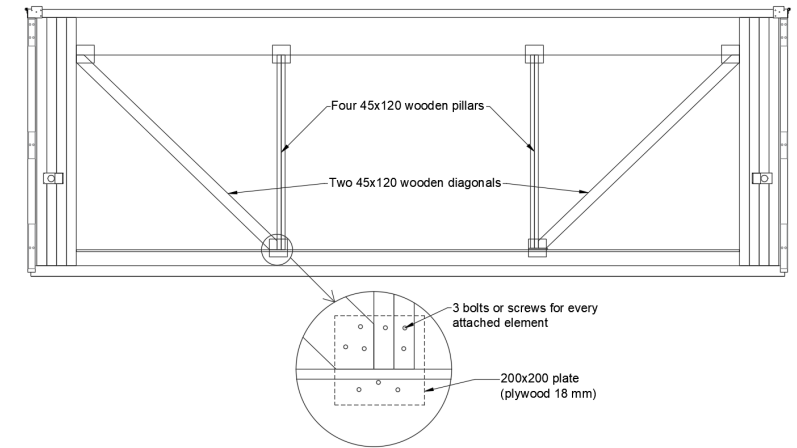
## 2. Transportation instructions

- To avoid any unnecessary damage to the module while transporting...
  - Chairs have to be stacked on top of each other
  - Sliding doors have to be fixed with ropes or lashing straps
  - Electrical appliances have to be placed on the floor or fixed against the wall with straps



# 2. Transportation instructions

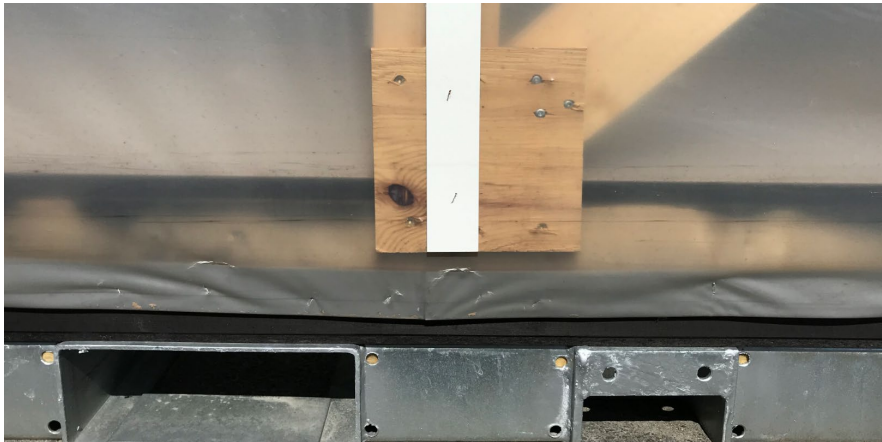
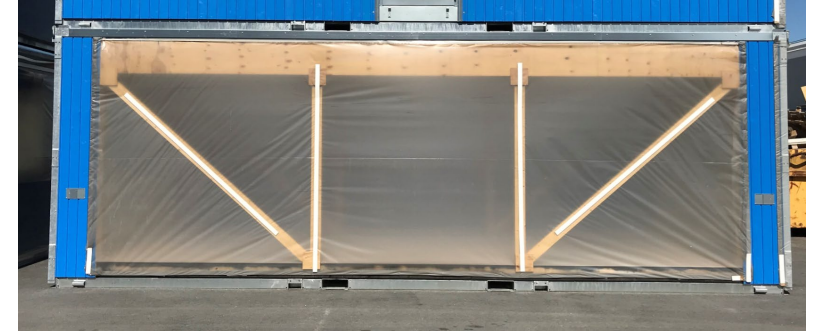
- In the case of a module with one or more open side walls, additional reinforcement is required for transport
- Four 45x120 battens will be used as columns
- Two 45x120 battens will be used as diagonals
- The battens are attached to the glulam beam and floor with a plywood plate and 3 screws for every element





## 2. Transportation instructions

- Any openings as well as one gable wall will have to be protected by shipping plastic as shown on the pictures
- All loose ends will be tucked under thin wood slats along the edges of the wall and then fixed with staples along the slats - this must be done on all edges
- Additional slats will be placed along the wall to tighten the membrane



## 2. Transportation instructions

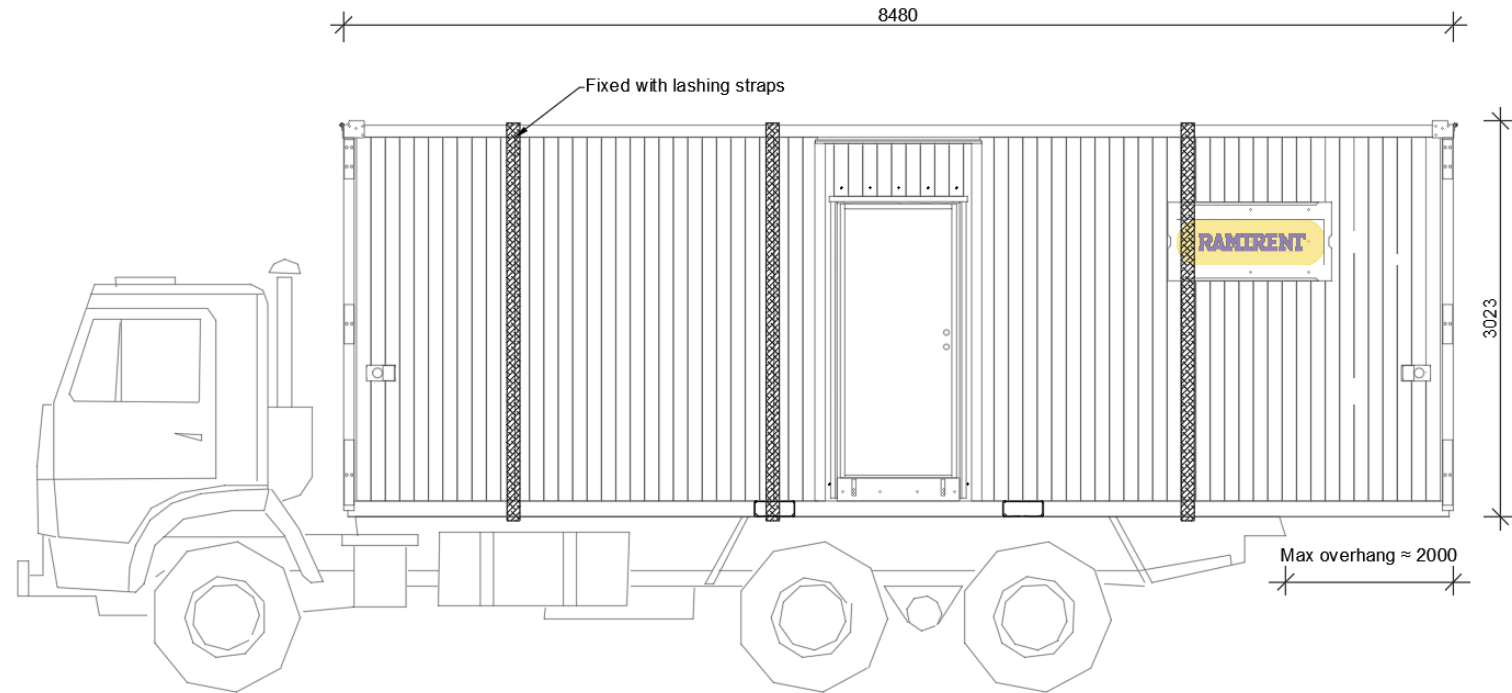
- Additional slats will be placed along the wall to tighten the membrane
- The upper slats must be tucked under the metal sheet to prevent water from dripping into the module

The upper slats have to be placed under the metal sheet



# 2. Transportation instructions

- Once all preparations are made, the module can be lifted on a truck
- The load must be secured and fixed to the vehicle with lashing straps
- Structurally, the maximum allowed overhang of the module is 2m.



# 2. Transportation instructions



# 2. Transportation instructions

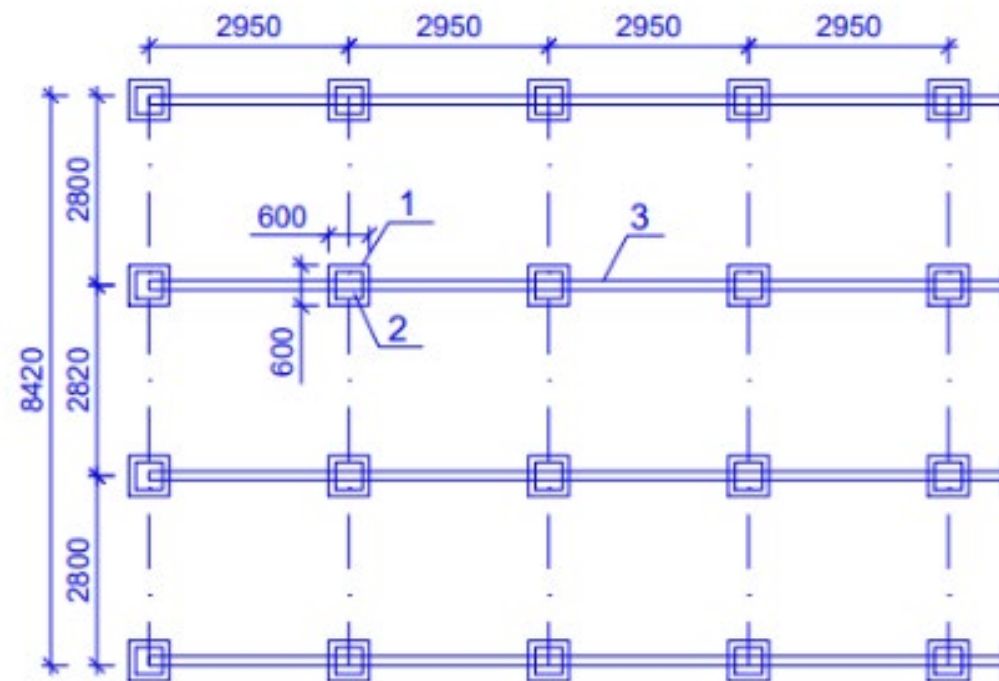


# 3. Assembly instructions

## 3.1 Foundation of the module

- The ground has to be levelled beforehand but it can be corrected later with height adjustment wedges
- Base slabs will be placed on hard ground (asphalt, gravel)
- The exact positions of the slabs and columns are shown on the aluminum information board on the gable wall

- 1 – Base slab
- 2 – Distance plates
- 3 – Supporting wooden beam - min. 150x150,  
Four pcs per module as shown in the drawing

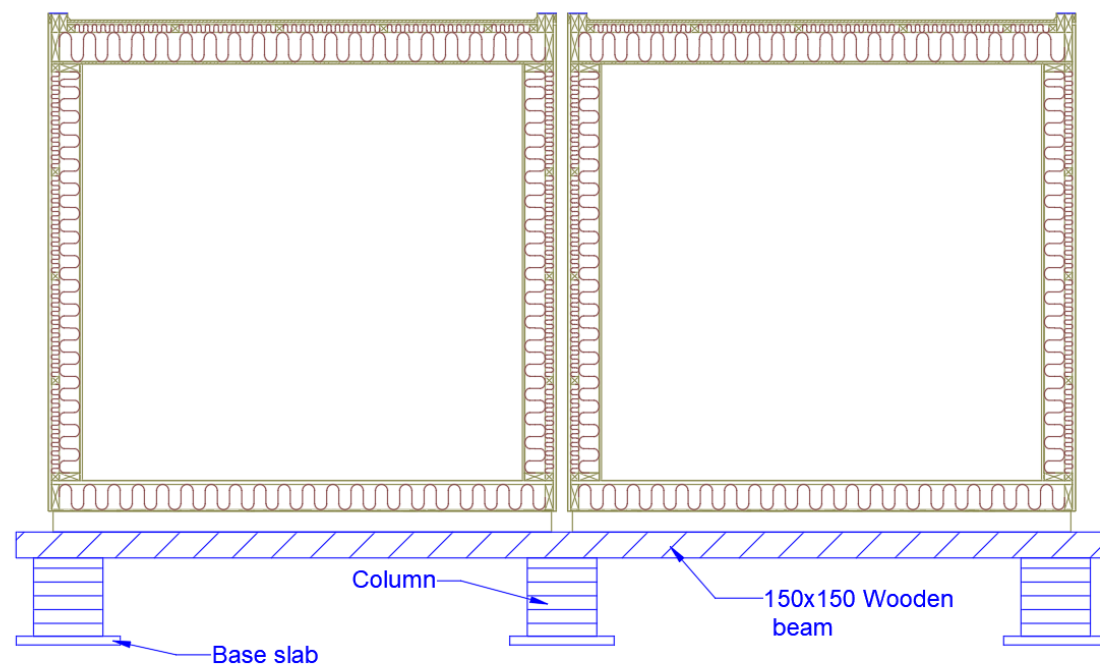


# 3. Assembly instructions

## 3.1 Foundation of the module

- The dimensions and structural stability of the columns must be calculated on site
- The calculations must be done according to local standards with the data provided on the aluminium information boards
- Additional wooden support beams (150x150) are placed along the short side of the module as shown in the drawing. NB! The joint of the support beams cannot be situated under the connection of two modules.

## Section A-A

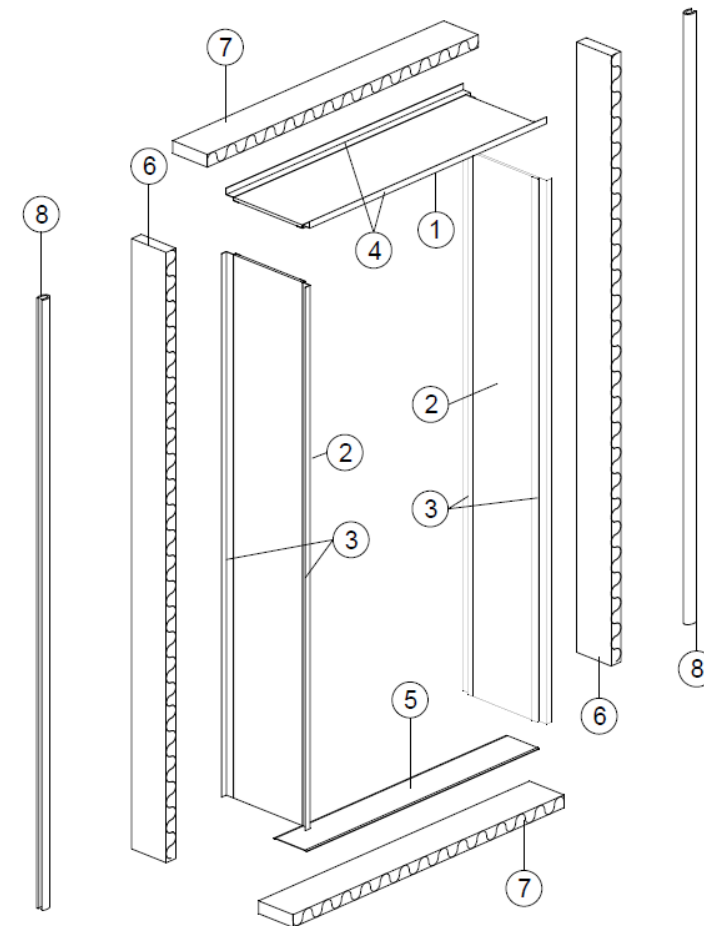


# 3. Assembly instructions

## 3.2.1 Linking kit – short openings

- Any openings between two modules will be isolated with the provided linking kits
- There are two options how to install the wool ribbon
- Option A:
  - Wool ribbons (no. 6 and 7 on the drawing) will be stapled to the side wall next to any openings before lifting the modules in place
  - After installing the ribbons the modules may be lifted against each other

Wool ribbons →





# 3. Assembly instructions

## 3.2.1 Linking kit – short openings (Option A)



# 3. Assembly instructions

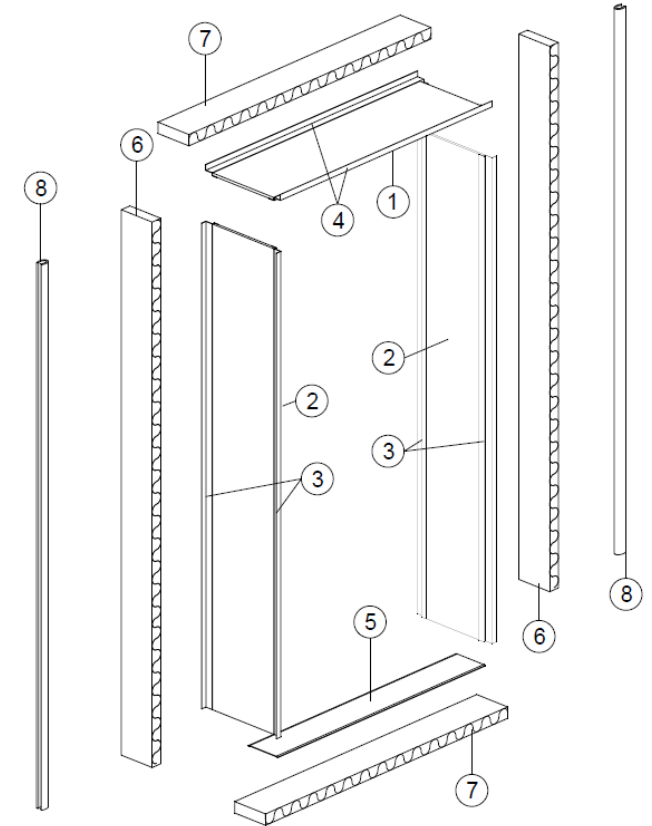
## 3.2.1 Linking kit – short openings (Option A)



# 3. Assembly instructions

## 3.2.1 Linking kit – short openings (Option B)

- Option B:
  - The modules are lifted in place before installing the wool ribbons
  - After the module is in position, wool ribbons will be tucked between the two modules around any openings
  - The ribbon has to be bended in a V-shape for an airtight result



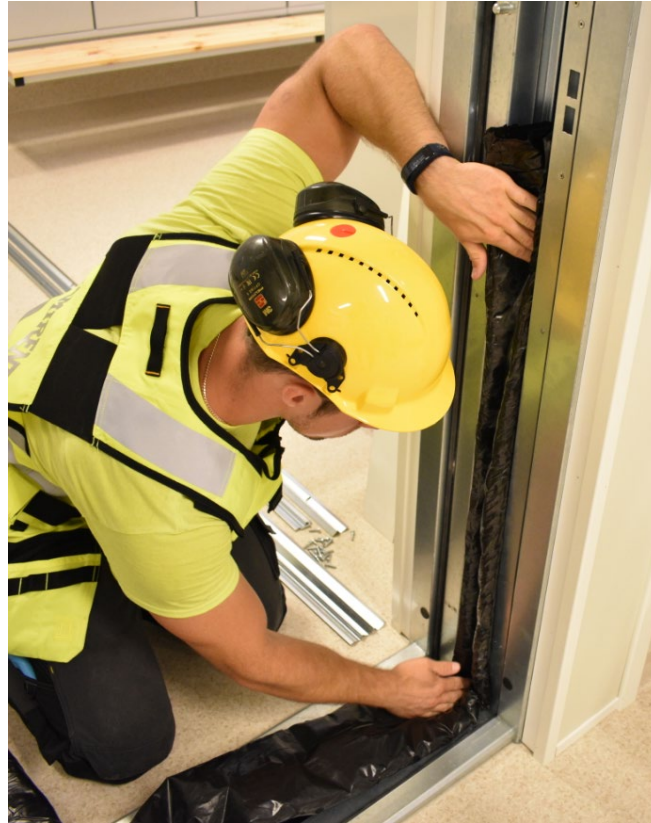
# 3. Assembly instructions

## 3.2.1 Linking kit – short openings (Option B)



# 3. Assembly instructions

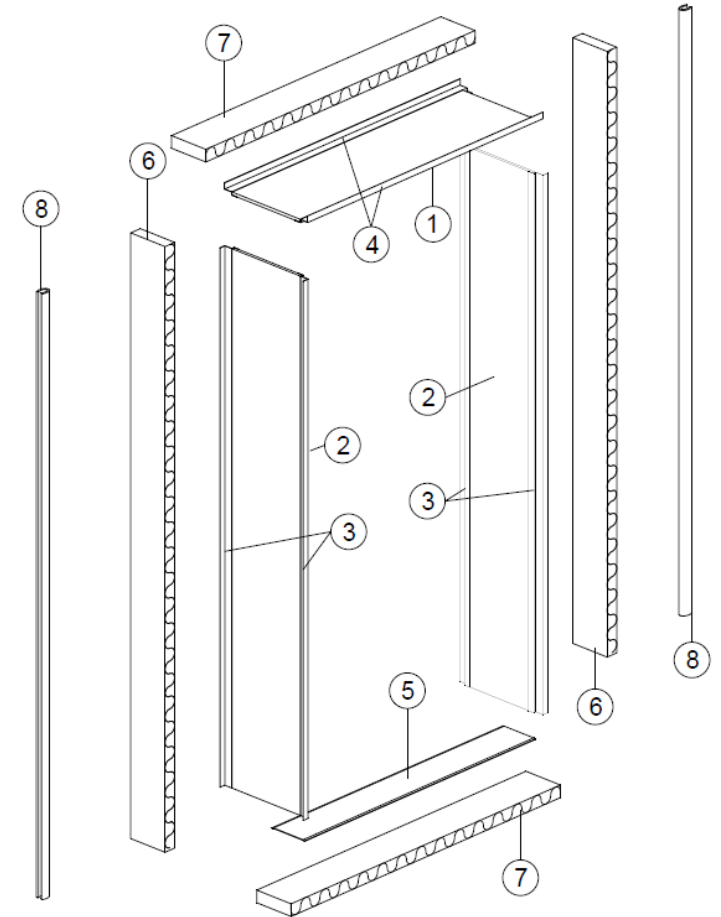
## 3.2.1 Linking kit – short openings (Option B)



# 3. Assembly instructions

## 3.2.1 Linking kit – short openings

- After installing the wool ribbon and lifting the modules in place, all openings will be covered with chipboard or plywood plates (no. 1, 2 and 5)
- The edges chipboard or plywood plates will then be covered by metal profiles (No. 3 and 4) and attached to the module with screws
- The recommended order for installing the plates is:
  1. Top
  2. Bottom
  3. Sides



# 3. Assembly instructions

## 3.2.1 Linking kit – short openings



# 3. Assembly instructions

## 3.2.1 Linking kit – short openings





# 3. Assembly instructions

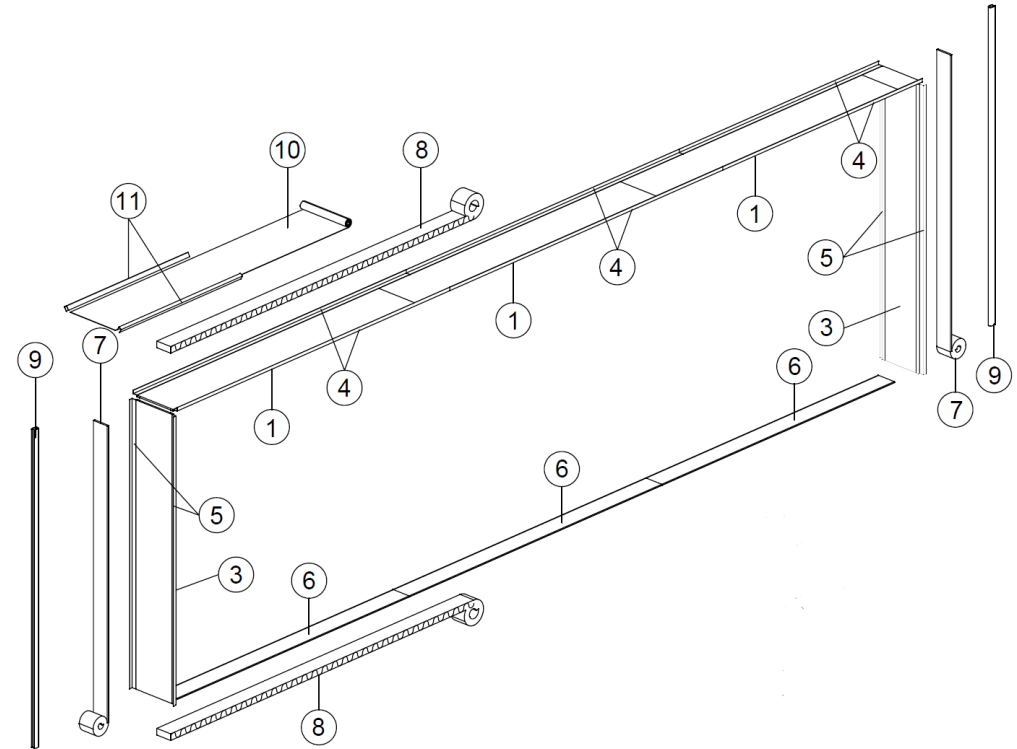
## 3.2.1 Linking kit – short openings



# 3. Assembly instructions

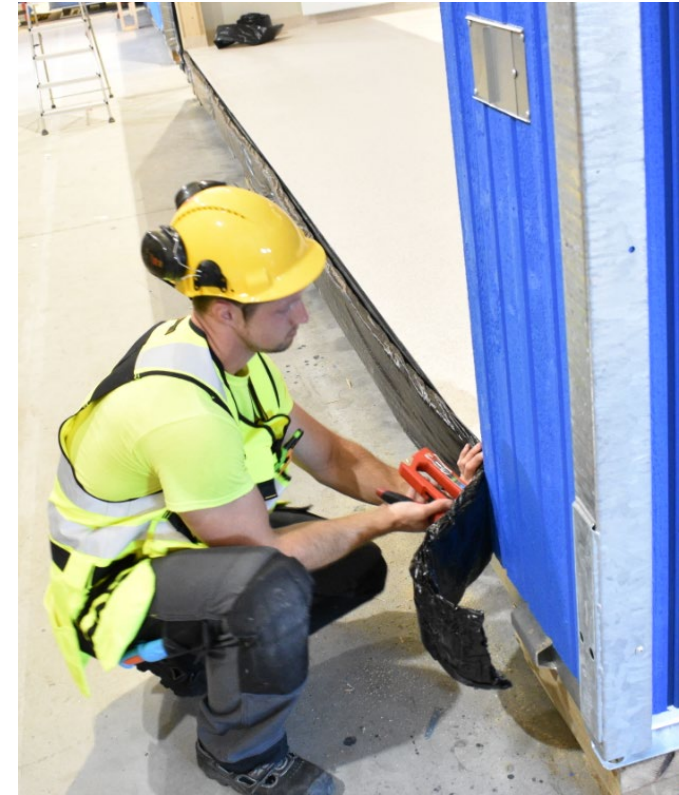
## 3.2.2 Linking kit – long openings

- Installing a linking kit for a long opening is similar to that of a short opening
- Option A:
  - Wool ribbons (no. 7 and 8 on the drawing) will be stapled to the side wall next to any openings before lifting the modules in place
  - The order in which the ribbons will be installed is not defined
  - After installing the ribbons the modules may be lifted against each other



# 3. Assembly instructions

## 3.2.2 Linking kit – long openings (Option A)



# 3. Assembly instructions

## 3.2.2 Linking kit – long openings (Option A)



# 3. Assembly instructions

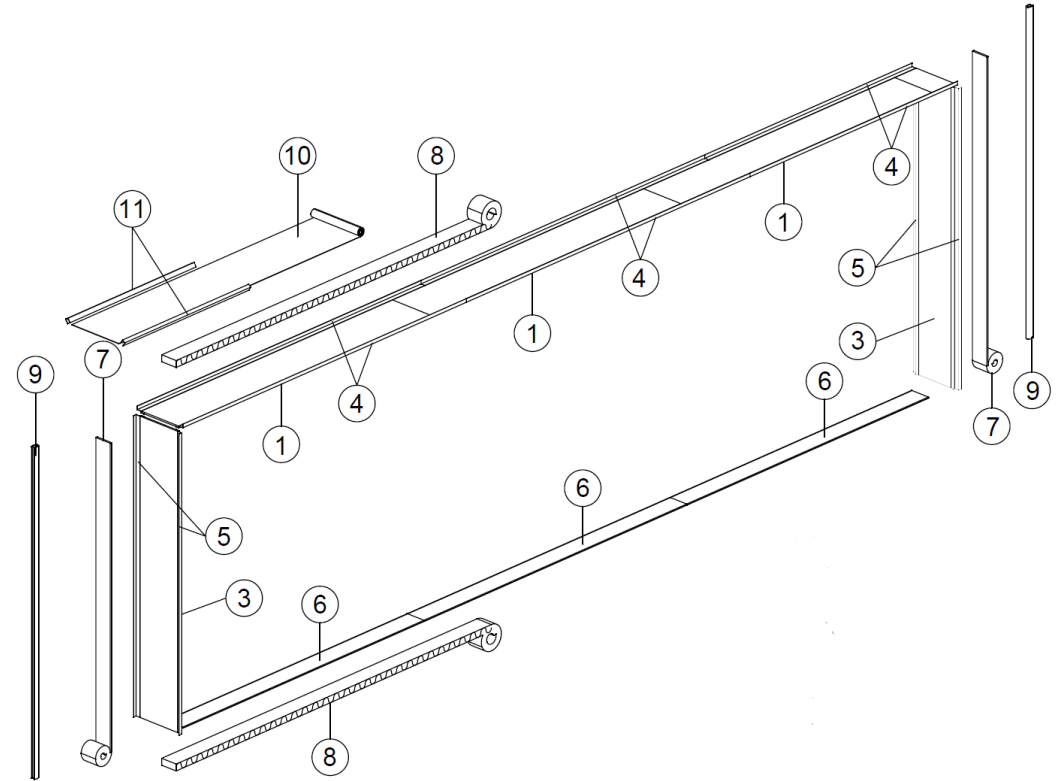
## 3.2.2 Linking kit – long openings (Option A)



# 3. Assembly instructions

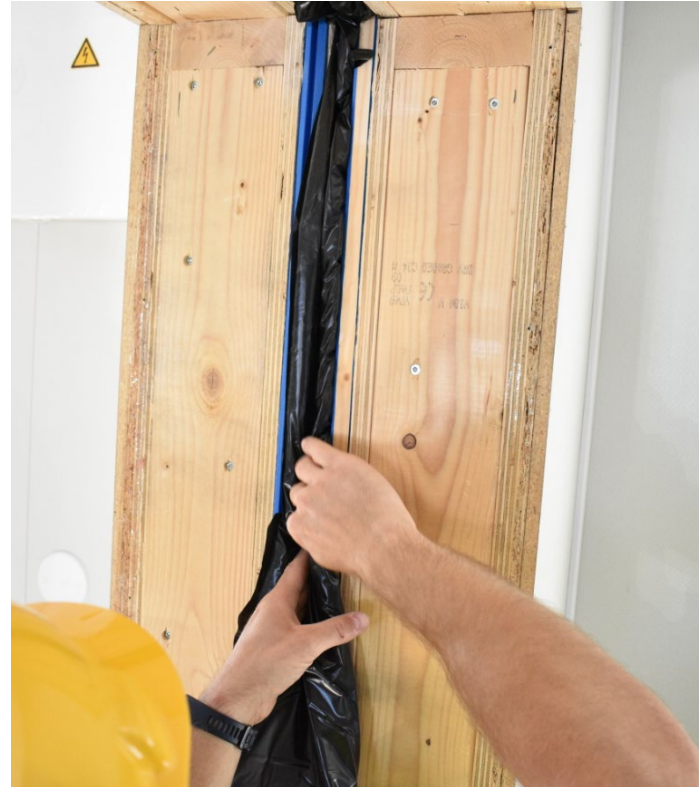
## 3.2.2 Linking kit – long openings (Option B)

- Option B:
  - The modules are lifted in place before installing the wool ribbons
  - Wool ribbons will be bended in a V-shape and then tucked in all openings
  - The order in which the ribbons will be installed is not defined



# 3. Assembly instructions

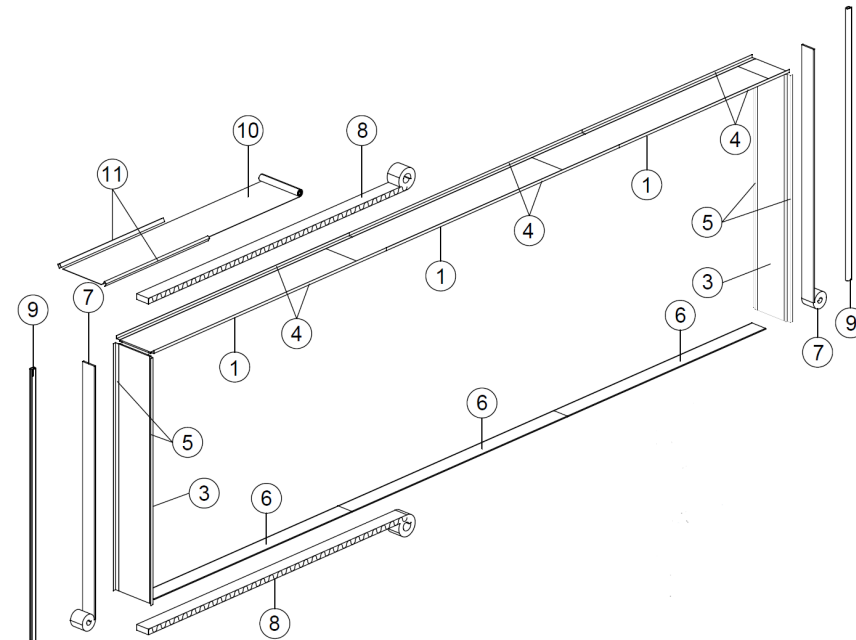
## 3.2.2 Linking kit – long openings (Option B)



# 3. Assembly instructions

## 3.2.2 Linking kit – long openings

- After installing the wool ribbon and lifting the modules in place, all openings will be covered with chipboard, plywood and metal plates (no. 1, 3 and 6)
- It is recommended to install the plates with two workers
- The edges chipboard or plywood plates will then be covered by metal profiles (No. 4 and 5) and attached to the module with screws
- The recommended order for installing the plates is:
  1. Top
  2. Bottom
  3. Sides





# 3. Assembly instructions

## 3.2.2 Linking kit – long openings



# 3. Assembly instructions

## 3.2.2 Linking kit – long openings



# 3. Assembly instructions

## 3.2.2 Linking kit – long openings



# 3. Assembly instructions

## 3.2.2 Linking kit – long openings



# 3. Assembly instructions

## 3.2.2 Linking kit – long openings



# 3. Assembly instructions

## 3.3 Connecting modules' parapets

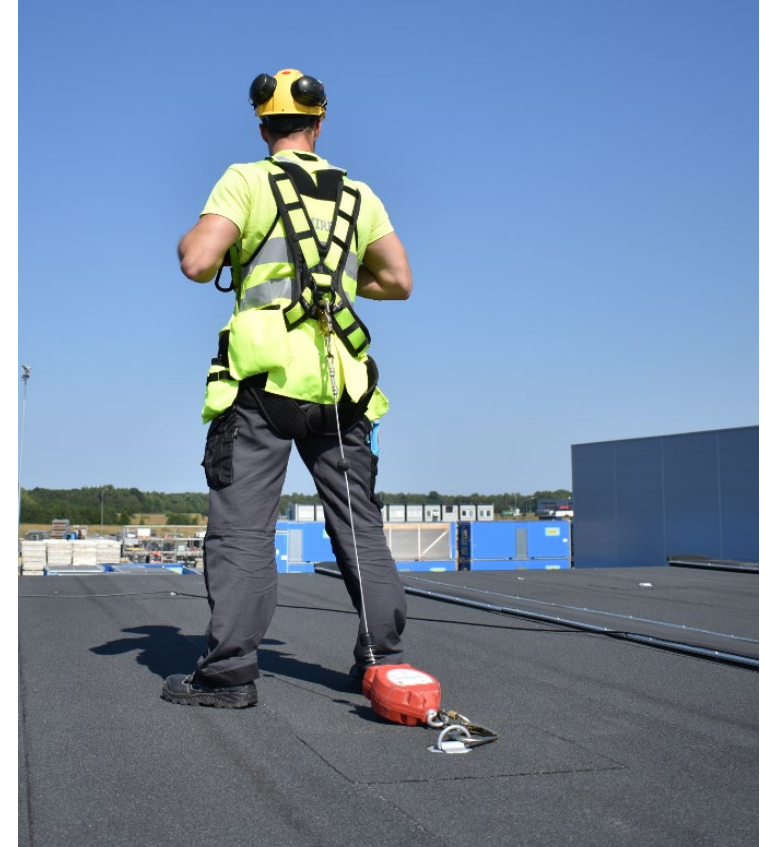
- Necessary materials:
- Fixing metal strip
- Rubber sheet
- Screwdriver 8mm
- Safety gear



# 3. Assembly instructions

## 3.3 Connecting modules' parapets

- Before installing the connection kit, make sure that all safety measure are taken
- The worker has to...
  - Wear a helmet
  - Wear a safety vest



# 3. Assembly instructions

## 3.3 Connecting modules' parapets

- Installation:
- Place the rubber sheet between two parapets on one of the two edges
- Roll open the rubber sheet one fixing strip length at a time





# 3. Assembly instructions

## 3.3 Connecting modules' parapets

- Installation:
- Fixing metal strips will be placed along the edges of the rubber sheet



# 3. Assembly instructions

## 3.3 Connecting modules' parapets

- Installation:
  - The metal strips will then be clamped tightly (but carefully) together with the provided bolts
  - **NB! No screws or bolts may penetrate the bitumen roofing layer. Prevent overtightening the bolt as it might break.**



# 3. Assembly instructions

## 3.3 Connecting modules' parapets

- Installation:
  - Both loose ends of the rubber sheet have to be rolled over the edge and fixed to the wood cladding of both modules with bolts or screws



# 3. Assembly instructions

## 3.3 Connecting modules' parapets with rubber sheets

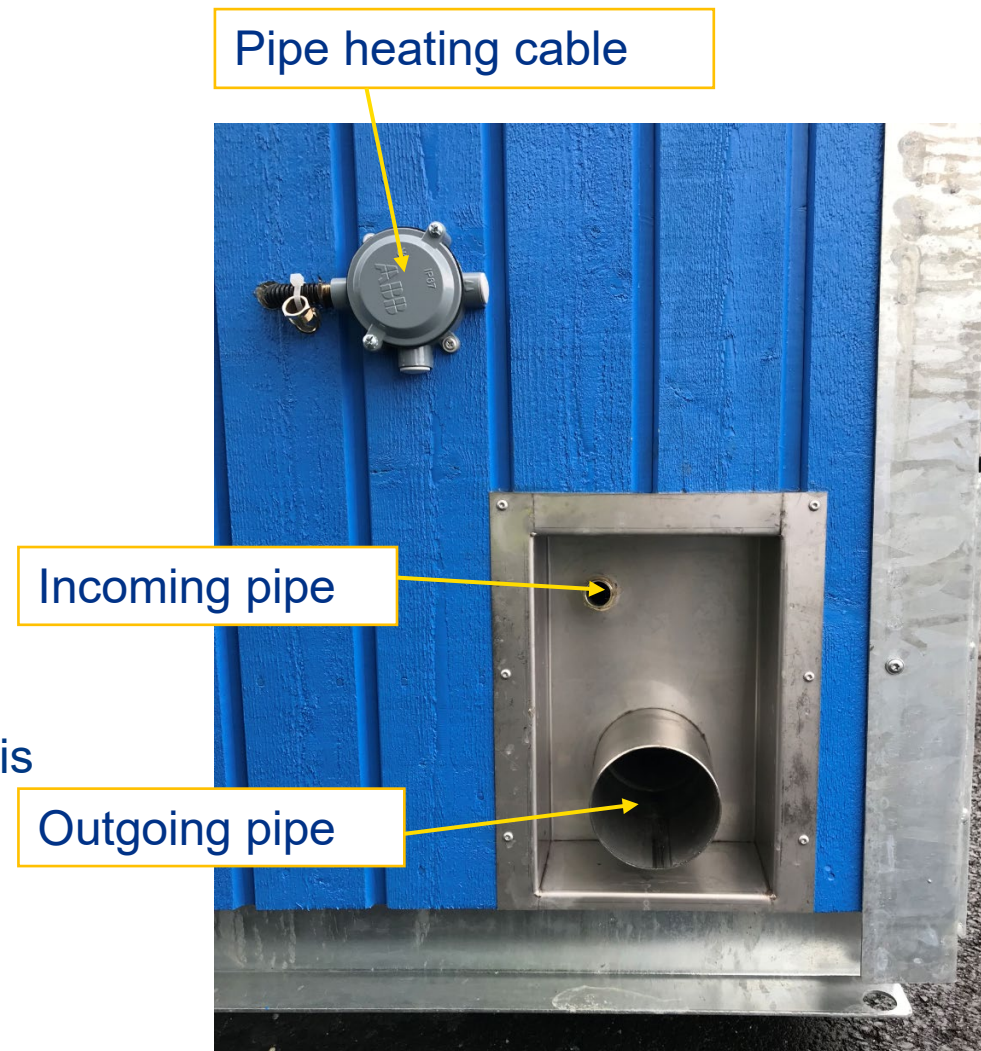
- Example of a correctly installed rubber sheet:



# 3. Assembly instructions

## 3.4 Water and sewage

- Water and sewage pipes are connected to the junction box in the lower corner of the gable wall
- Incoming water pipes are connected to the R20 threaded pipe (Ø26,9 mm).
- A waste pipe will be inserted into the 110 mm opening for outgoing sewage
- All external water and sewage pipes must be insulated
- The maximum allowed water pressure inside the pipe system is 10 Bar. If necessary, use a reduction pressure valve.



# 3. Assembly instructions

## 3.5 Electricity

- All modules are equipped with CEE 432-6 connectors for incoming and outgoing electricity (32 A)
- In the case of multiple modules, use the cable provided to connect the boxes as pictured on the right
- All modules are provided with hooks below the roof to hang the cables to the gable wall

Electrical connection box



Transportation hook

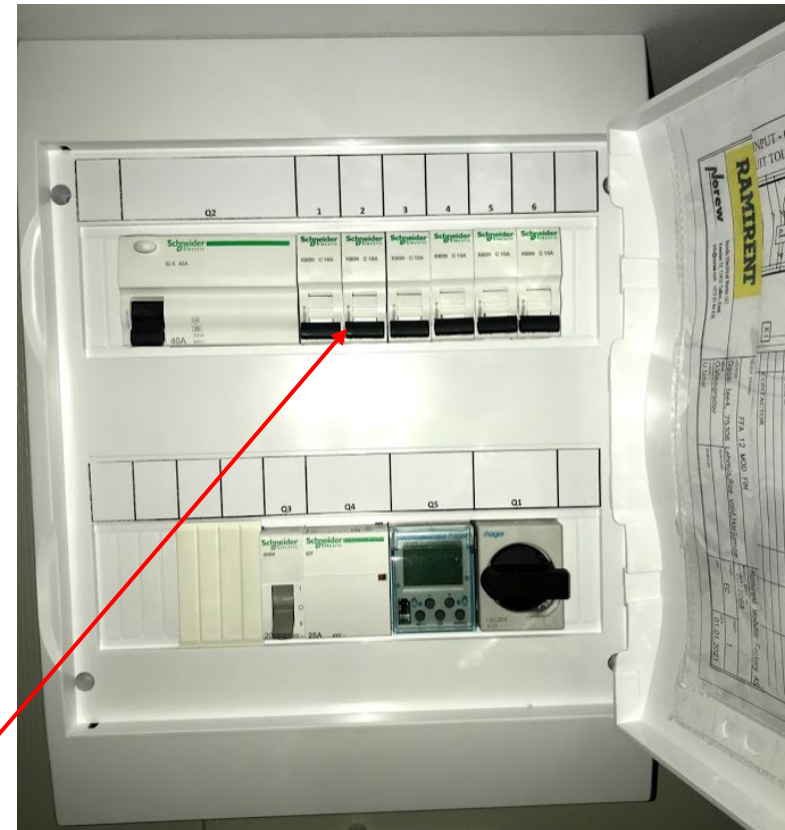


# 3. Assembly instructions

## 3.5 Electricity

- NB! Before connecting any module to the power grid, be sure to switch off all circuit breakers to avoid any damage to lighting systems
- Connect one module at a time to limit the instantaneous load
- The maximum amount of connected modules depends on their type and amount of electrical appliances – the exact amount must be calculated by a certified electricity engineer
- Grounding must be done on site according to local requirements

All switches in „off“ position



# 3. Assembly instructions

## 3.5 Electricity

- Connect one module at a time to limit the instantaneous load
- The maximum amount of connected modules depends on their type and amount of electrical appliances – the exact amount must be calculated by a certified electrician
- Grounding must be done on site according to local requirements



# 3. Assembly instructions

## 3.7 Removable interior panels

- It is possible to install removable partition walls in certain site hut models and to customize door / window placement. Contact factory representatives to consult possible options.
- Removable interior doors, panels and sections are mounted between rails of dark grey plastic-coated metal in accordance with floor plans.



# 3. Assembly instructions

## 3.7 Removable interior panels



# 3. Assembly instructions

## 3.7 Removable interior panels



# 3. Assembly instructions

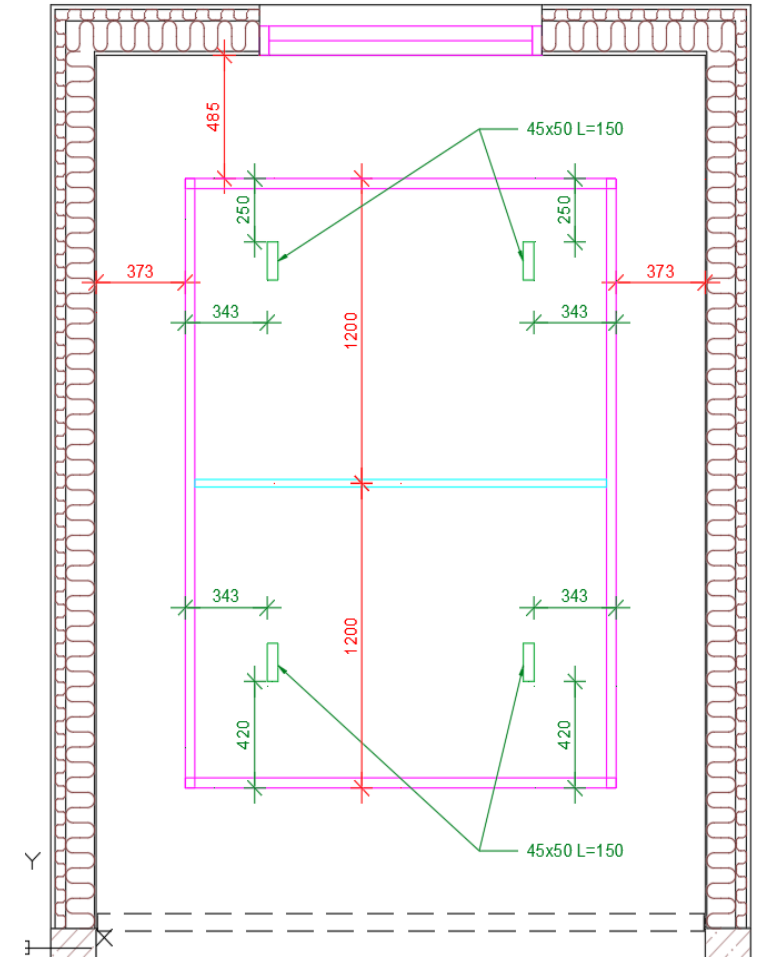
## 3.7 Removable interior panels



# 3. Assembly instructions

## 3.8 Sound insulation boards

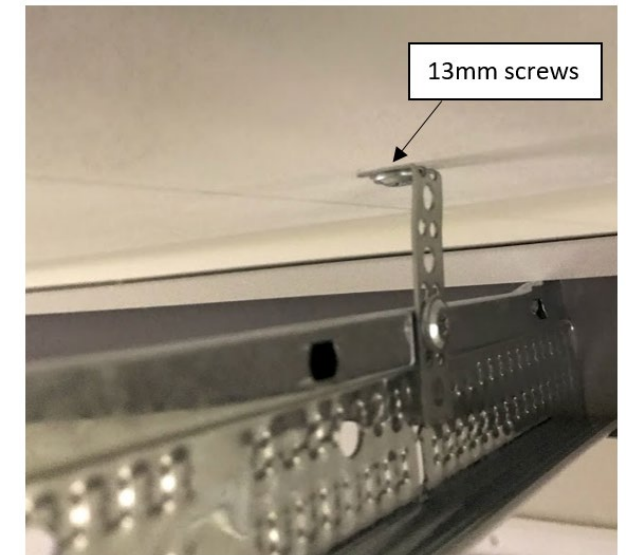
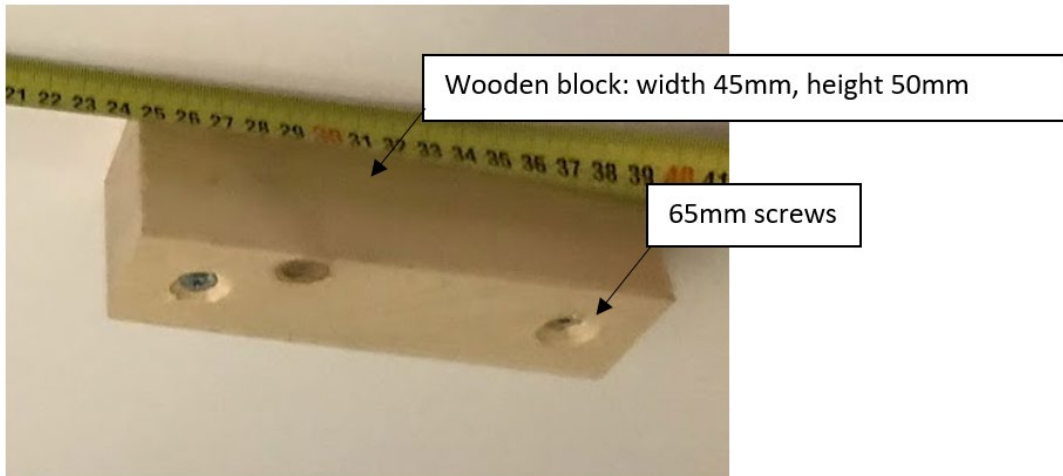
- It is possible to order site huts supplied with sound insulation boards on ceilings, or order the components to be installed by the client.
- The recommended positions for metal rails (magenta and cyan) and wooden blocks (green) are pictured on the right – The displayed dimensions apply to all modules with chipboard as the wall finish



# 3. Assembly instructions

## 3.8 Sound insulation boards

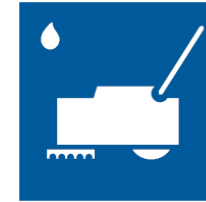
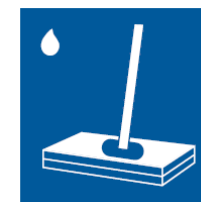
- Fastener information displayed on pictures



# 4. Usage/maintenance

## 4.2 Cleaning and waxing of the floor

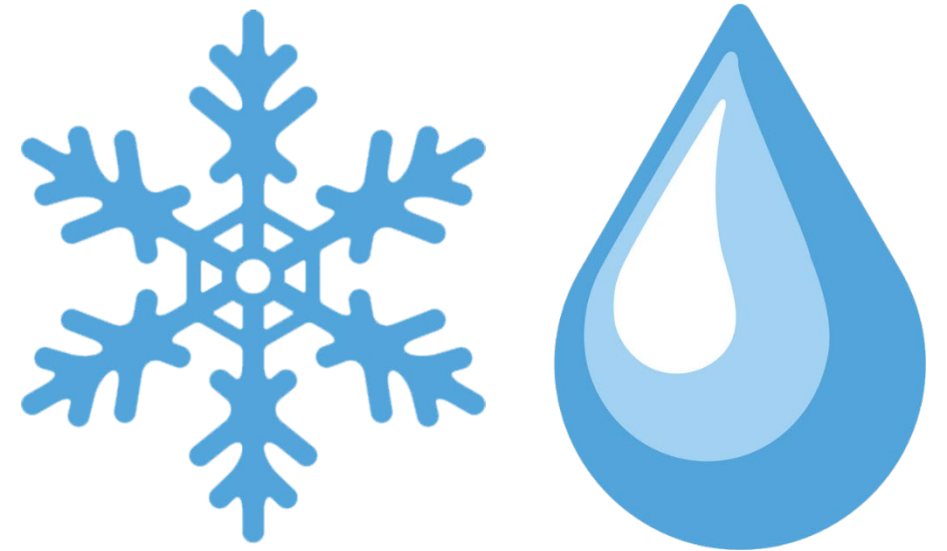
- It is mandatory to wax floors frequently. Our suggested waxing periods are next:
  - After every rental period, perform heavy cleaning and waxing
  - If rental period is longer, there are several light cleaning cycles during that period. If after the cycles, there will be grayed out areas, that did not clean completely, it means, that wax has worn out and it is the last chance to perform heavy cleaning and waxing, or the floor will be smudgy for good.
- Light cleaning: Dry or damp mopping; scrubber-dryer machine
- Heavy cleaning:
  - Apply cleaning agent (pH 7-9) and let it sit for 5-10 minutes
  - Clean the floor with heavy single scrub machine
  - Vacuum away the dirty water and rinse with clean water
  - Let the floor dry and dry-buff



# 4. Usage/maintenance

## 4.3 Allowed roof snow load

- The maximum allowed snow load on the roof is 2,8 kN/m<sup>2</sup> (3,5 kN/m<sup>2</sup> on the ground), which is...
  - Approximately 0,8...1,1 m thick “dry” snow
  - Approximately 0,7 m thick “wet” snow
- If the limit is reached, the snow must be removed by either shovelling or raking





# 4. Usage/maintenance

## 4.4 Suggestions for comfortable usage

- After cleaning module must be dried and ventilated
- Fresh valves always have to be halfway open
- Ventilation equipment filters have to be changed in every 6-12 months
- Do not pack anything wet or moist inside module (except in drying cabinets or drying rooms). Beware of rainy days
- Be sure to turn off all the lights after leaving the module.

# 5. Technical data

## 5.1 Module measurements and weight

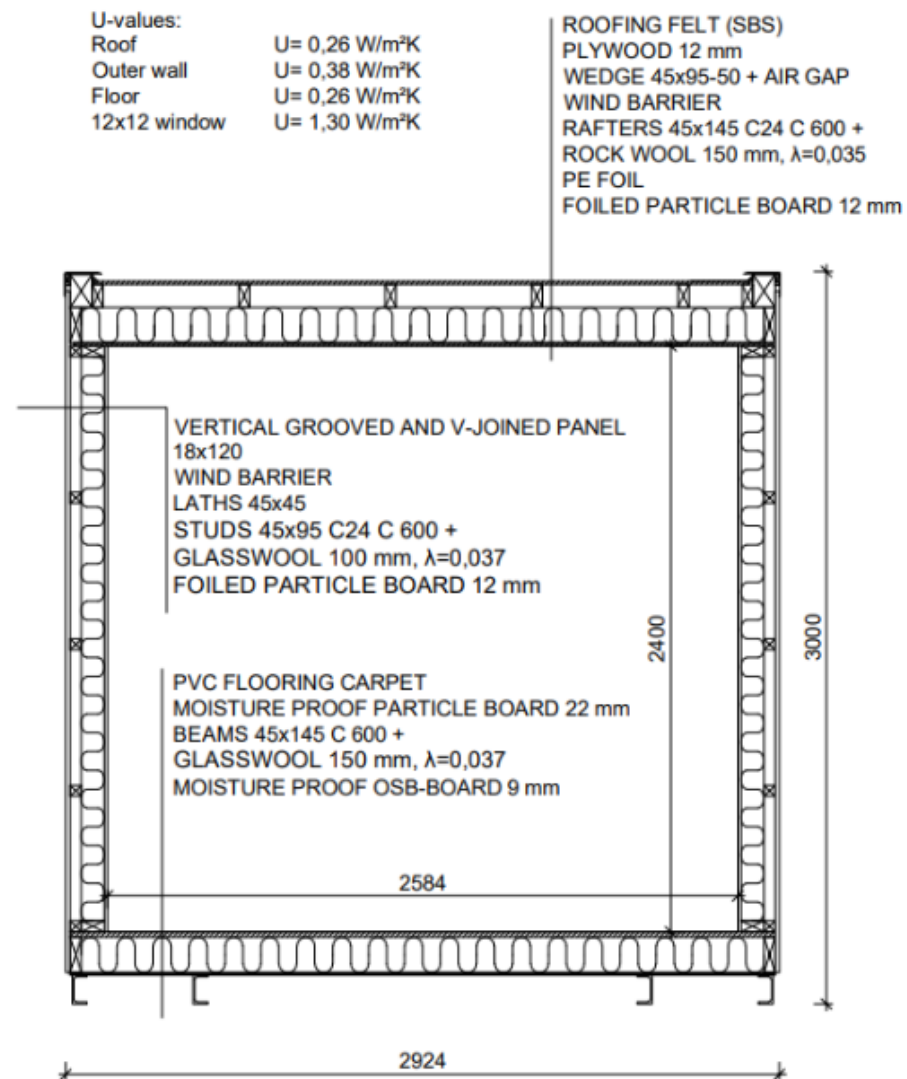
- External measurements (H x L x W): 3,000 x 8,474 x 2,924
- Internal measurements (H x L x W): 2,400 x 8,134 x 2,584
- Lightest modules weigh approximately 5 tonnes.

## 5.2 U-values (W/m<sup>2</sup>K)

- Roof U = 0,26 W/ m<sup>2</sup>K; Floor U = 0,26 W/ m<sup>2</sup>K; External walls U = 0,38 W/ m<sup>2</sup>K; Windows U = 1,3 W/ m<sup>2</sup>K

## 5.3 reference documents in the design of Site Huts

- EN 1990 „Eurocode. Basis of Structural design“
- EN 1991 „Eurocode 1. Actions on structures“
- EN 1993 „Eurocode 3. Design of steel structures“
- EN 1995 „Eurocode 5. Design of timber structures“



# 6. Additional information

- 6.1 Useful links – brochures and manuals
  - Atlantic water heater user manual:  
<https://kesko-onninen-pim-resources-production.s3-eu-west-1.amazonaws.com/pimdocuments/14105746.pdf>
  - Regent water heater user manual:  
<https://www.feb.ee/tooted/MERLONI/15K/DOKUMENDID/tooteleht.pdf>
  - Floor maintenance instructions:  
<https://media.tarkett-image.com/docs/Maintenance-Guide-Plus-Ranges-INT.pdf>
  - Electric panel heater user manual:  
<https://static.ensto.com/files/installation-instructions/0000001984.pdf>



**Let's  
Gear Up!**