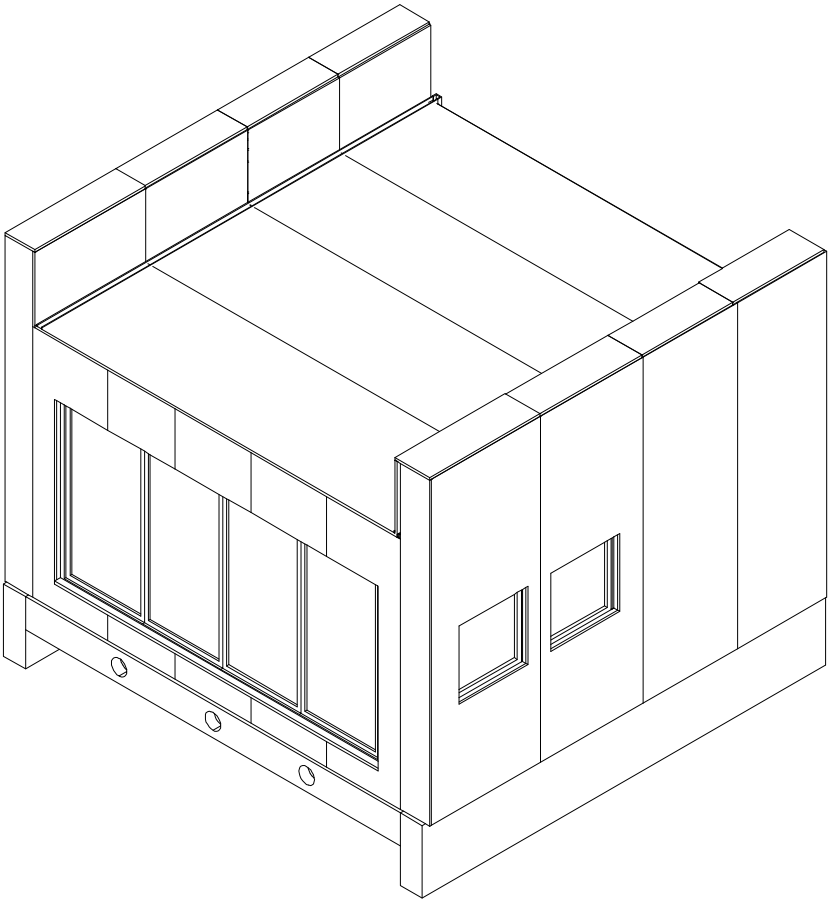

# Vol 1. THE EXPANDABLE HOME

**A low-energy, low-cost, community build home for life**

**Floor area** 25m²
**Fabric U value** 0.14 W/m²K
**Typical annual energy use** unknown
**Typical assembly time** unknown
**Difficulty level** 2

# IMPORTANT

By using this information you agree to
the following terms and conditions.
Information is shared without any kind of warranty or guarantee

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Users must satisfy themselves regarding the application of statutory requirements, local building regulations, codes, insurance certification or other requirements or recommendations relevant to the location where and materials with which they plan to build. Where appropriate you should always seek the advice of a relevant qualified professional.
You are responsible for using the information in a safe way

Users are responsible for ensuring that information they use or cause to be used is used in a way which is safe, and is not likely to cause harm during or after manufacturing, construction, use or disassembly.

Personal protective equipment (PPE)
All construction is dangerous. Always wear hard hards, eye protection, ear protection (malleting gets very loud), gloves, high visibility outfits and steel-capped boots. Where working at height is required, use a harness. Establish a ‘safety first’ culture on site, and encourage the continuous identification of hazards.

Difficulty level 2

Most of this assembly can be safely performed by a small team of any able-bodied people without formal construction skills. However, some tasks may require further knowledge, for example plumbing, mechanical ventilation and preparation of foundations. Other services, such as electrical installations and structural / building regulations certification can only be done or approved by a certified professionals. Consult a professional if you are unsure.

Working at height

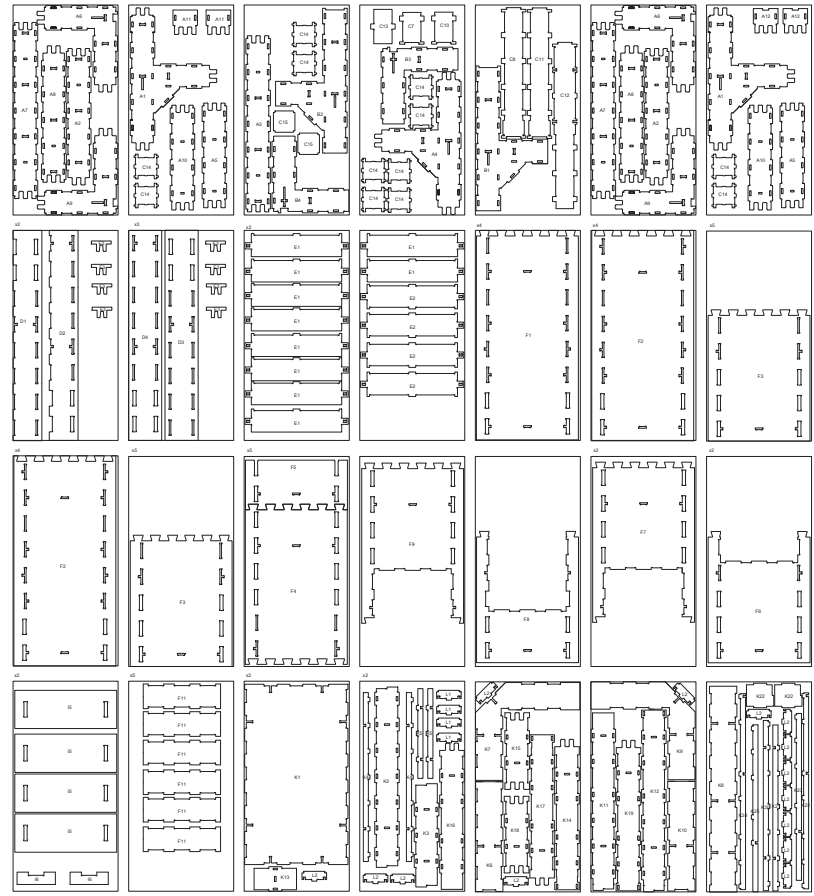
This assembly requires a limited amount of working at height to complete the roof. Do a risk assessment, and use appropriate stepladder and / or scaffolding as well as Step Ups to minimise the risk of falling. If in doubt, refer to www.hse.gov.uk

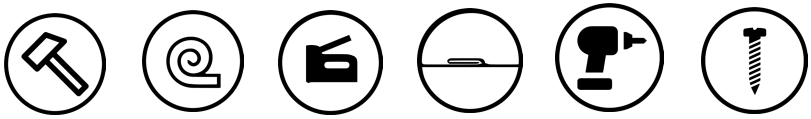
First Aid
Before commencing, check there is a First Aid kit and appropriate Fire Extinguisher on site, and if possible, identify a qualified first-aider. Make sure you record important contact and medical information from everyone on site.

Site preparation
Make sure passers-by can’t wander onto your site. It’s also a good idea to warn neighbours in advance that there’ll be some noise, especially from malleting.

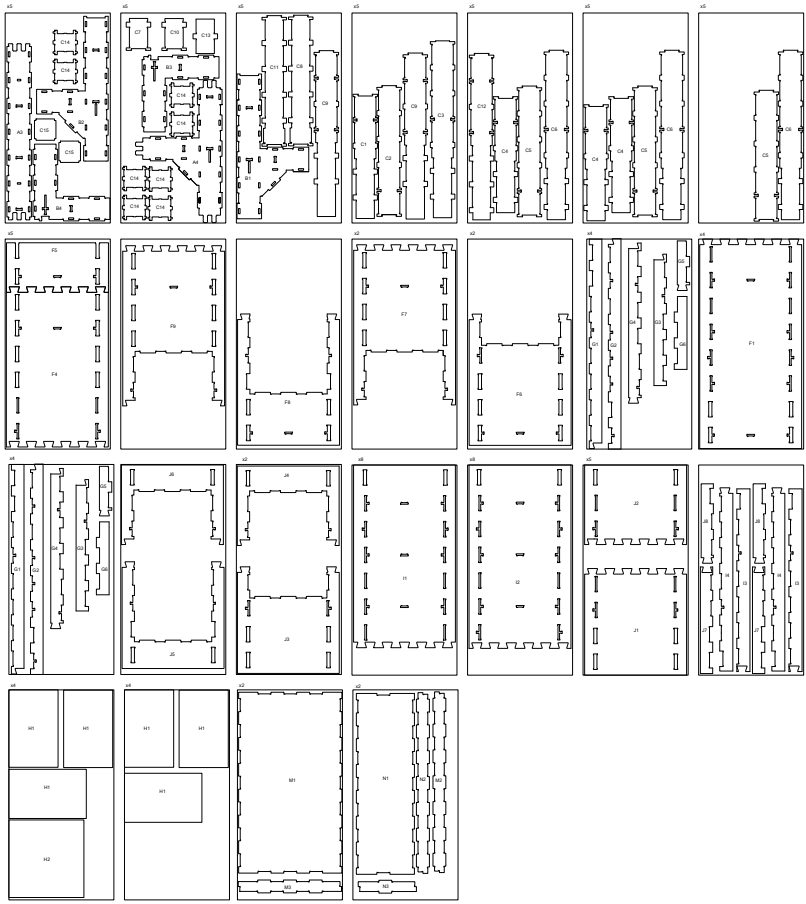
Tools
For this assembly you will need:
1 x Step ladder (8ft or 10ft)
5 x Step Ups
1 x Mobile scaffolding
1 x Roof ladder
1 x Large tarpaulin rain cover
1 x Marquee (or other enclosed area) to store parts dry and off the ground.
5+ Mallets
2+ Electric screwdrivers with as many spare batteries as possible
1x Electric drill
1x Electric jigsaw
1x hand screw driver (to use as a lever)
1 x Staple gun
2 x Scissors / knife
4 x Large clamps
1 x Plasterboard filler trowel

# YOU WILL NEED





**Please download and cnc mill the wikihouse mallet found on the wikihouse website and wear correct safety equipment.**

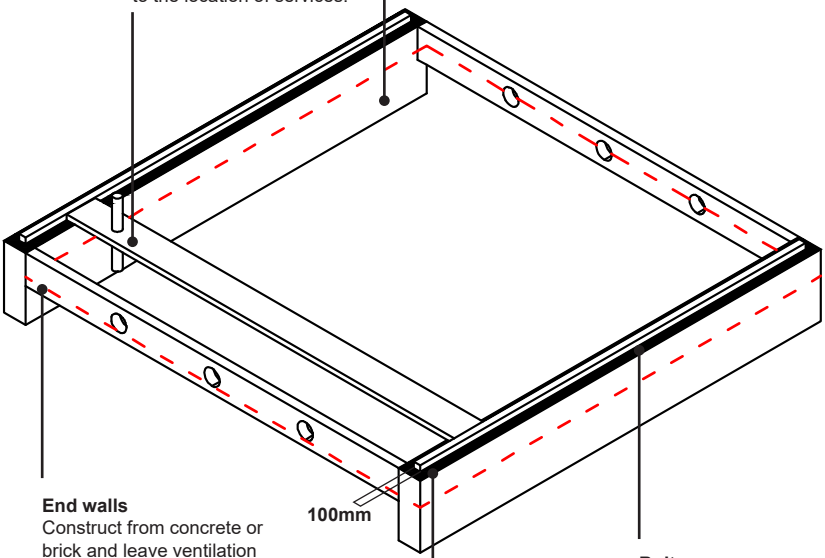


**Total plywood sheets = 157 x (1220mm x 2440mm x 18mm)**

# 1

**Trench foundations**
Concrete depth will vary.

**Service location JIG**
CNC milled to add precision to the location of services.




**End walls**
Construct from concrete or brick and leave ventilation holes.

**Bolts**
Fixing into concrete, ready to receive brackets.

**DPM**
Place 2x strips of damp proof membrane (DPM) under joist rail, with approx. 200mm sticking out to outer side.

## Feedback or design modification suggestions / Notes Page

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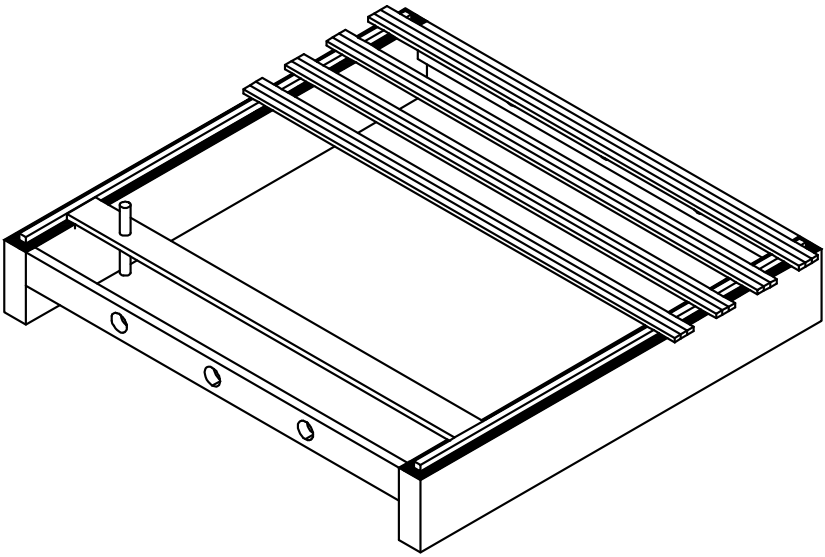
# 2



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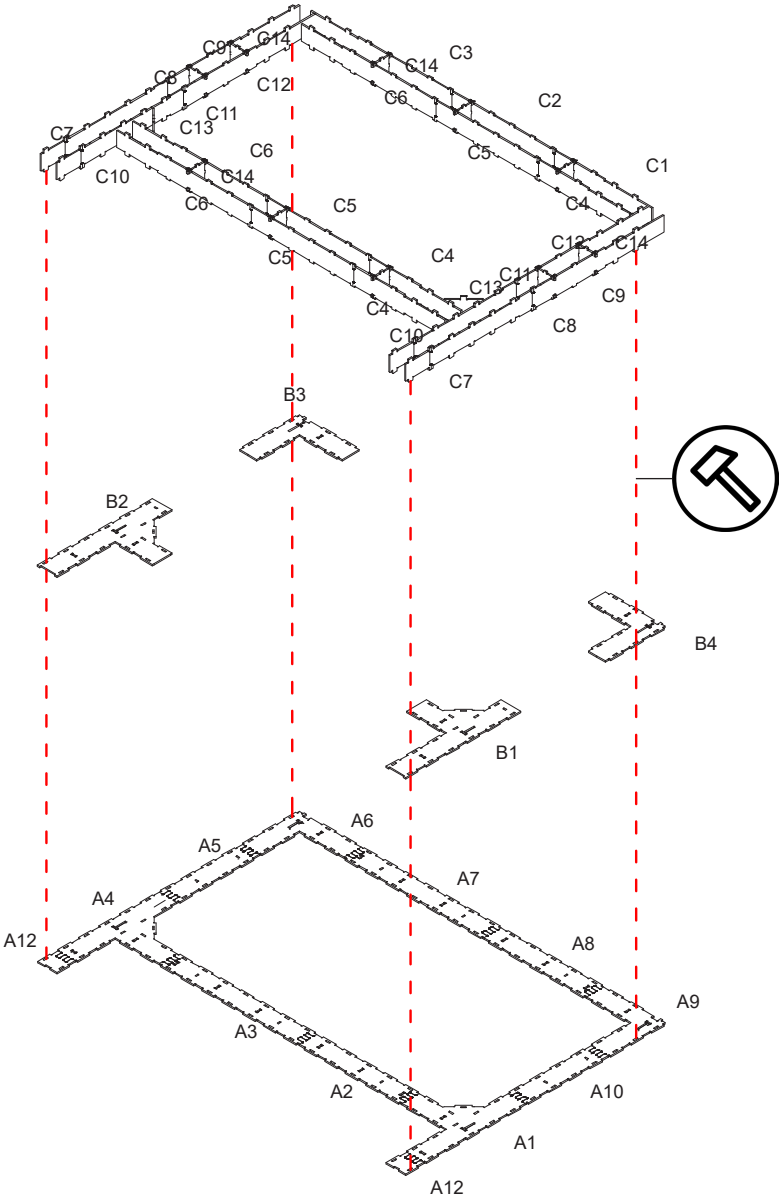
# 3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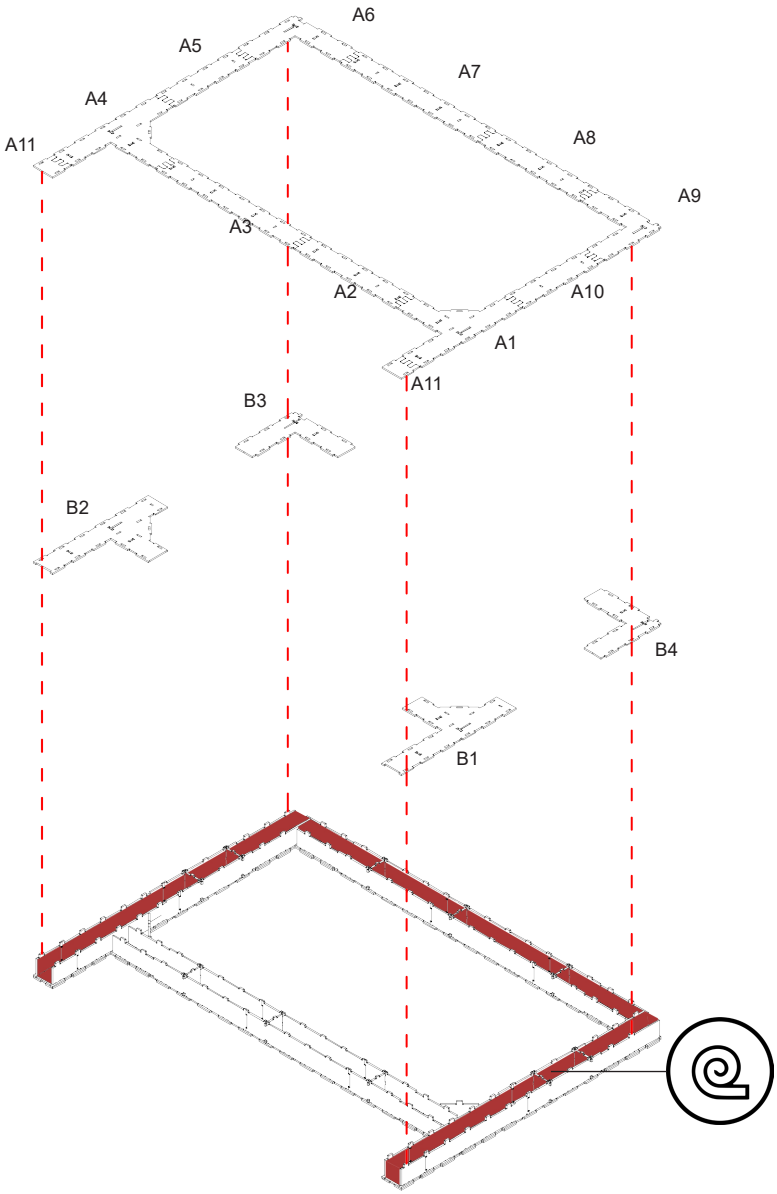
# 4



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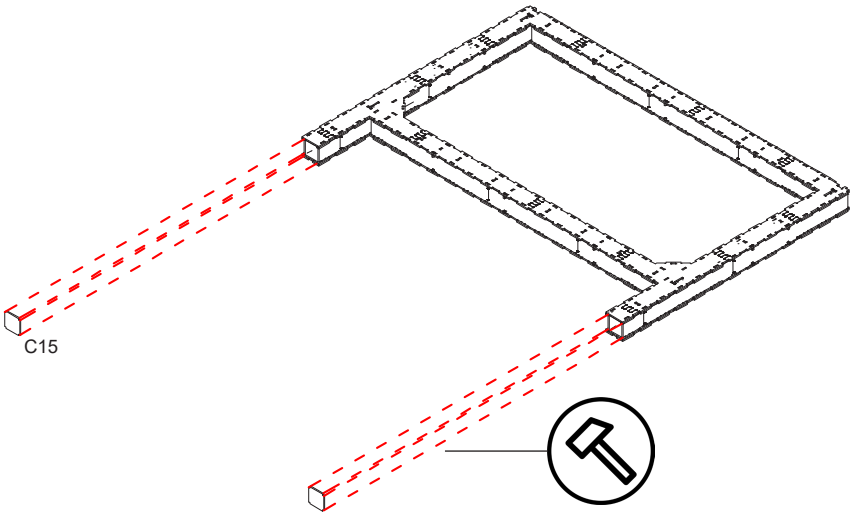
# 5




**Tops**
Top part to frame to be placed once the frame is fully insulated.

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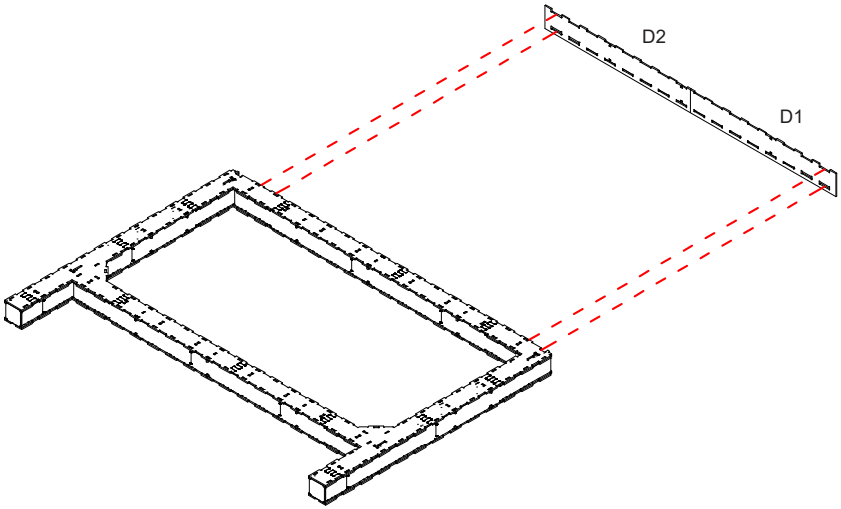
# 6




**Skis**
Fit to underside of the frame before raising.
Skis D1 & D2 to be used on the end frames.
For middle frames use D3 & D4.

## Feedback or design modification suggestions / Notes Page

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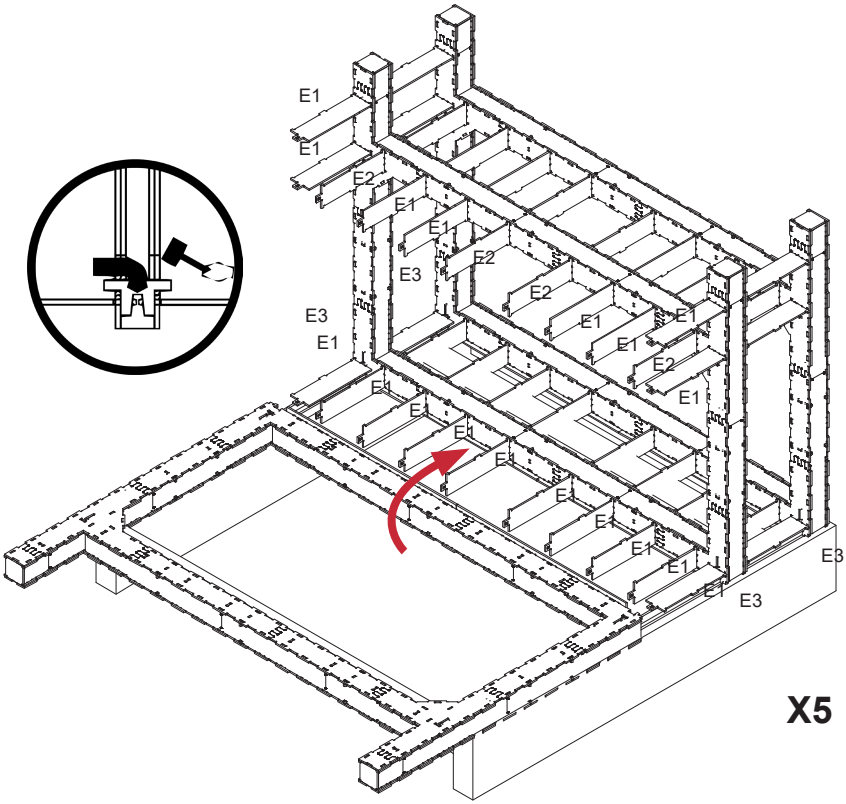
# 7




**Raising the frame**
Place connectors first, then with a group of people lift the frame into place.
Once lifted, place connect the corners with C3.

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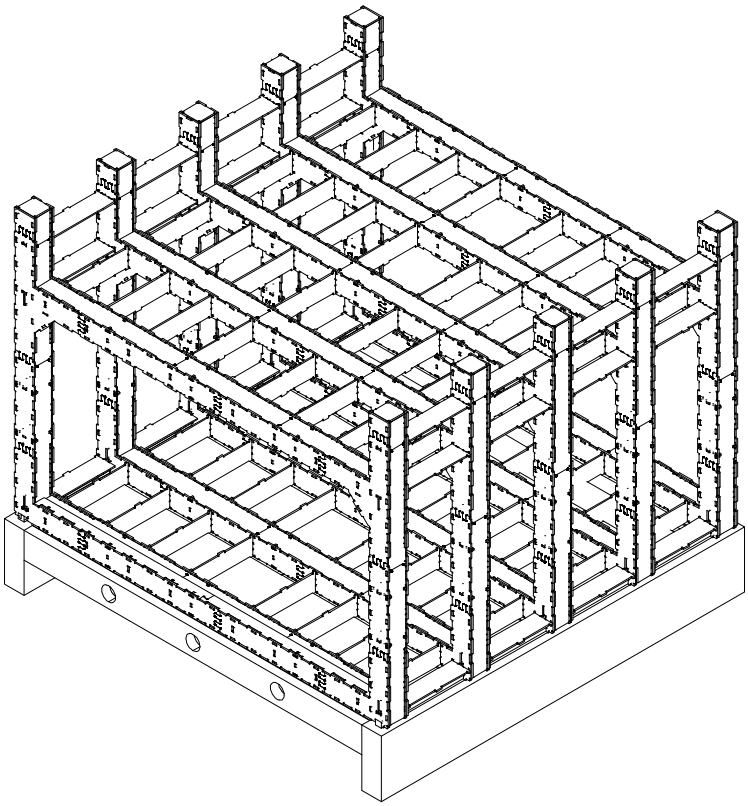
# 8



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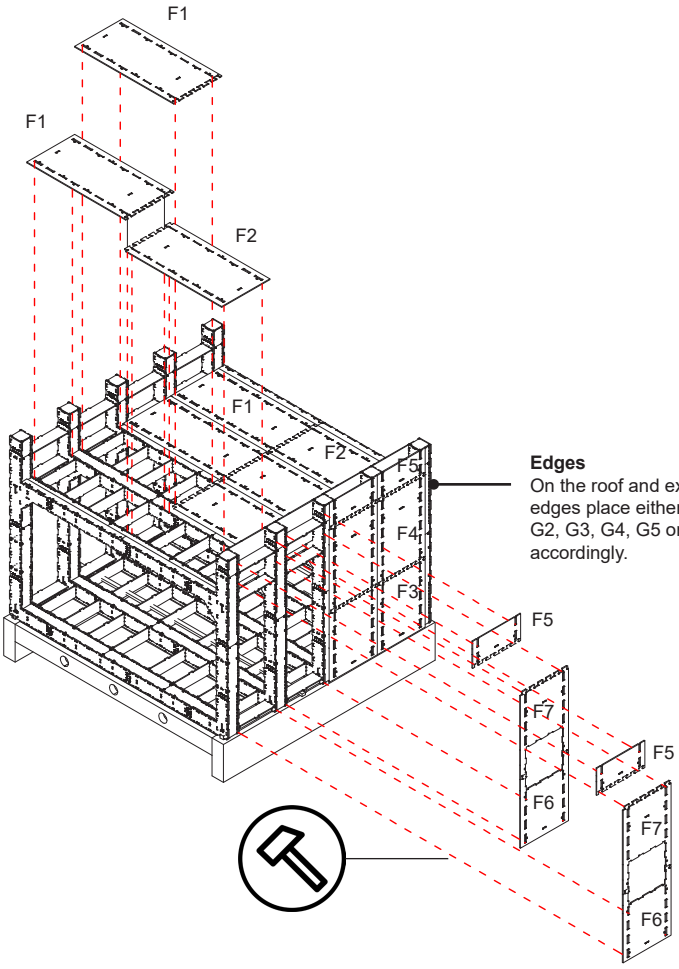
# 9




**Edges**
On the roof and exterior edges place either G1, G2, G3, G4, G5 or G6 accordingly.

**Roof & exterior sheets**
Decide on window location and size and with the use of the cnc mallet, attach roof and exterior sheets accordingly.

## Feedback or design modification suggestions / Notes Page

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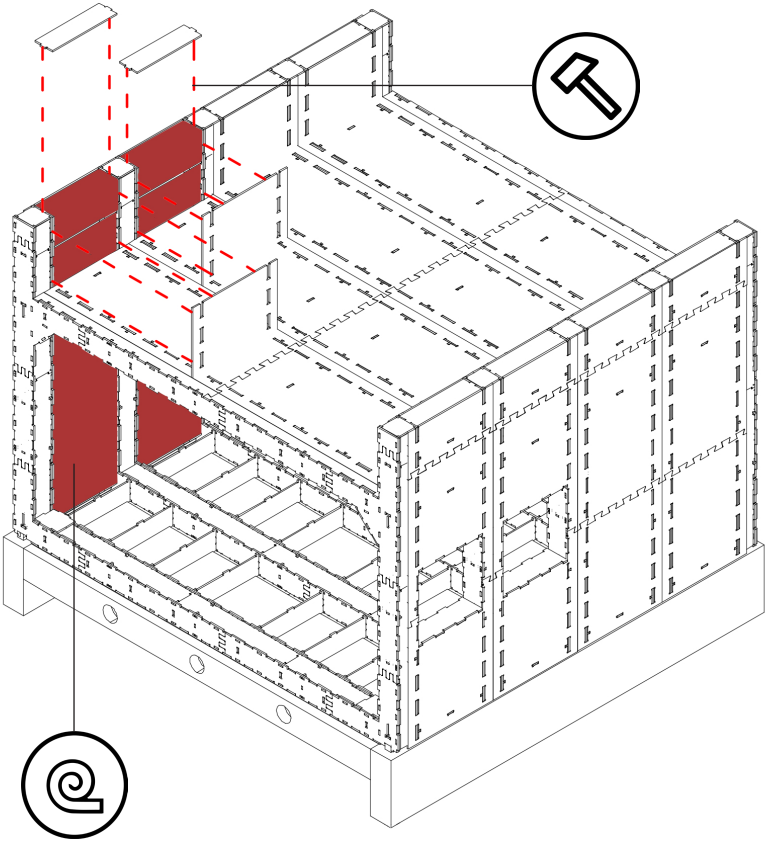
# 10



**Insulation**
Wherever rolled insulation is used, two layers will be required: 100mm + 150mm = 250mm

**Exterior inner panels & insulation**
Place F10 panels on the exterior first, followed by the F11 connectors to finish exterior shell.

## Feedback or design modification suggestions / Notes Page

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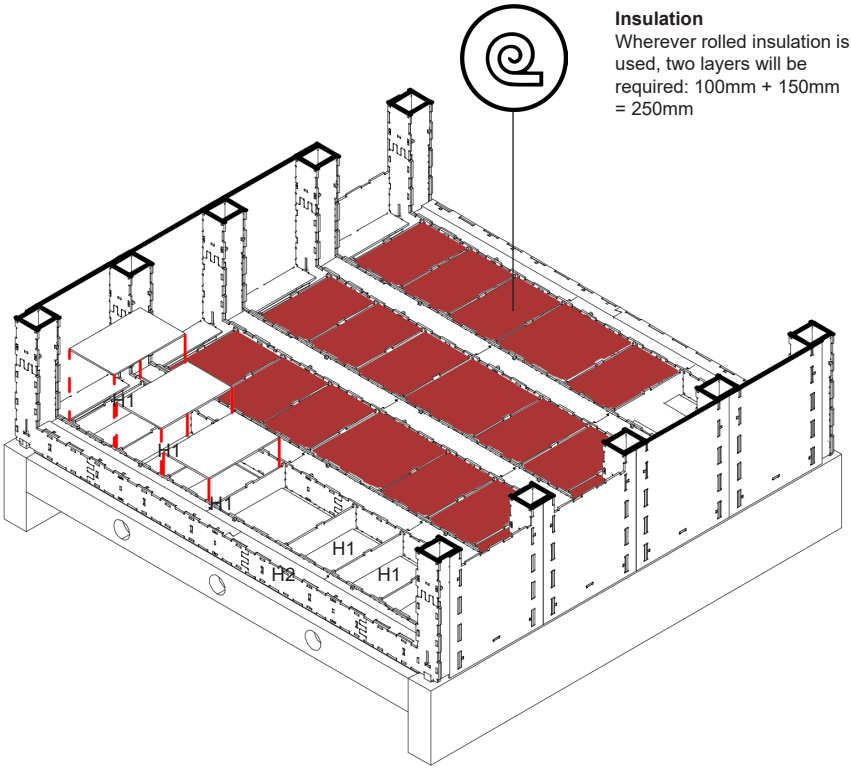
# 11




**Insulation**
Wherever rolled insulation is used, two layers will be required: 100mm + 150mm = 250mm

**Roof & exterior sheets**
Decide on window location and size and with the use of the cnc mallet, attach roof and exterior sheets accordingly.

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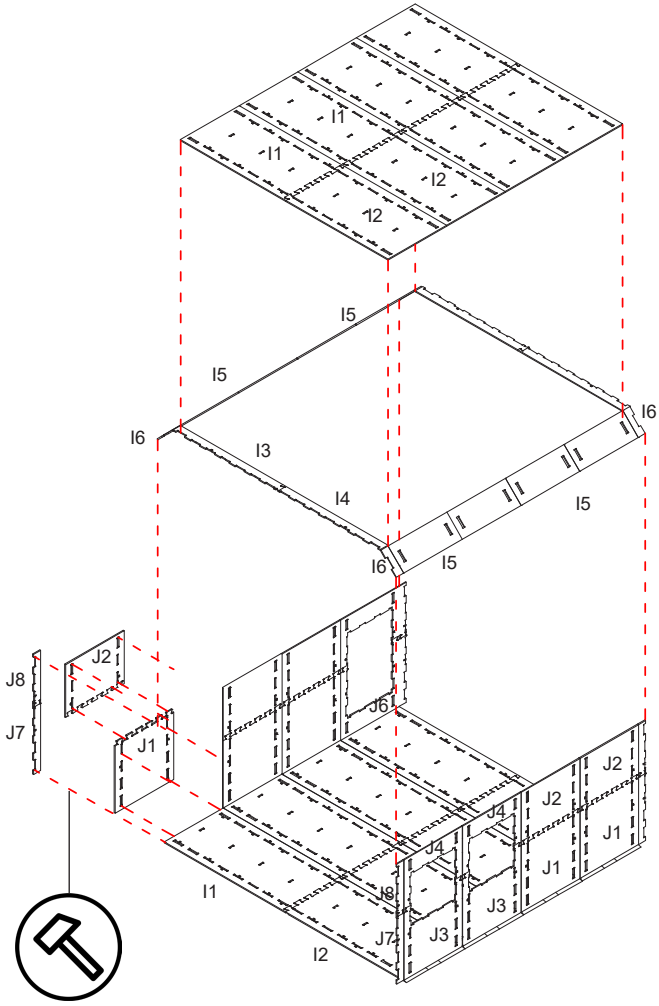
# 12




**Internal elements**
Next place the internal components ontop of the insulation previously laid.

## Feedback or design modification suggestions / Notes Page

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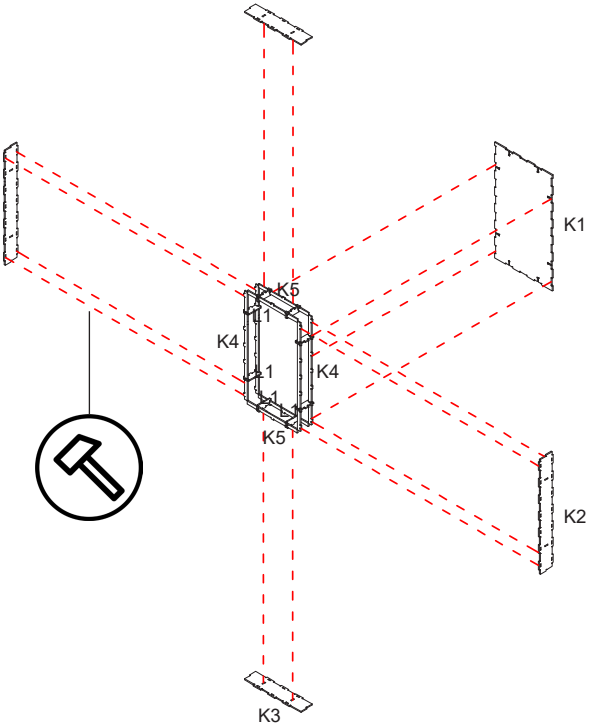
# 13




**Interior wall**
Do not place final K1 panel ontop. Leave the wall open once these steps have been completed.

## Feedback or design modification suggestions / Notes Page

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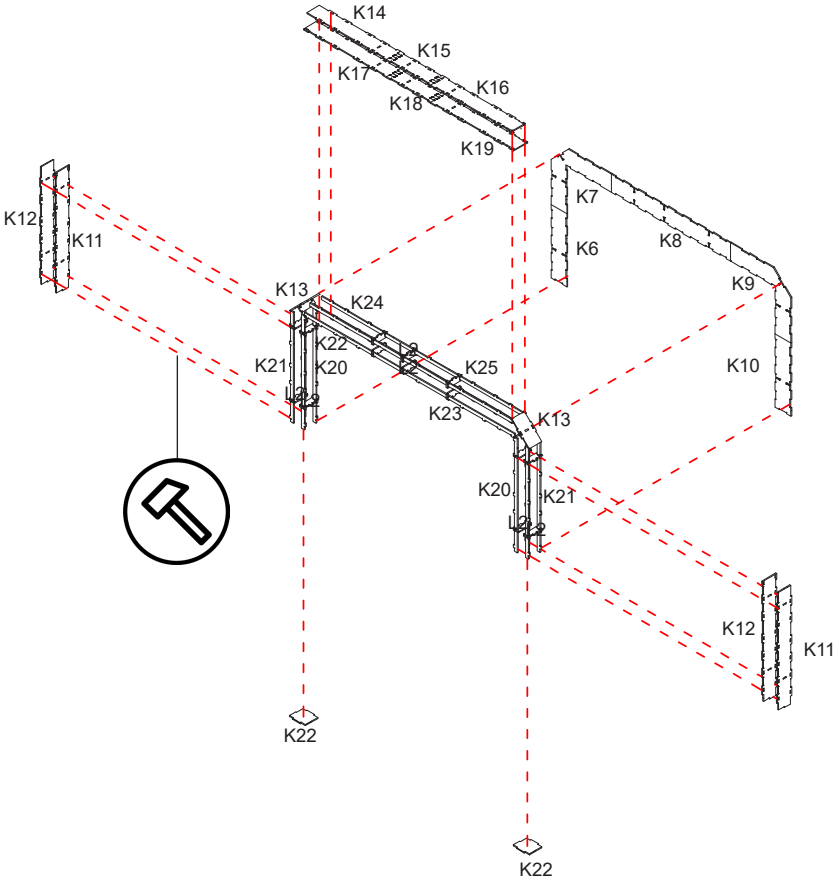
# 14




**Interior frame**
Do not place final K6, K7, K8, K9 or K10 panels ontop. Leave the wall open once these steps have been completed.

## Feedback or design modification suggestions / Notes Page

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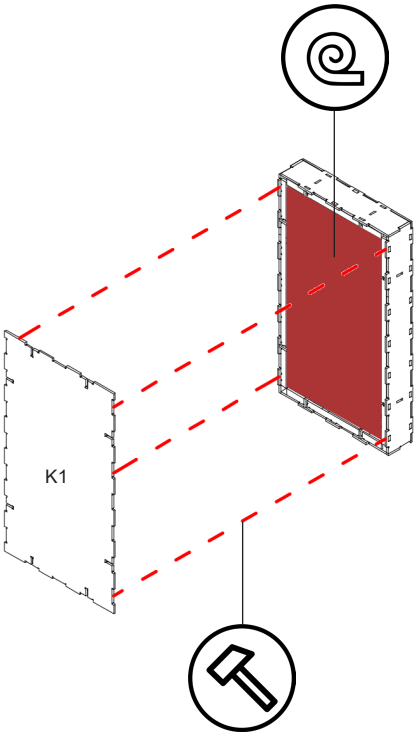
# 15




**Finishing the wall panel**
Place insulation inside and fix shut with the cnc mallet.

## Feedback or design modification suggestions / Notes Page

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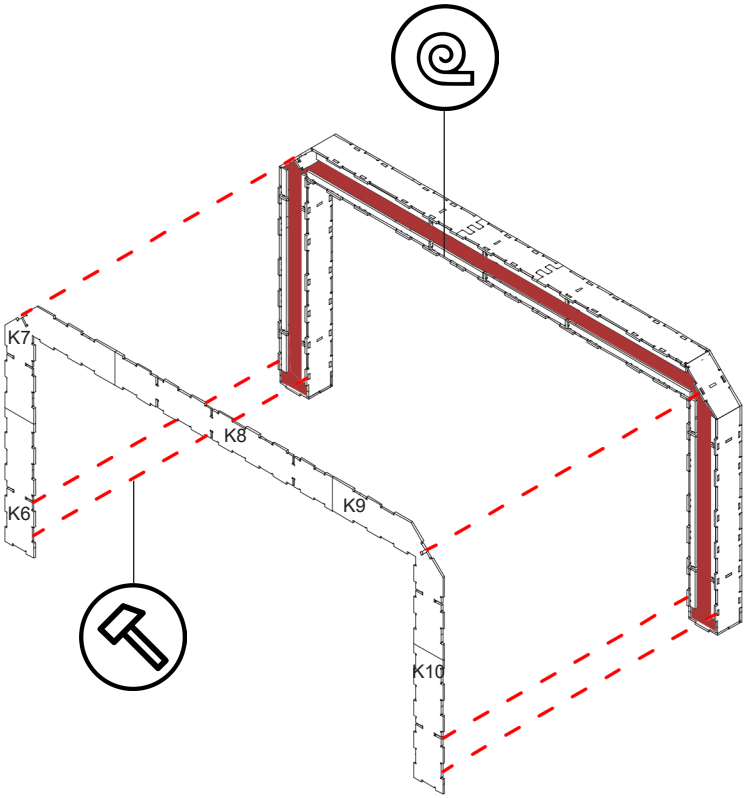
# 16




**Finishing the frame panel**
Place insulation inside and fix shut with the cnc mallet.

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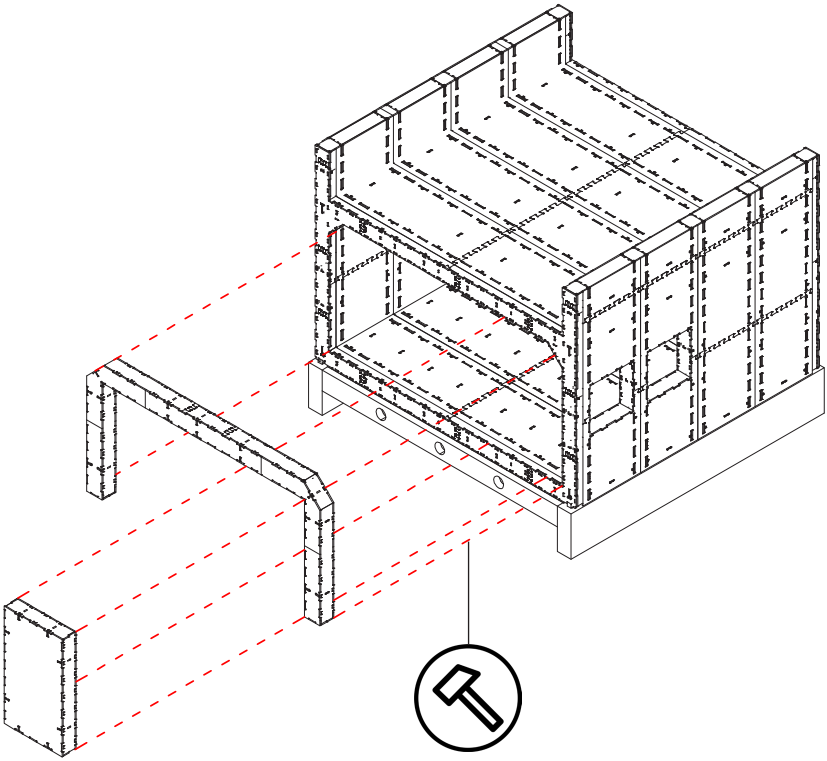
# 17



**Placing the panels inside**
The frames are to be lifted and moved inside the frame with a group of approx 4+ people. Make the edge flush with main building body.

## Feedback or design modification suggestions / Notes Page

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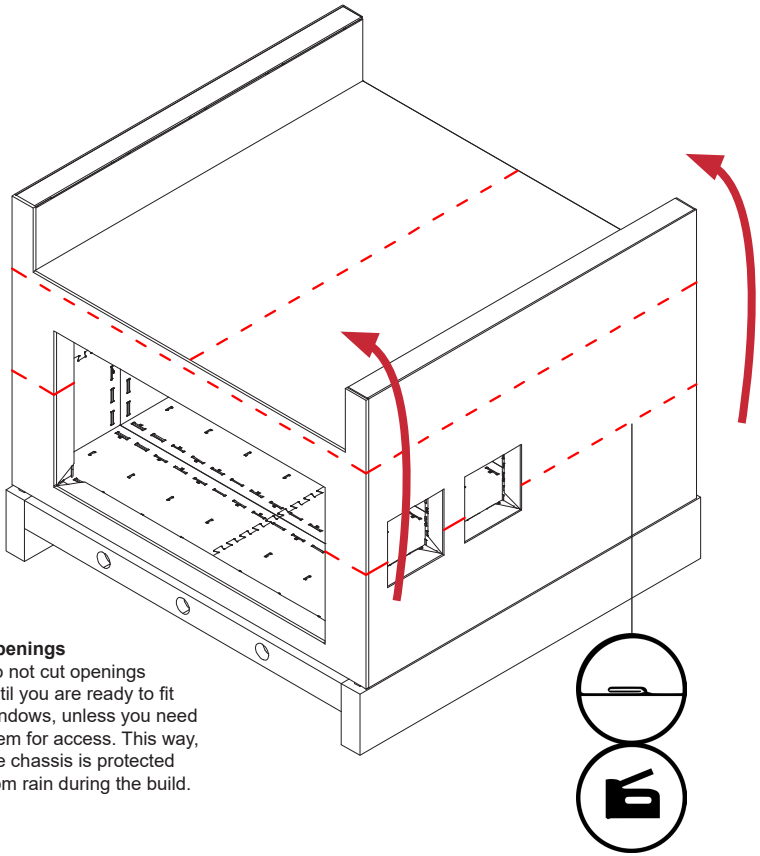
# 18



**Openings**
Do not cut openings until you are ready to fit windows, unless you need them for access. This way, the chassis is protected from rain during the build.

**Wrapping the building**
Work upwards, giving at least 200mm overlap. Ensure all folds are double wrapped and ‘weathered’ so water will run downwards.

## Feedback or design modification suggestions / Notes Page

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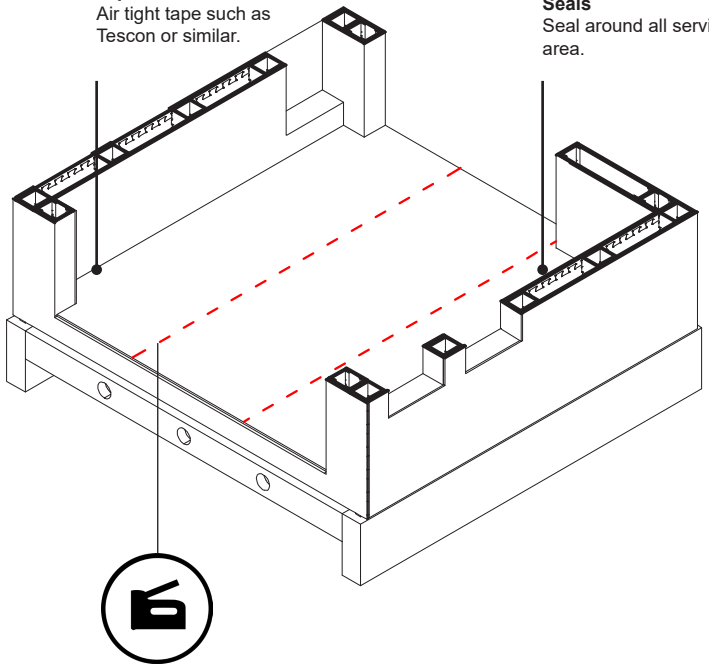
# 19

**Tape**
Air tight tape such as Tescon or similar.

**Seals**
Seal around all service area.



**Vapour barrier**
Staple the vapour barrier directly to the cnc milled ply. If you use a thinner vapour barrier, make sure you patch with tape over the staples.

## Feedback or design modification suggestions / Notes Page

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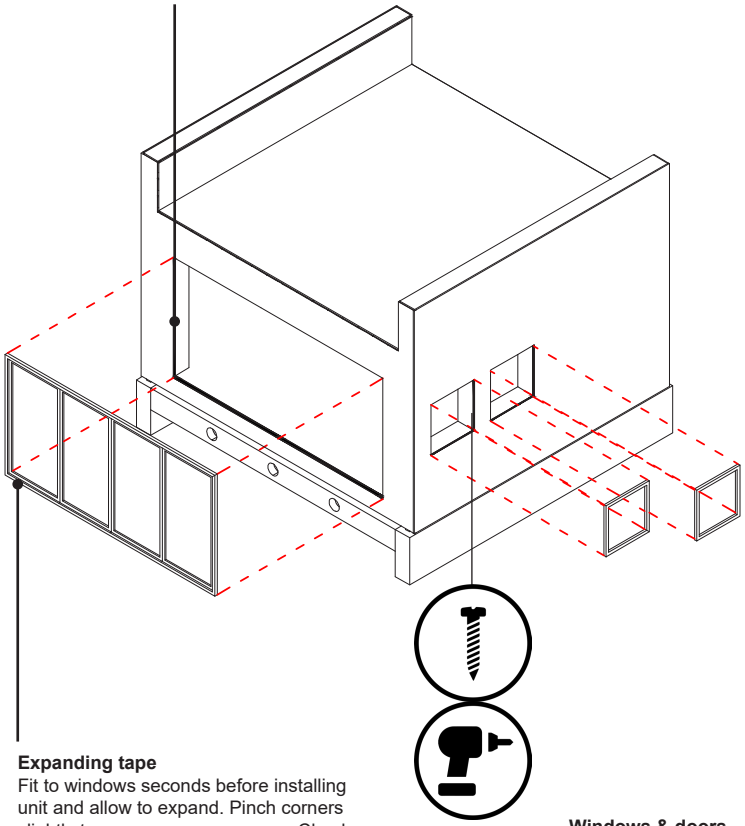
# 20

**Flashing tape**
Around entire opening
befor ffitting window



**Expanding tape**
Fit to windows seconds before installing unit and allow to expand. Pinch corners slightly to ensure no corner gaps. Check complete seal around unit. If possible add additional flashing tape to exterior. Wind will drive rain into even the smallest crack.

**Windows & doors**
Install as per manufacturer's instructions. In most cases, front face should be flush with chassis.

## Feedback or design modification suggestions / Notes Page

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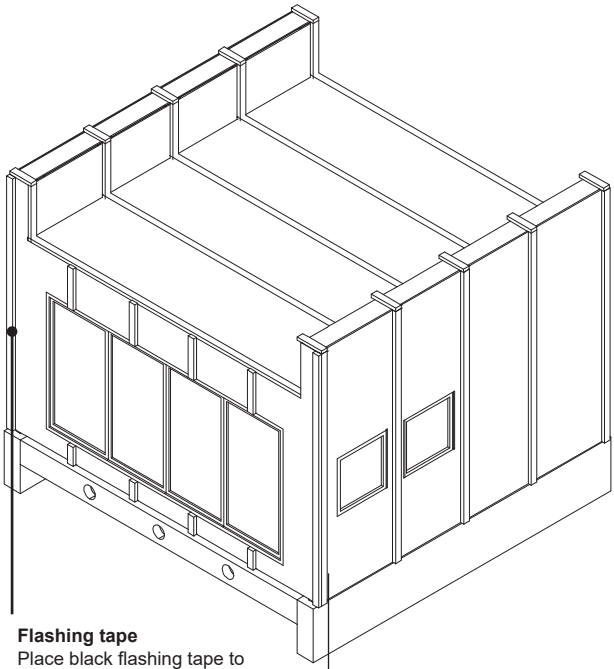
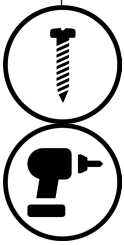
# 21



**Flashing tape**
Place black flashing tape to front of battens.



**Batters**
Place battens every 1250mm, screw into ply and cut for openings.

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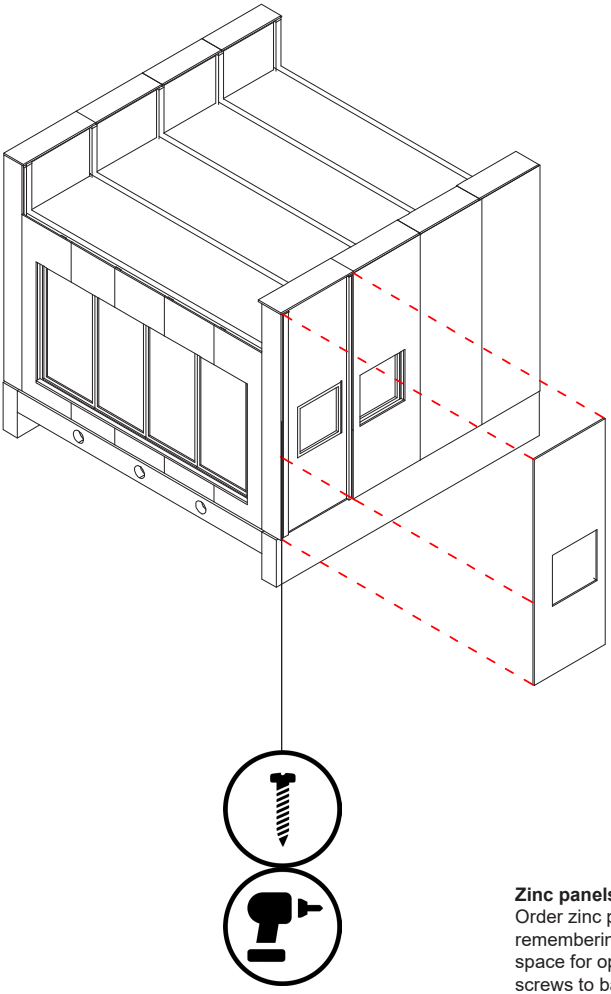
# 22



**Zinc panels**
Order zinc panels to size, remembering to leave space for openings. Fix with screws to battens once in place.

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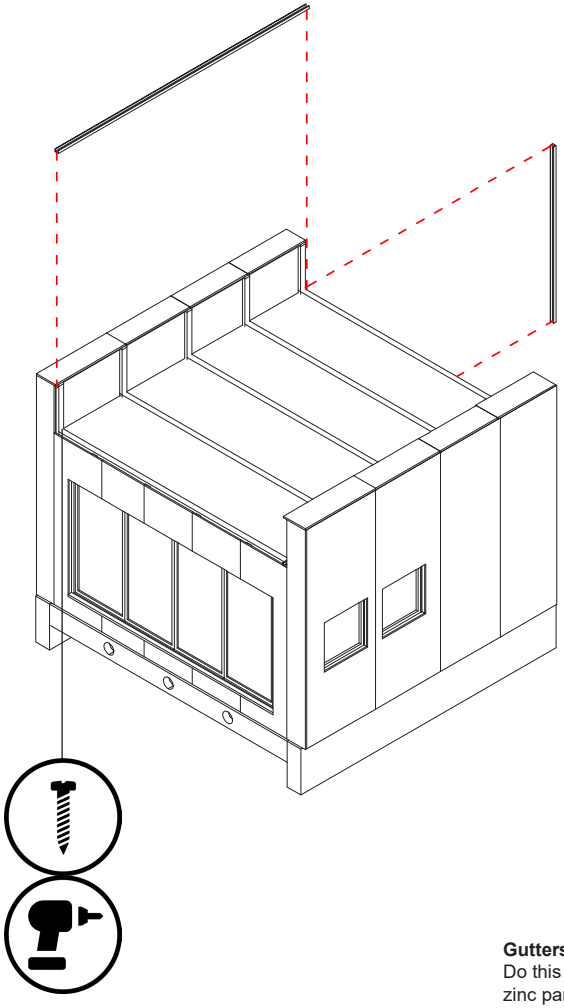
# 23



**Gutters**
Do this before placing roof zinc panels. Once gutter style is chosen, order to size and fix with gutter fixings and screws.

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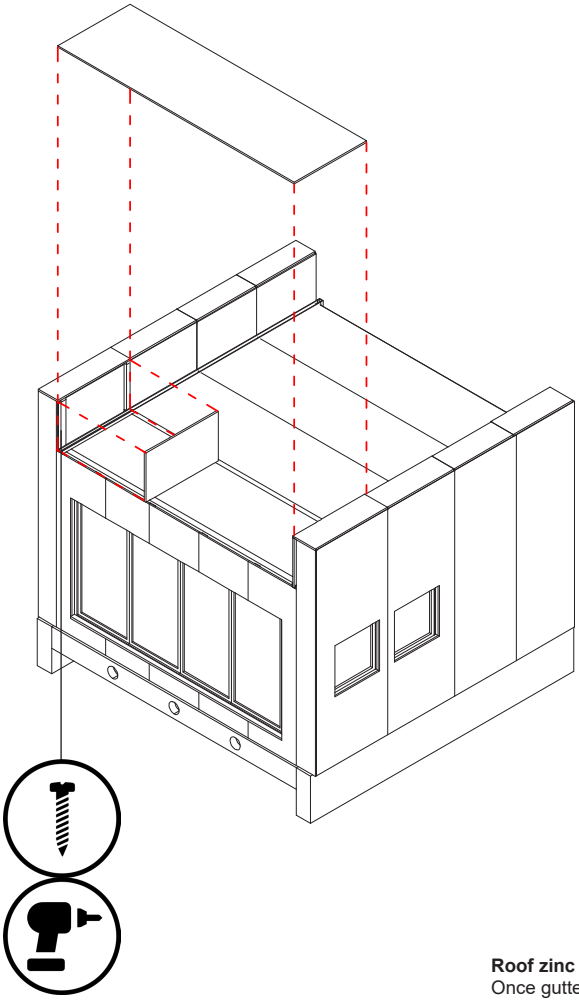
# 24



**Roof zinc panels**
Once gutter is fixed, fix roof zinc panels with screws to battens.

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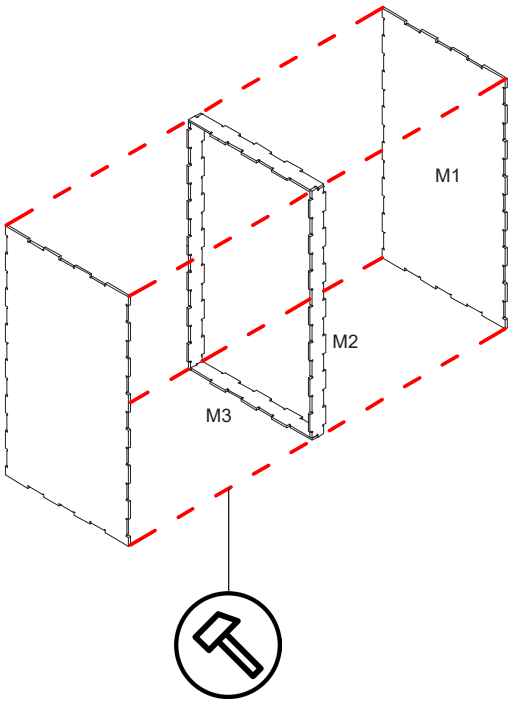
# 25




**Internal walls**
Use mallet to make internal wall panel from cnc milled ply. No need to insulate this.

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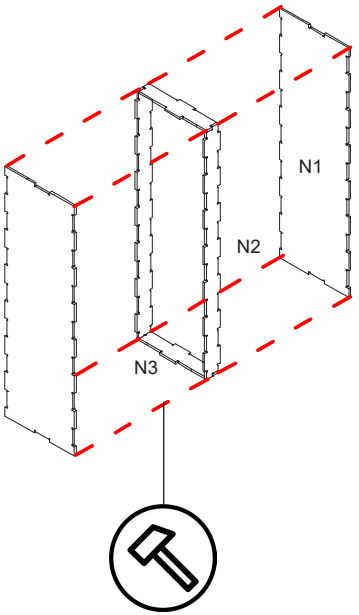
# 26




**Smaller interior wall**
Use mallet to make internal wall panel from cnc milled ply. No need for insulation here.

## Feedback or design modification suggestions / Notes Page

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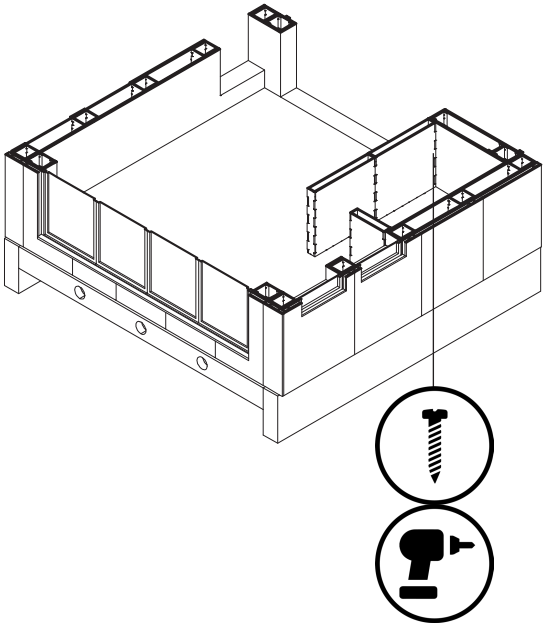
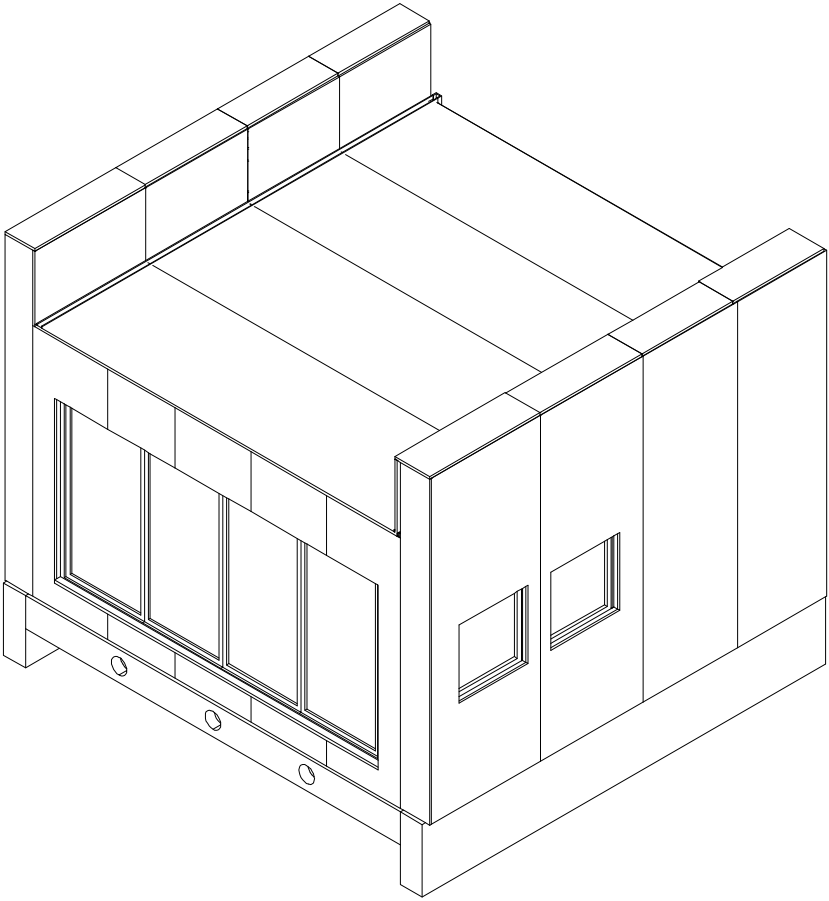
# 27



**Place internal walls**
Follow floor plans to locate internal walls and fix to internal wall with screws.

# 28

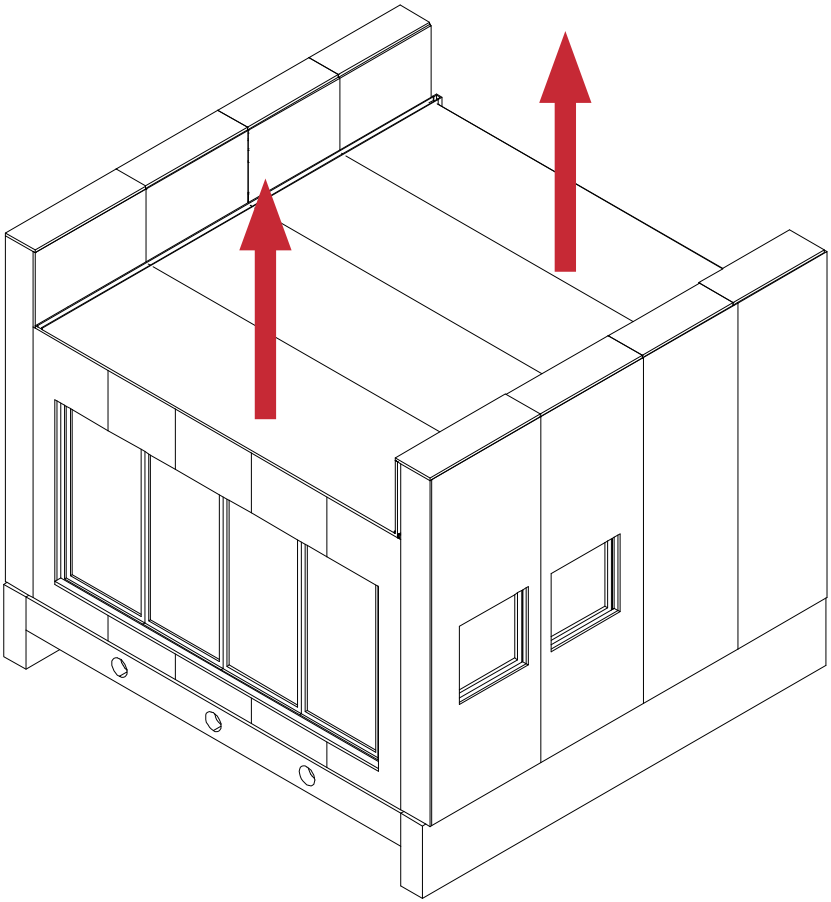


**Finished home**
Furnish as you feel, remembering lessons take place in wikihouse hub daily, including cnc furniture design and build.

## Feedback or design modification suggestions / Notes Page

**Please scan all your site notes from the process and compile them into a single document. Please upload them to your project folder or email them to:**

**1806278@students.ucreative.ac.uk**



# Vol 2. EXPANDING YOUR HOME

**A low-energy, low-cost, community build home for life**

**Floor area** 25m²
**Fabric U value** 0.14 W/m²K
**Typical annual energy use** unknown
**Typical assembly time** unknown
**Difficulty level** 2