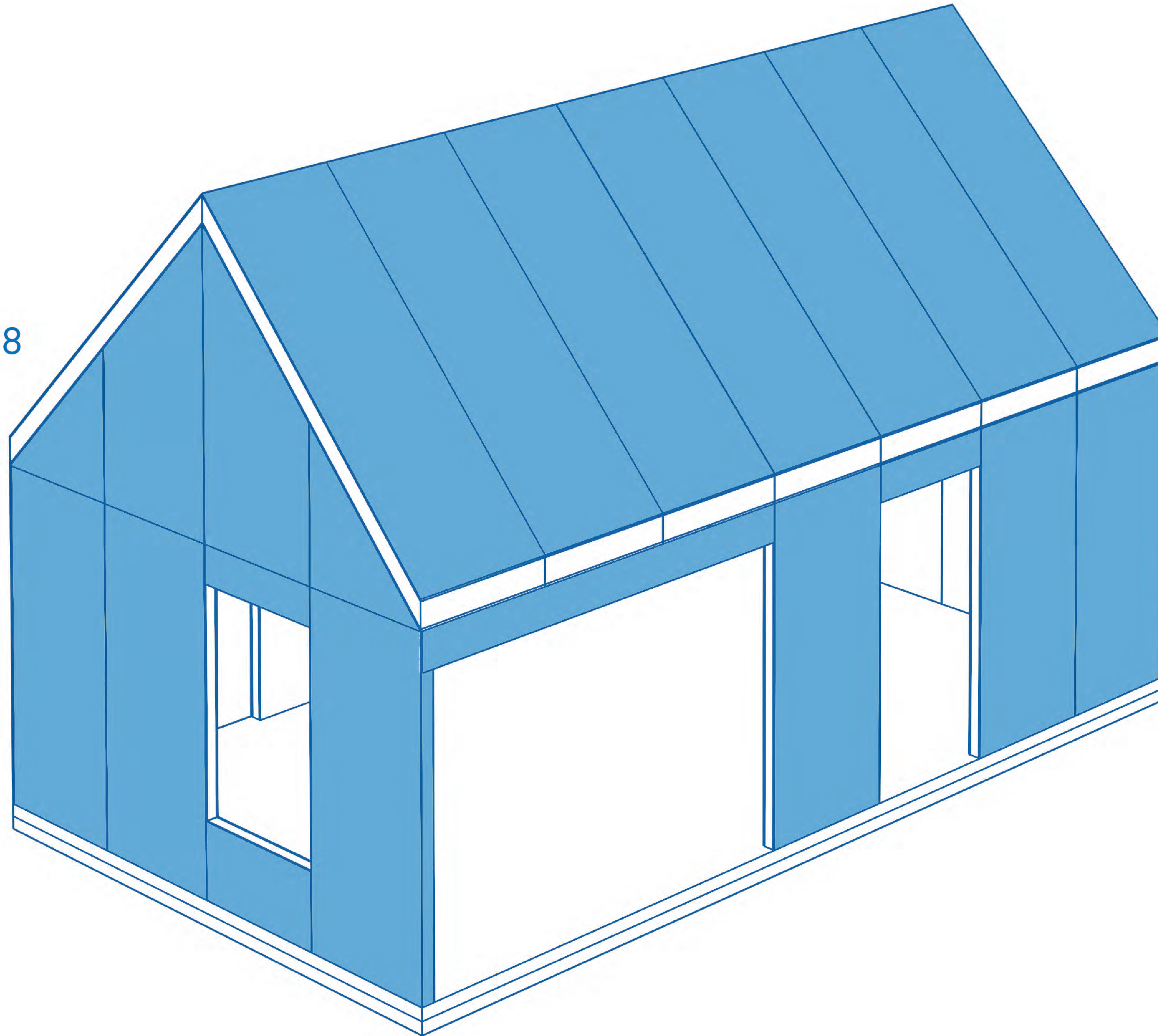


NZSIP Smart Building System: Builders Installation Manual



smart
building system

V3: March 2018



Step 1: Equipment, tool list and fixings

Builder supplied equipment and responsibilities

Staff

- 2-3 installation staff - one LBP certified builder & 1 or 2 support staff.

Tools

- 2x Impact driver and/or Drills for fixing
- Two levels - long & short for straightening walls
- Work safe ladders & movable scaffolding unit for installing headers
- Bracing timber for straightening and holding walls in place
- PUR Spray foam and foam gun

Key Tasks

- Review all plans and details as per the construction issue of engineers drawings, architects drawings and NZSIP panel plans
- Insure bottom plate is installed as per engineers drawings before the panels arrive.
- Book Tele-handler or Hi-Ab for devanning of panel pellets, for install of large headers & roof installation

NZSIP Smart Panels components supplied to site

- Pre-ordered Smart wall, roof and floor panels in weatherproof packs
- Allen key x 2 for Cam locks
- Roof and wall panel corner fixing screws (with fixing heads)
- Top plate timber runs (includes roof raking angles)
- Lintels supplied as per the panel plan
- Air and weather tightness tapes

We will agree with the builder on preferred unpacking method for panel packs depending on the sites requirements.

Generally the panels will be delivered to site by truck and trailer or Hi-Ab for a standard sized home. We recommend Tele handler for unloading of panel packs.

NZSIP Smart Roof panels can be delivered to site at a later date to the Smart Walls if required with associated extra handling and transport fees.

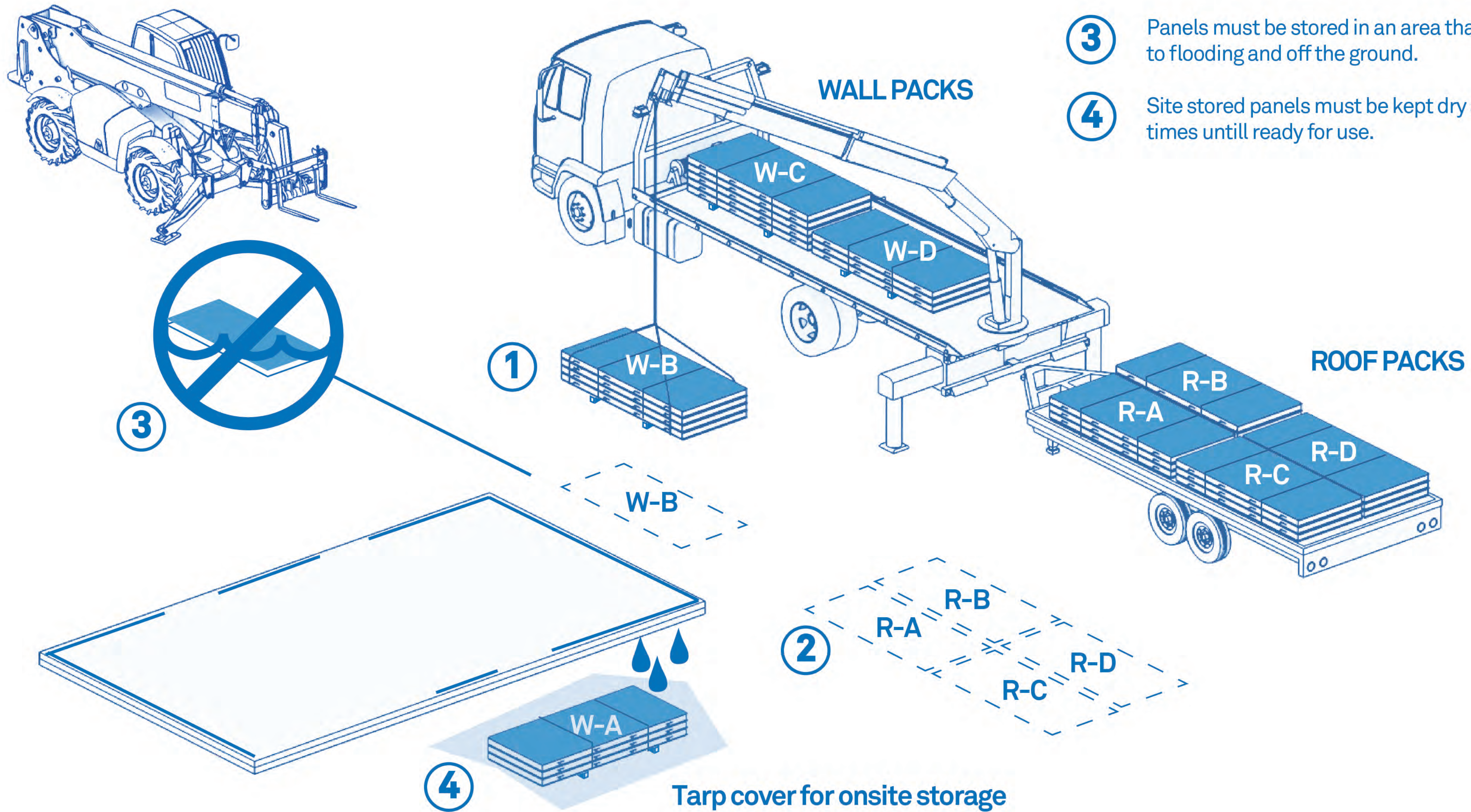
*Please refer to your NZSIP drawings and note any additional timber marked in **Red** is **NOT** supplied by NZSIP and needs to be sourced from your local timber merchant.

*** All new builds will receive phone support from one of our trained NZSIP Smart Panel staff.**

Step 2: Site setup

*Long distance shipments out of the Central Otago region will likely be sent on truck and trailer units. Please organise a site telehandler for most time efficient devanning of NZSIP Smart Panel pellets.

- 1 Smart Building system arrive on weatherproof clear wrapped pallets.
- 2 You will need a clear space for panel delivery as close to the site as possible. Panels will be delivered by hi-ab or truck and trailer units with telehandler.
- 3 Panels must be stored in an area that is not susceptible to flooding and off the ground.
- 4 Site stored panels must be kept dry and covered at all times until ready for use.

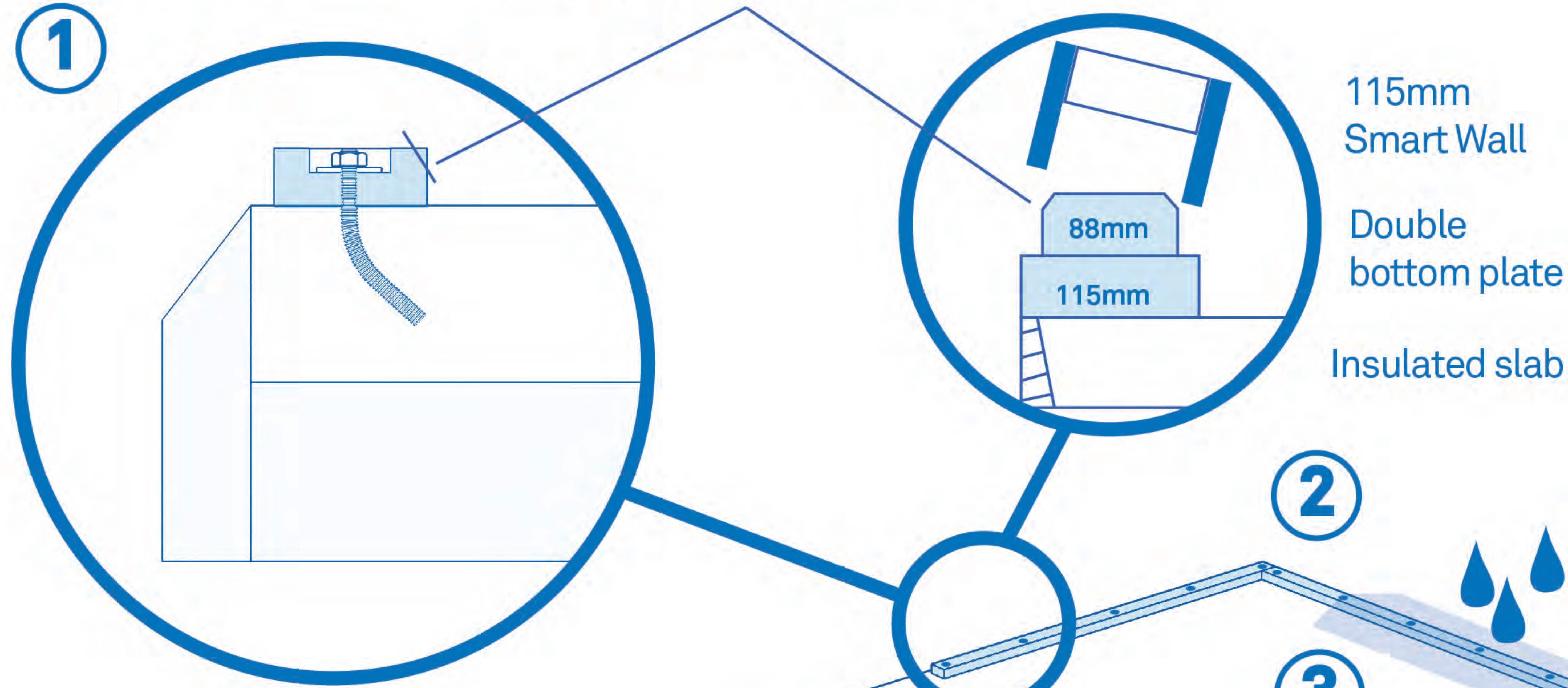


Step 3: Bottom plate set up

Double bottom plates are common with insulated concrete foundations

* Please refer to your foundation engineer drawings for correct install detailing.

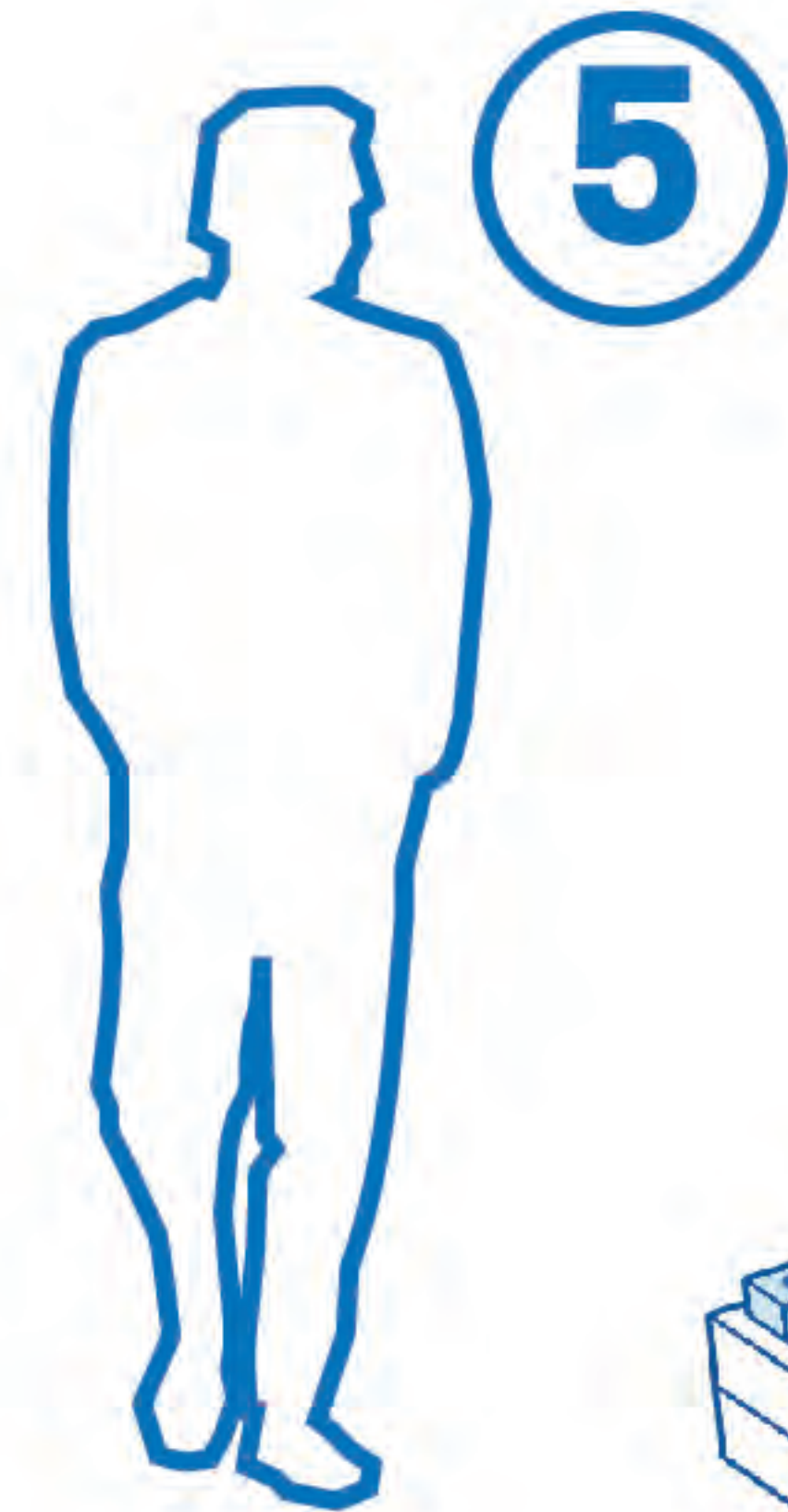
Chamfer (take the square edge off) bottom plate to help the wall panel slide on.



115mm Smart Wall

Double bottom plate

Insulated slab



5

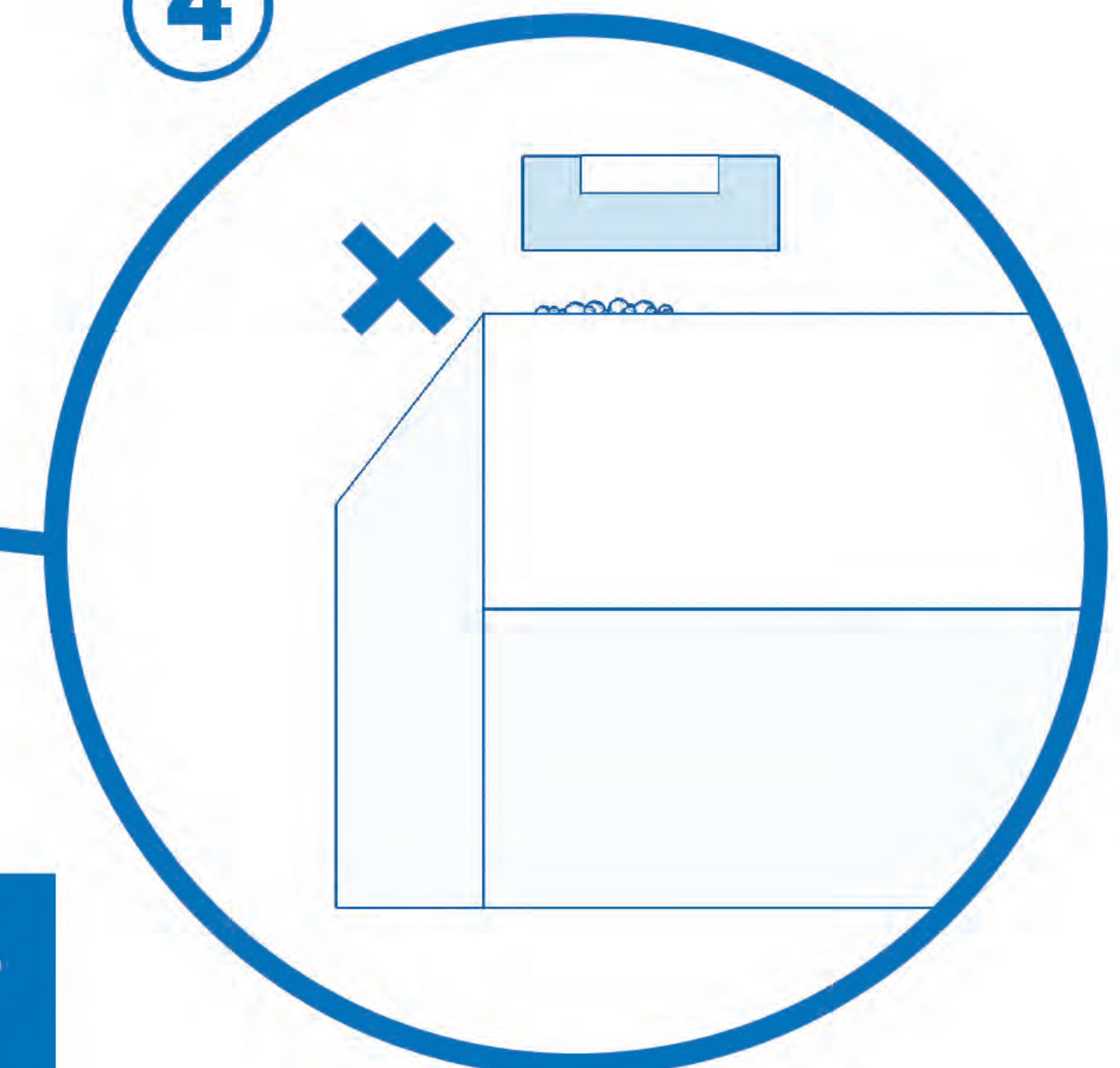
Engineer -or- Consent Officer
Bottom plate sign off

2

3

* cover plate if heavy rain to reduce swelling

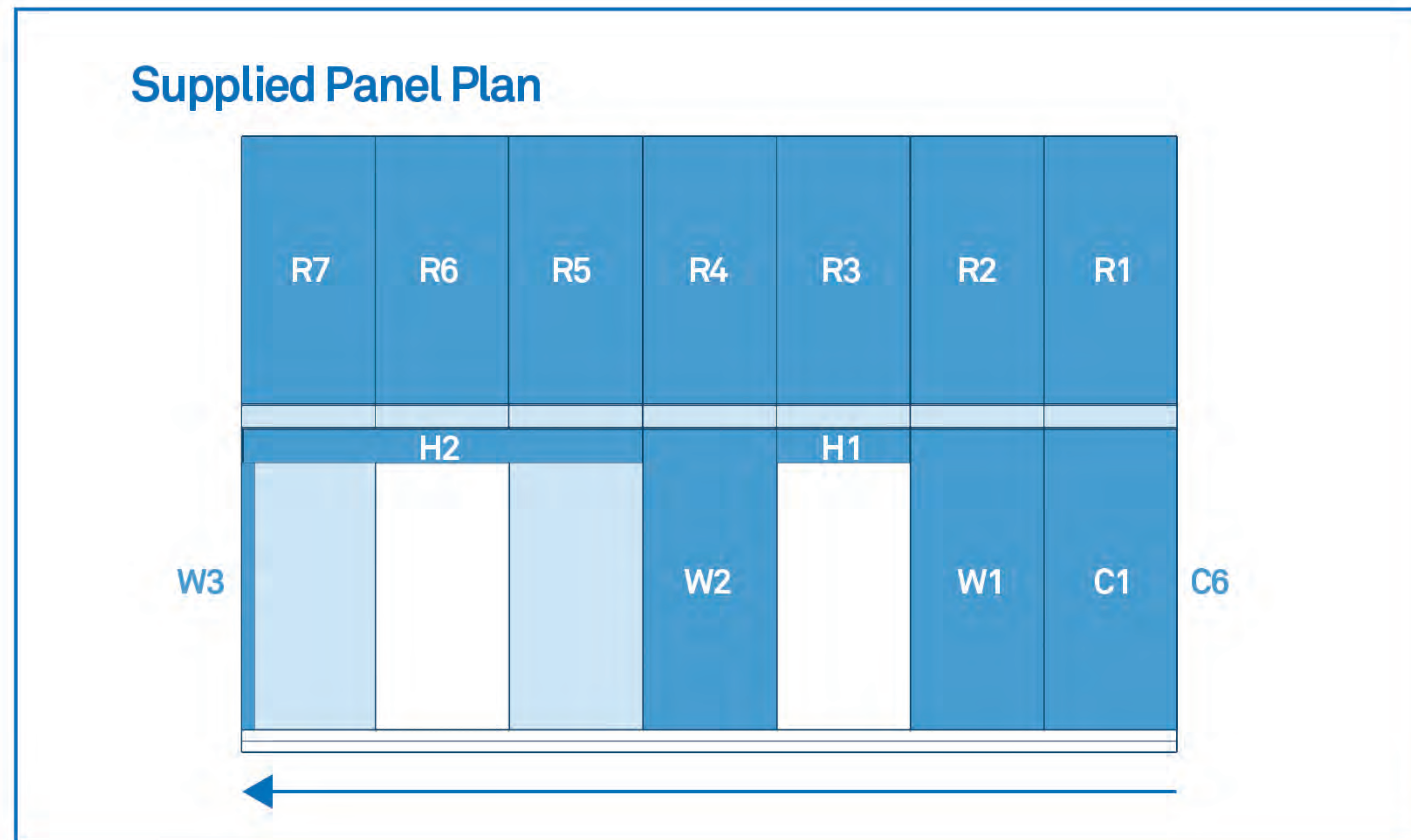
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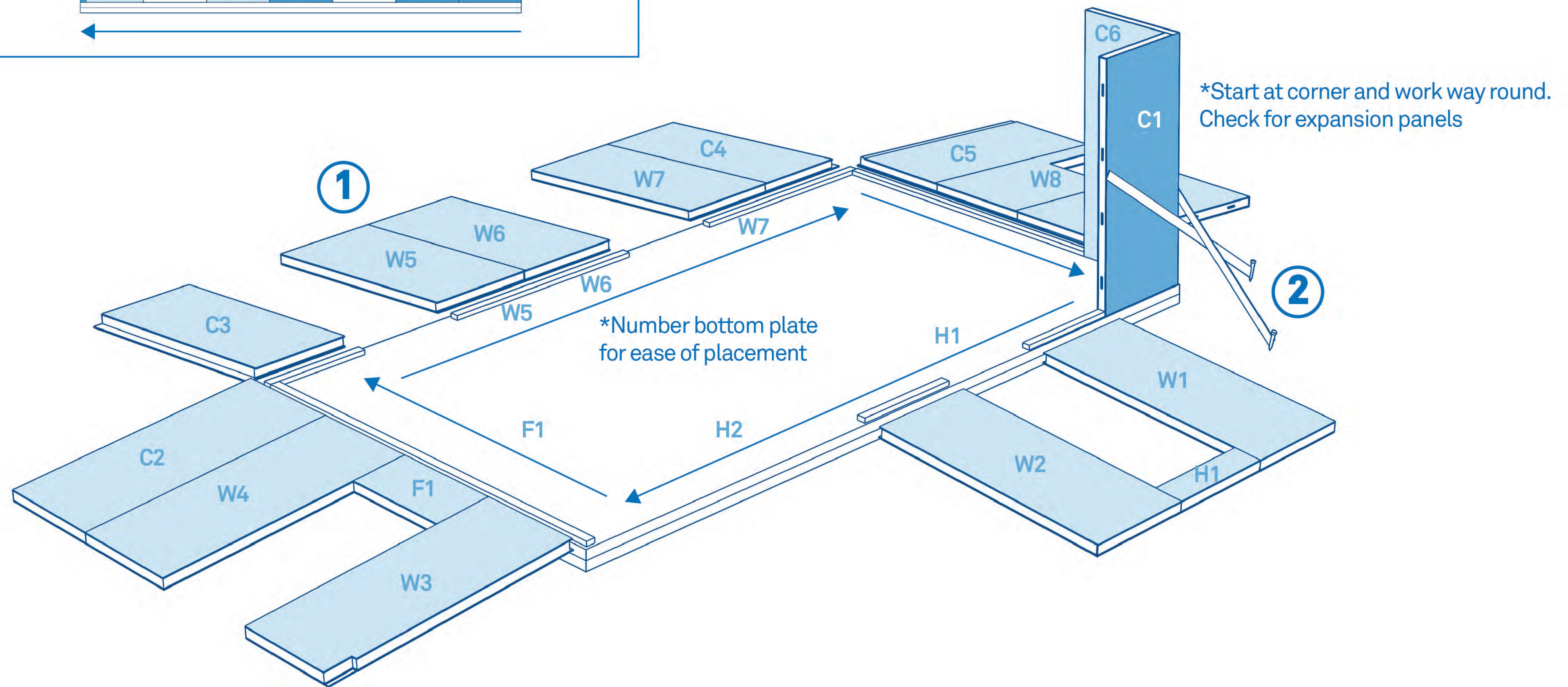
**Bottom plate timber to be provided and installed by builder
Bottom plate / wall join tapes are provided by NZSIP**

- 1 Precast or chemset hold down bolts into the concrete foundation perimeter or affix to pile floor system as per engineer and architects drawings. Please note fixings into pile floor system may differ - refer to engineers specification.
- 2 Layout timber bottom plates to insure correct fixing positions. Drill holes for bolts. Fix provided plate lengths as per the bottom plate plan drawings. We recommend using bottom plate timber that is less susceptible to swelling.
- 3 Ensure the bottom plate stays as dry as possible to avoid swelling for an easier fit of Smart Wall Panel. Staple plastic wrap provided over bottom plate to mitigate rain swelling.
- 4 Make sure the foundation is clear of debris & dust that could affect air tight bond of the base plate with the foundation
- 5 Building control officer or engineer to inspect installed bottom plate prior to Smart Panel install.

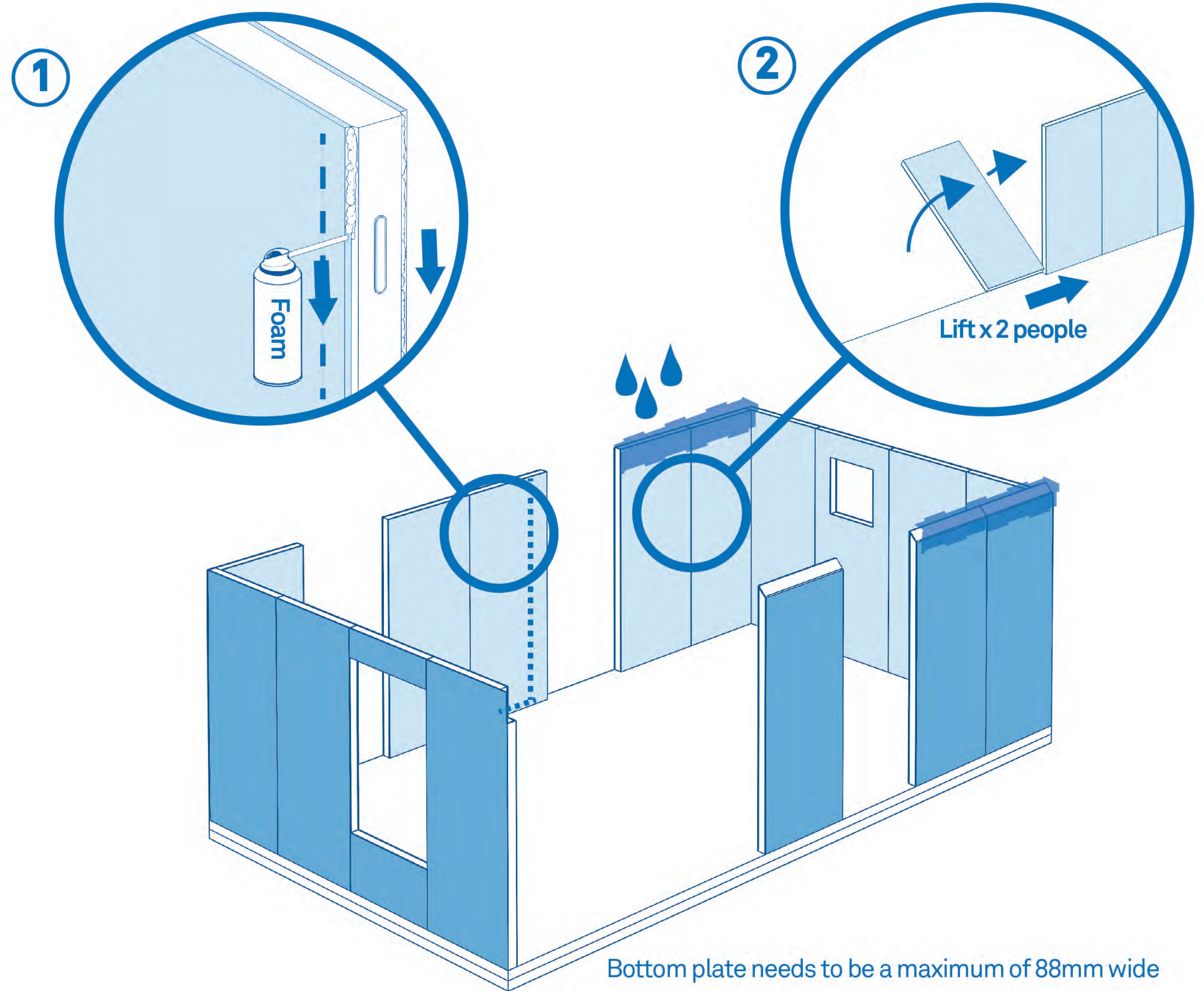
Step 4: Smart Wall set up



- ① Layout SmartWall panels and window footers as per the supplied panel plan around the perimeter of the pad.
- ② Start on Corner 1 and work in the prescribed direction. Stand up the two SmartWall corner panels onto the bottom plate. Once plumb and level temporary screw fix to bottom plate then brace as per diagram.



Step 5: Construction of walls

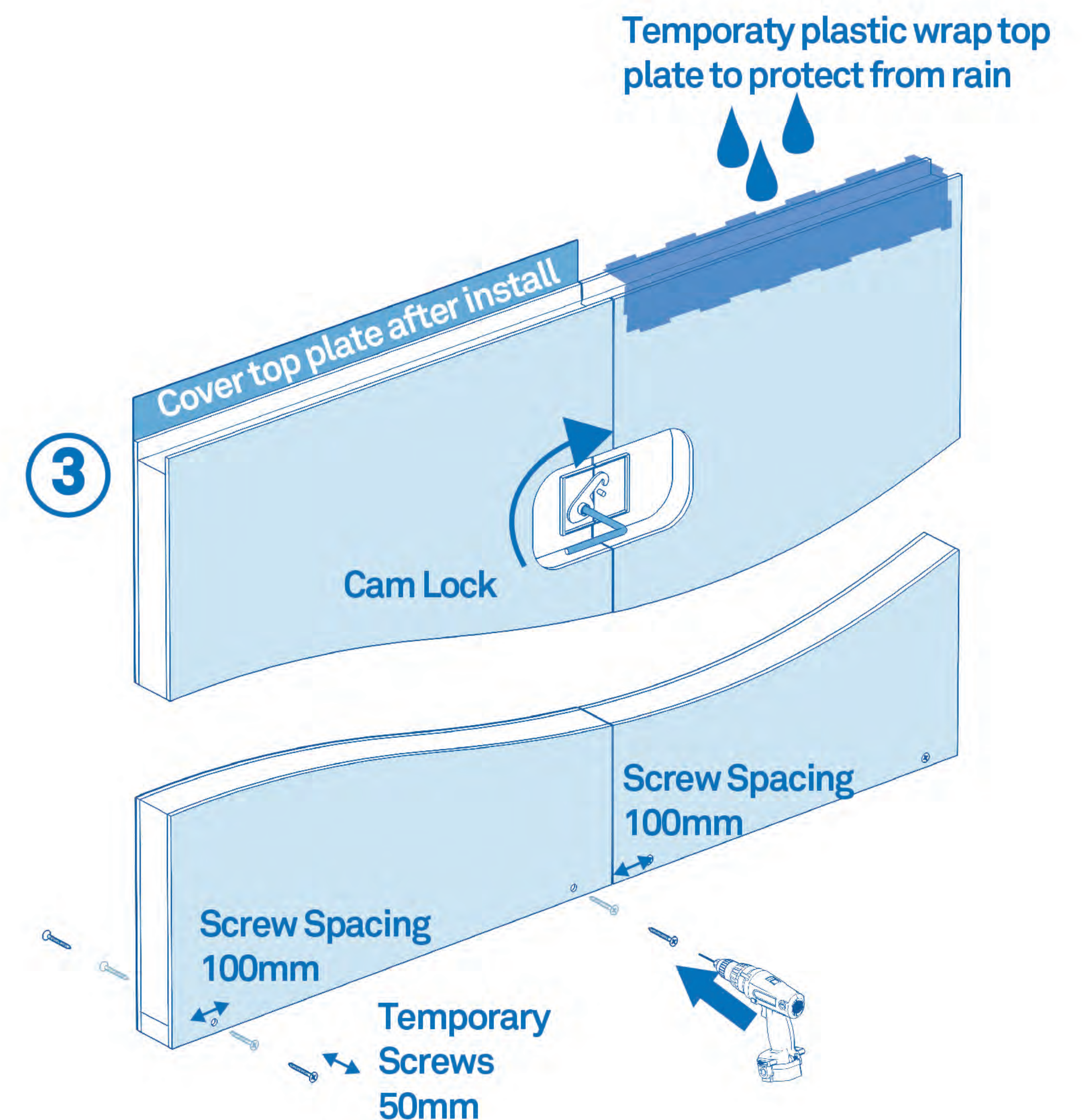


Bottom plate needs to be a maximum of 88mm wide

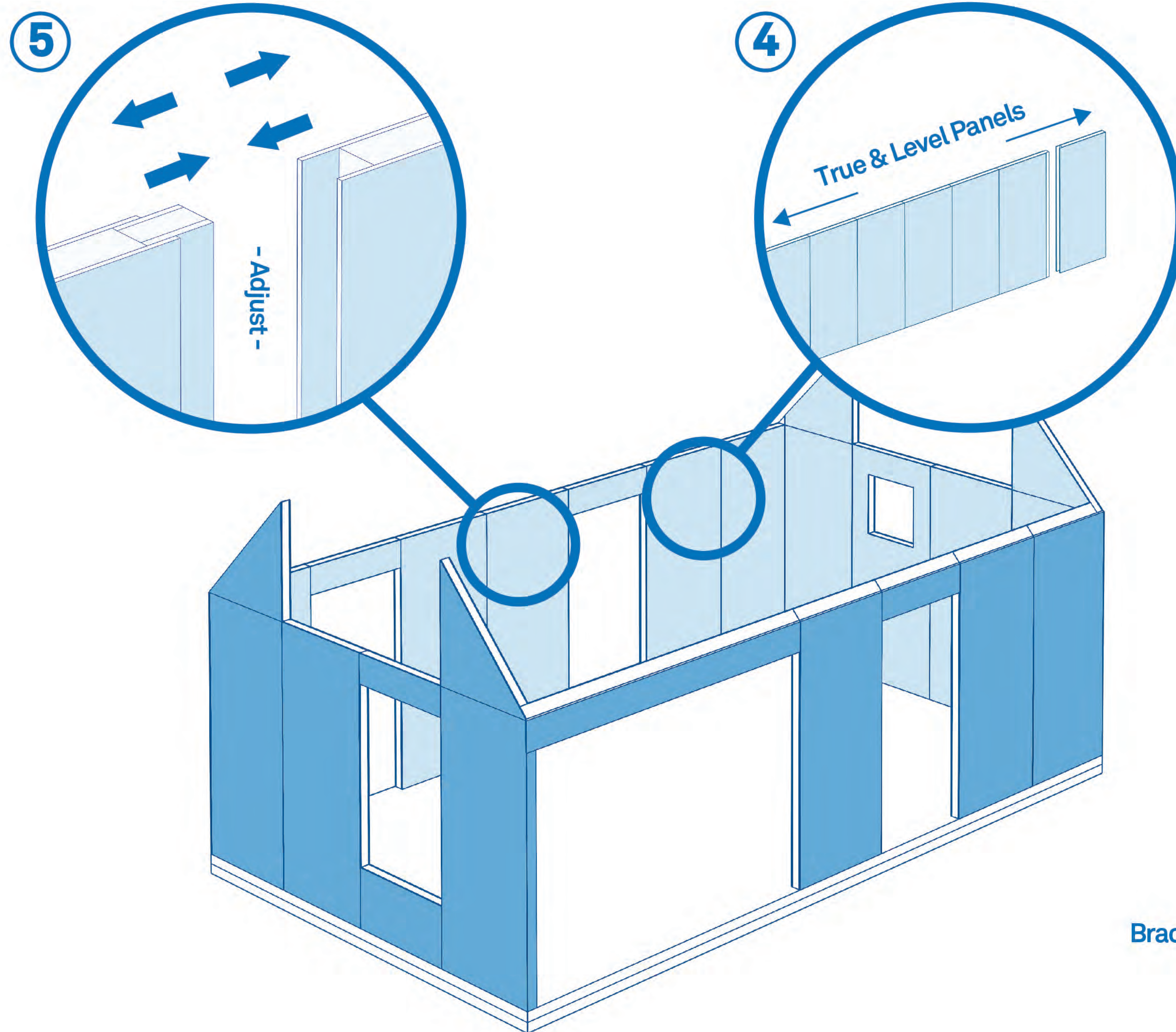
There is a 3mm tolerance built into the panel plans - so tight fit is not always necessary

Internal & external tape are the primary airtightness tool

- 1 With your foam gun spray a line of foam on both panels joins and the base plate.
- 2 Lift the Smart Wall panel into position and slide as close to the adjoining panel as possible. If the panel proves difficult to install onto the bottom plate check the gauging of the bottom plate and opening size of wall panel.
- 3 Tighten the Smart Wall panel with the cam locks, starting at the top. Temporarily fix internal and external face of the wall panel to the base plate at each end.



Step 5: Construction of walls continued...

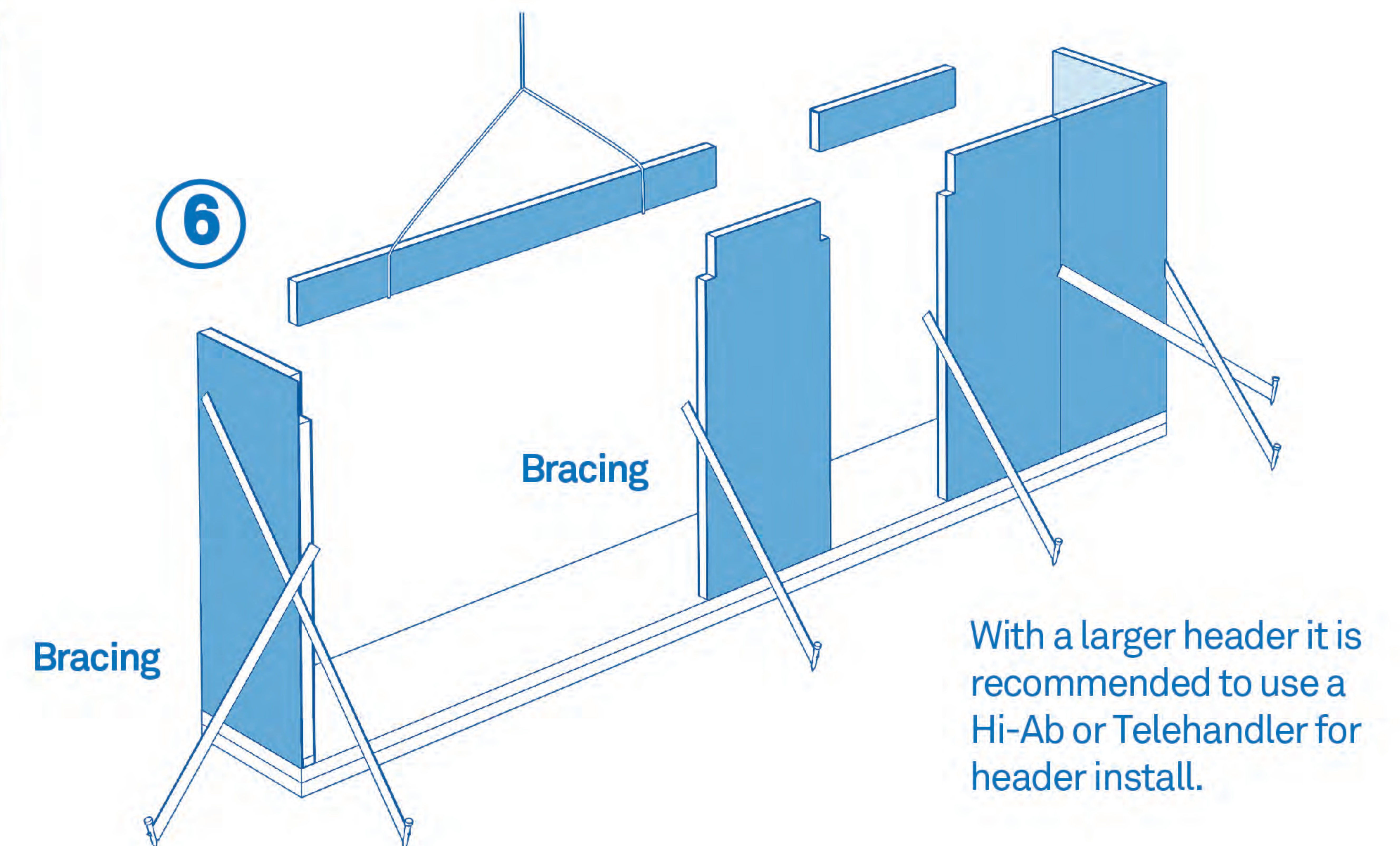


4 Check the panels are true & level and repeat until wall section is complete. Brace panels as where builder see fit and for weather conditions like high winds.

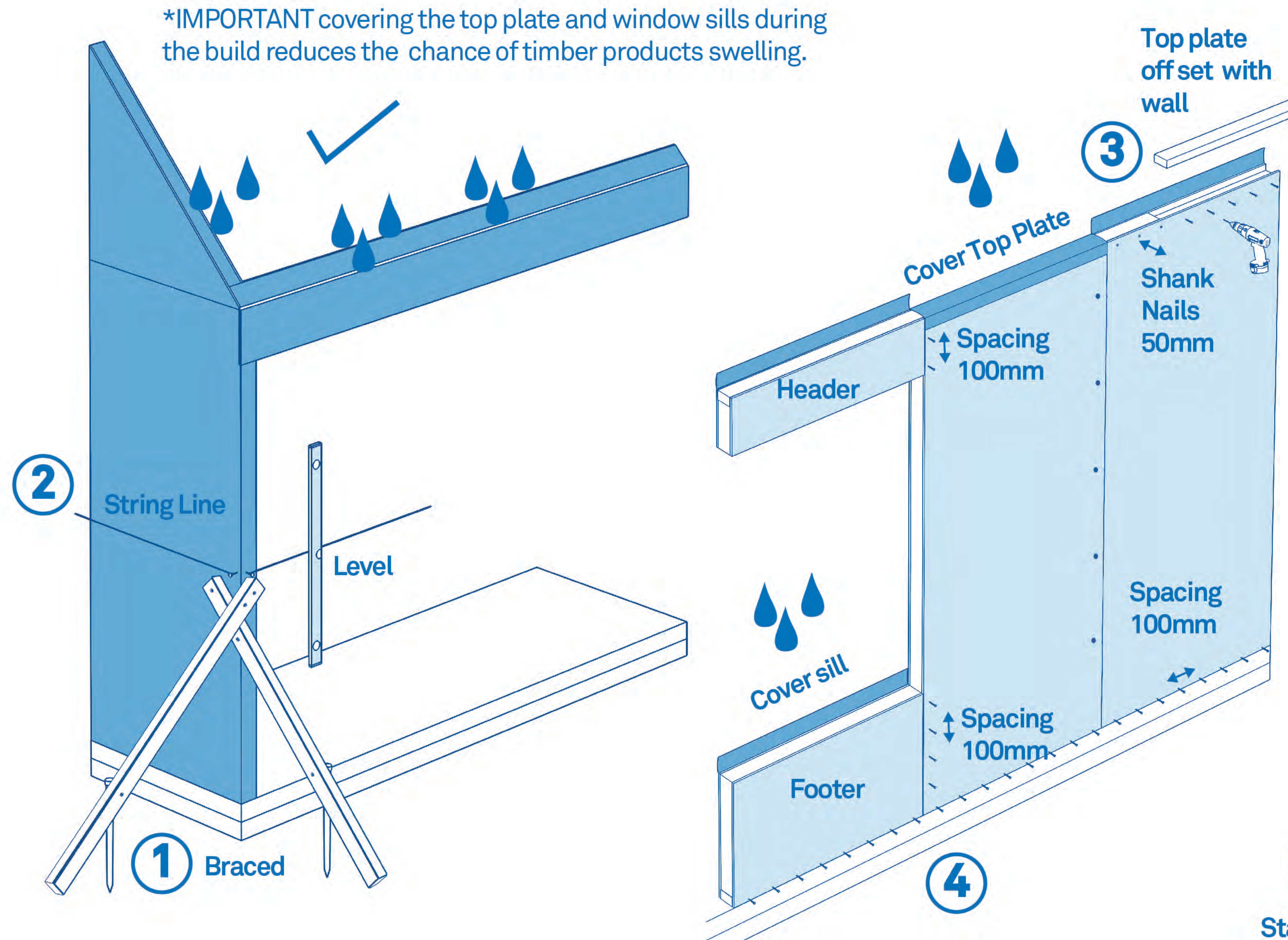
5 NZSIP Smart Wall Panels come with an adjustment panel per long wall length. This can help manage any unforeseen minor variation in pad/foundation and bottom plate lengths during construction.

6 When constructing openings that have headers and footers, ensure the footer panel is installed and temporarily fixed to both adjacent Smart Wall panels first. Then slide the header into position ensuring plumb and level.

*Note for large openings it is recommended you brace either side of the long header until the Smart Wall system is completely fixed off to avoid movement.



Step 6: Top plate and wall bracing & fixing



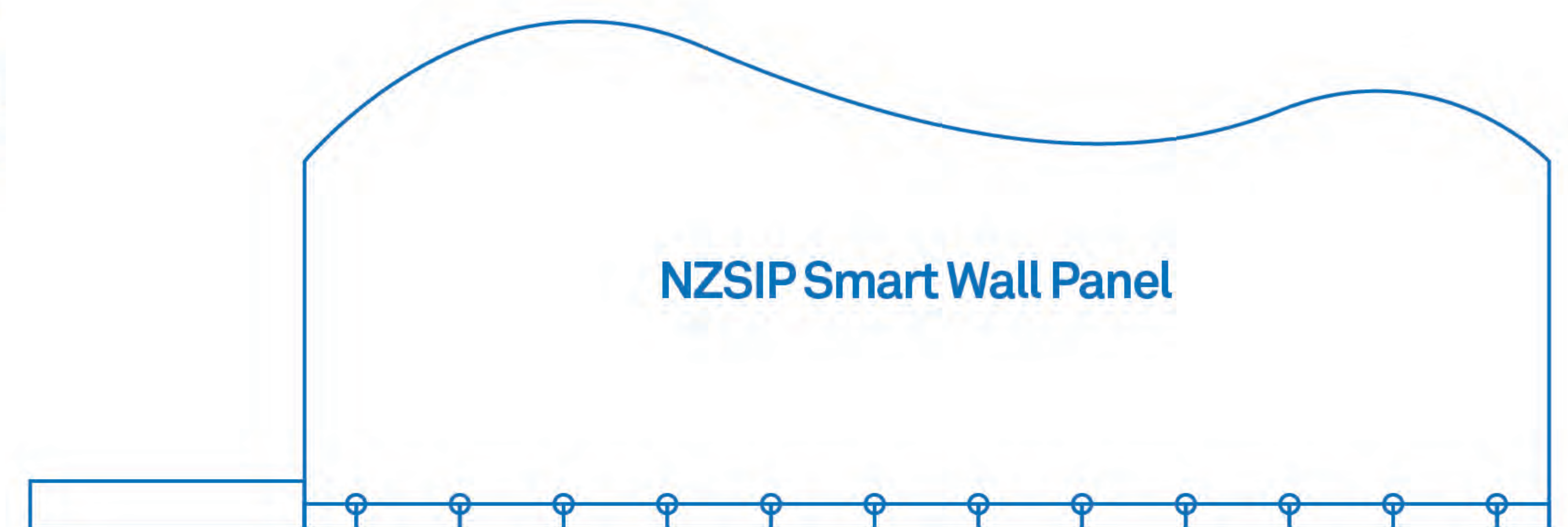
① Once you have erected all NZSIP Smart Wall panels check all panels are straight and true.

② Fix a string line 20mm off each corner running the length of each SmartWall panel. Prior to fixing your string line ensure corner is plumb.

③ Place the top plates provided in the top slot of the Smart Wall panels including header panels, shoot in the top plate at 100mm centers with the 50mm D head ring shank nails. Once shot in use the supplied continuous building wrap strips to cover the top of the Smart Wall.

Ensure the top plate provides a continuous flat even surface for the second storey or roof install. Pack if necessary.

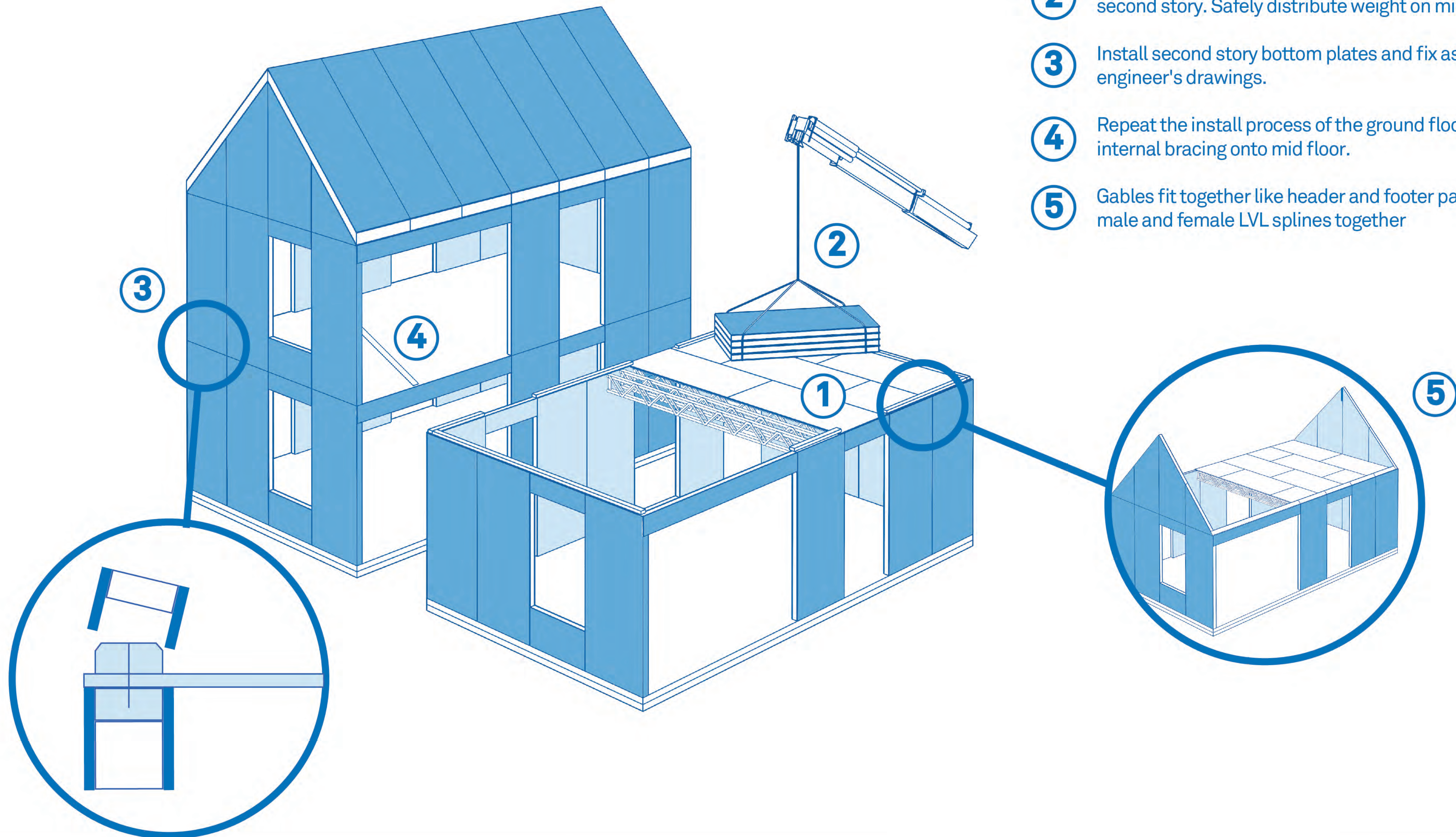
④ Nail off the Smart Wall and footer panels to the base plate at 100 mm centers using 50mm D head ring shank nails and all non camlock wall sections at 100mm centers. This will lock the Smart Wall in place for either the second story or Smart Roof system



Start fixing 50mm from edge of panel.

Align fixing with center of bottom plate 100mm centers

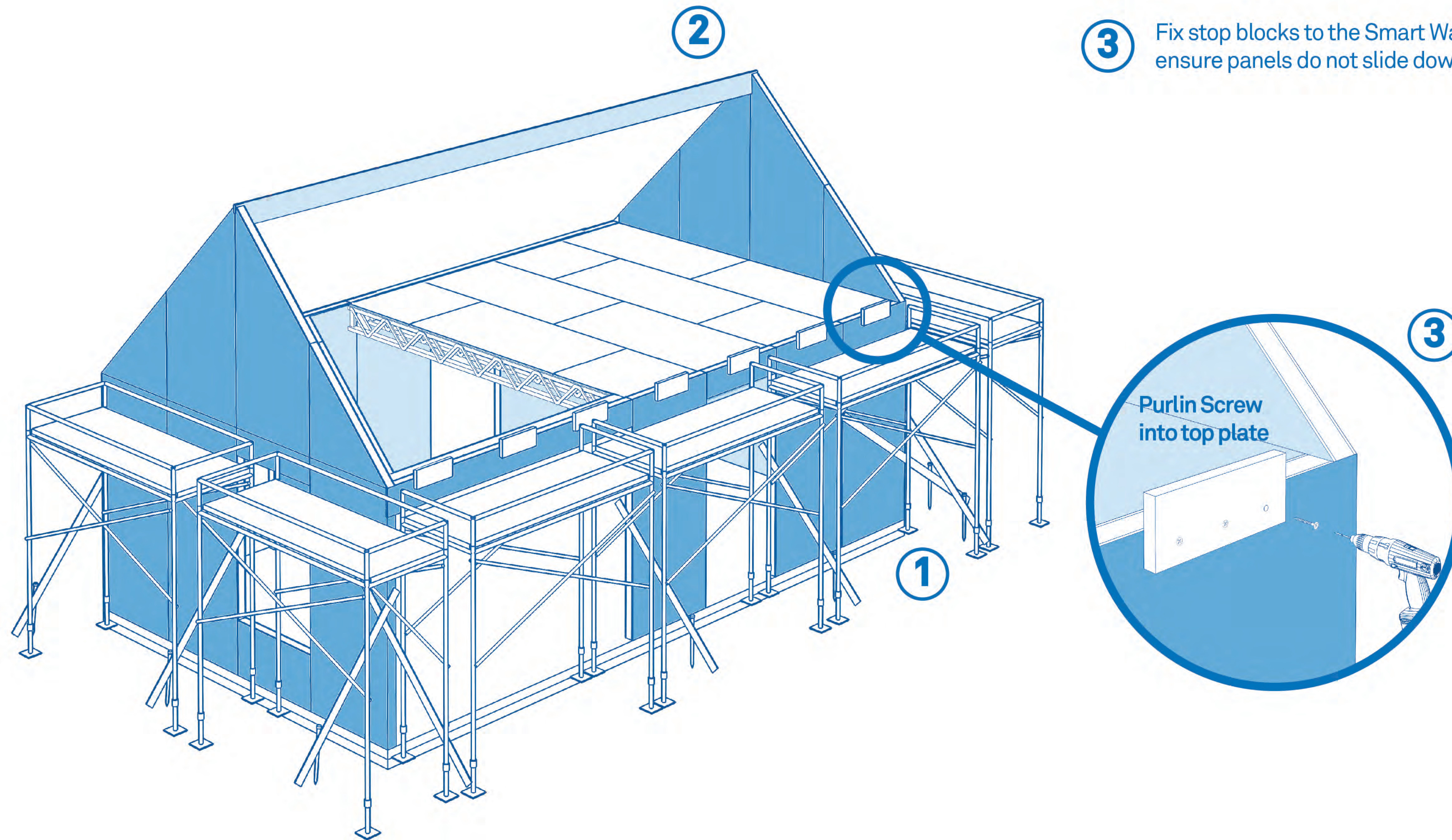
Step 7: Second story (if applicable) & Gables



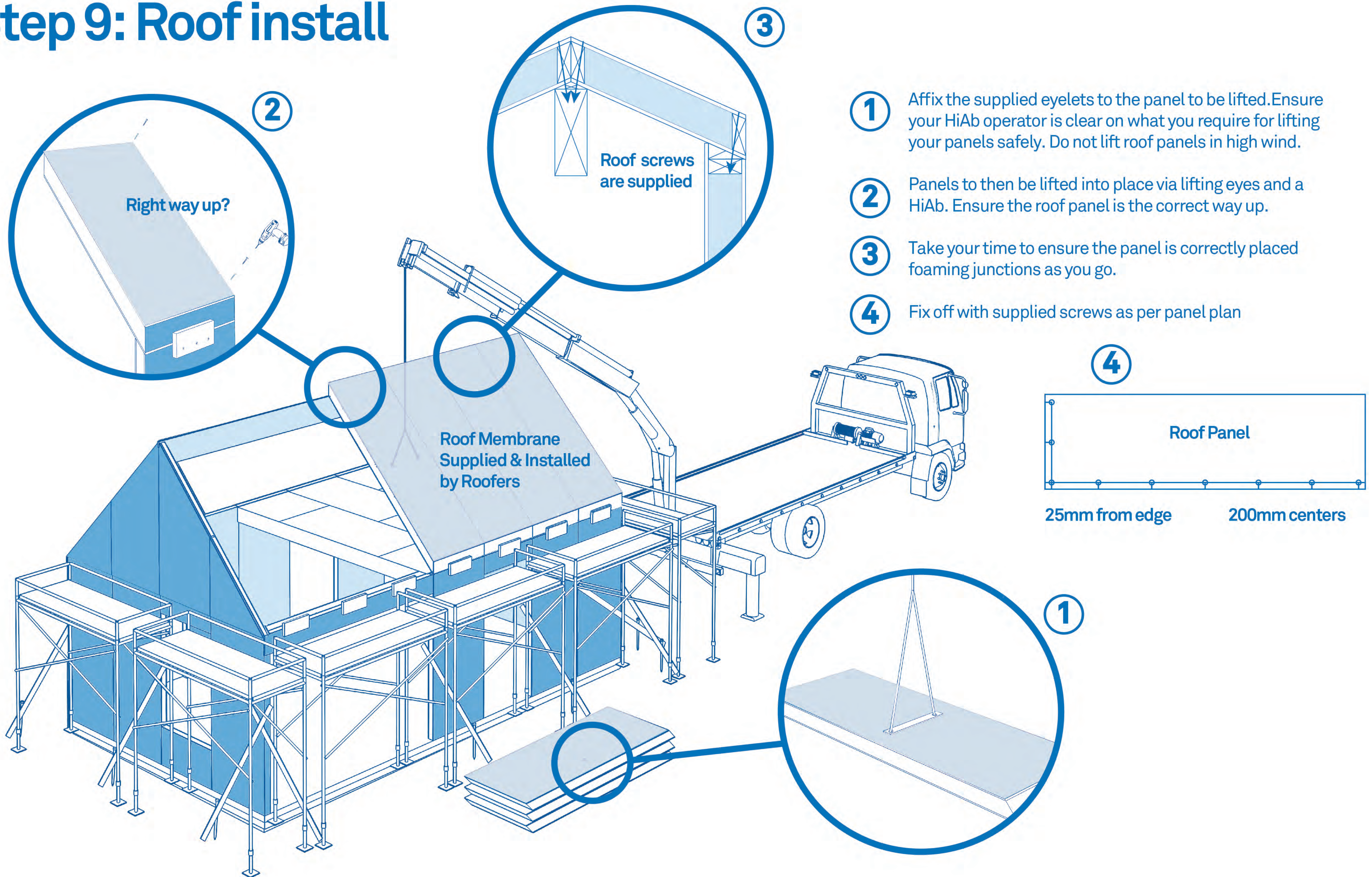
- ① Have required scaffolding in place, then install floor joists and mid-floor as per the engineer & architect's drawings.
- ② Use a hi-ab or telehandler to lift panels packs onto the second story. Safely distribute weight on midfloor.
- ③ Install second story bottom plates and fix as per the engineer's drawings.
- ④ Repeat the install process of the ground floor, but using internal bracing onto mid floor.
- ⑤ Gables fit together like header and footer panels fixing male and female LVL splines together

Step 8: Roof preparation

- ① With the SmartWall panels fixed off and braced the SmartRoof panels can be installed.
- ② The roof ridge beam, purlins or rafters to be installed as per the engineers and architect's drawings.
- ③ Fix stop blocks to the Smart Wall Panels top plate to ensure panels do not slide down wall when placing.

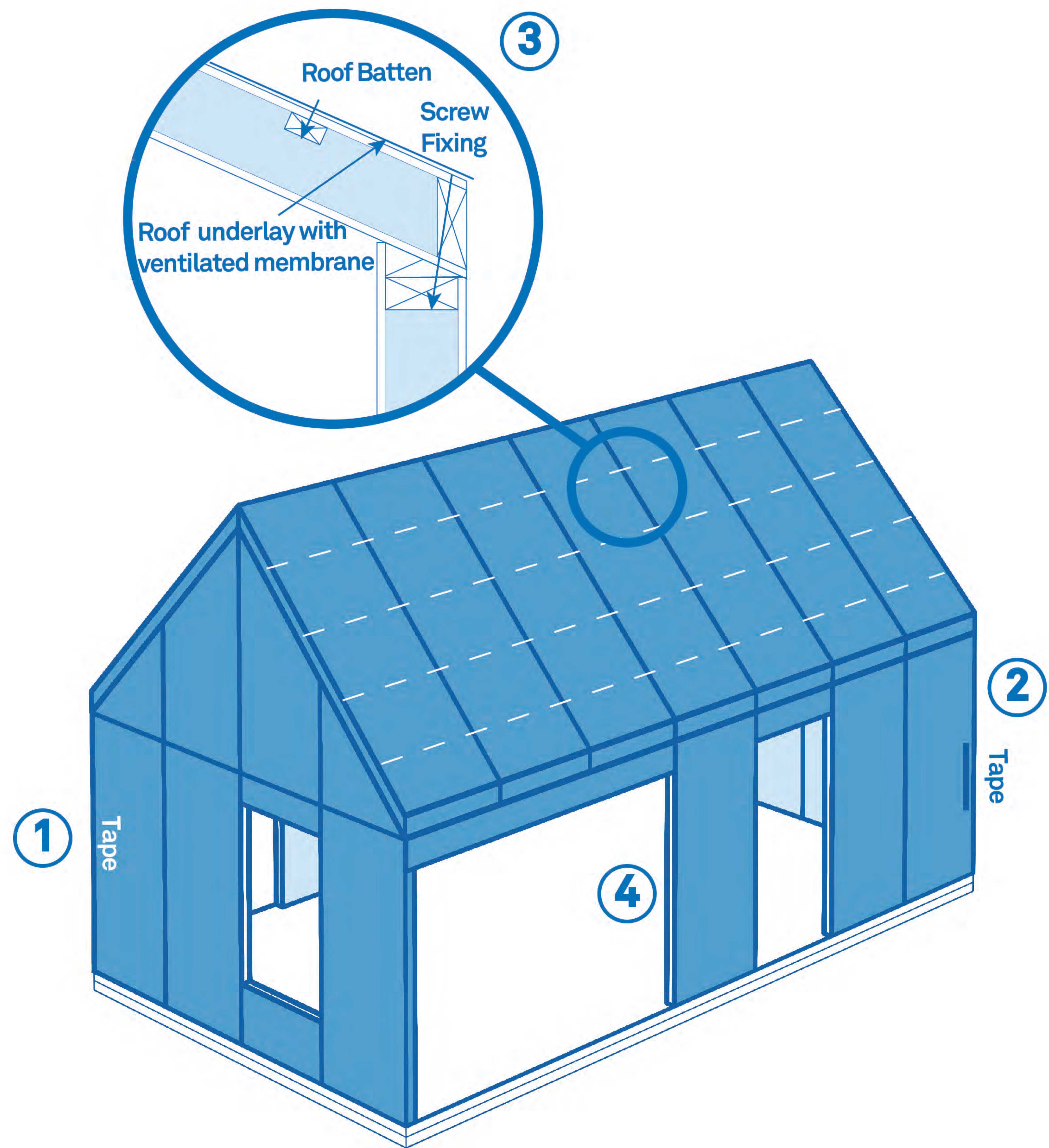


Step 9: Roof install



*Roofing paper or membrane is not supplied by NZSIP - Ensure your roofer has priced and supplies the specified underlay

Step 10: Weathertightness & Warranty



- ① On all Smart Wall panels and Smart Roof panels apply the supplied tapes over the exposed panel joints, base plate connection point to slab, nail holes and around penetrations to ensure weathertightness. Ensure you are using the correct tape for exterior application and interior application
- ② Any tears to exterior membrane must be repaired and noted
- ③ Ensure your contractors are well briefed on flashing or taping penetrations to wall and roof panels. Minimise where you can. Should a large hole be required and location not shown on your drawings please consult NZSIP prior to cutting
- ④ Flash your door and window openings as per NZ3604

Warranty:
 Complete and return the checklist on the certificate of installation along with photographic evidence of each stage of the build - bottom plate install, wall install, roof install, and panel taping / weathertightness to obtain your warranty

NZSIP Smart Building System: Installation Complete!

We are here to help

If you have any questions about your NZSIP Smart Panels build our experienced support team is available to answer any queries and help with problem solving.

If it is your first build we are happy to provide guidance during the start of your NZSIP Smart Panel installation to get you off to the right start.

We also recommend visiting other NZSIP Smart Panels build sites in your area. Please contact us to organise a build site and/or factory visit.

Please email questions to: enquiries@nzsip.co.nz

A phone and email direct contact will be assigned for building support.

Website: www.nzsip.co.nz

Physical NZSIP Smart Panel factory address:

3 Wolter Crescent

Cromwell 9310

New Zealand

Please make an appointment before visiting the factory.