

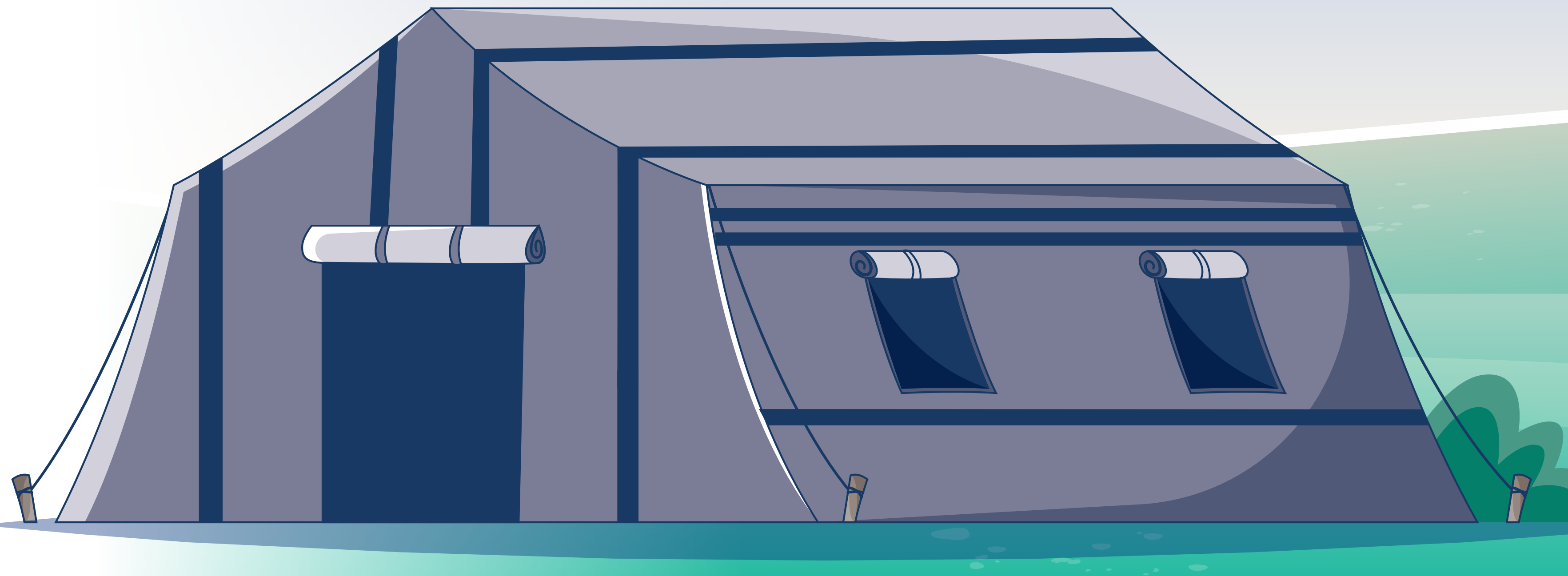
IMPROVE AND STRENGTHEN YOUR SHELTER

DETAILED INSTRUCTION BOOKLET



PALESTINE
SHELTER CLUSTER

Coordinating Humanitarian Shelter and Settlements

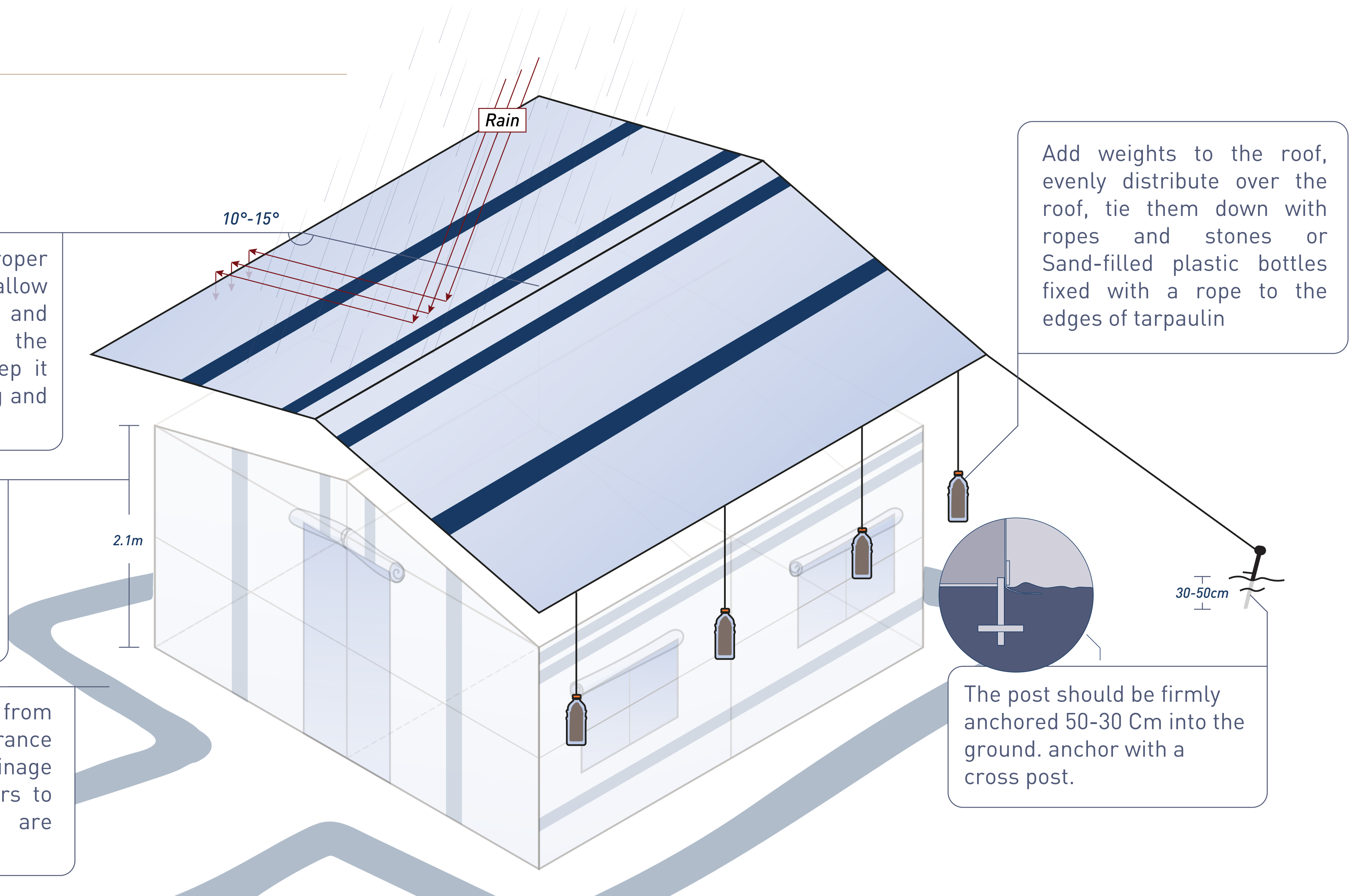


ROOFING

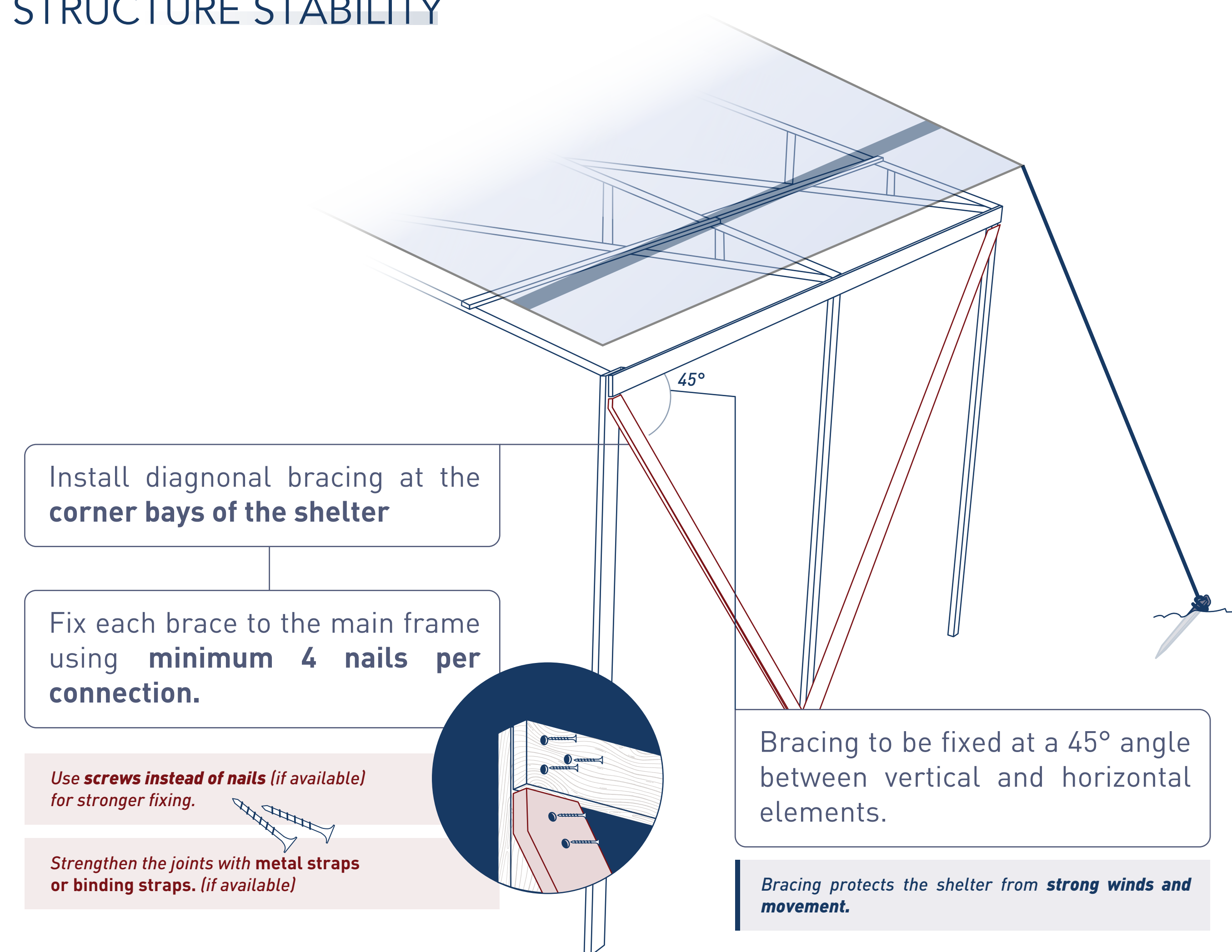
Ensure the roof has a proper slope (minimum 15–10°) to allow rainwater to drain quickly and prevent water pooling. Fix the roof tarpaulin tightly to keep it taut, as loose areas may sag and collect rainwater.

As far as possible, maintain a minimum height of 2.1 M for the shelter to ensure better ventilation and air circulation inside the shelter.

Direct water runoff away from your shelter's walls and entrance with drains. Coordinate drainage channels with your neighbors to ensure their shelters are protected as well.



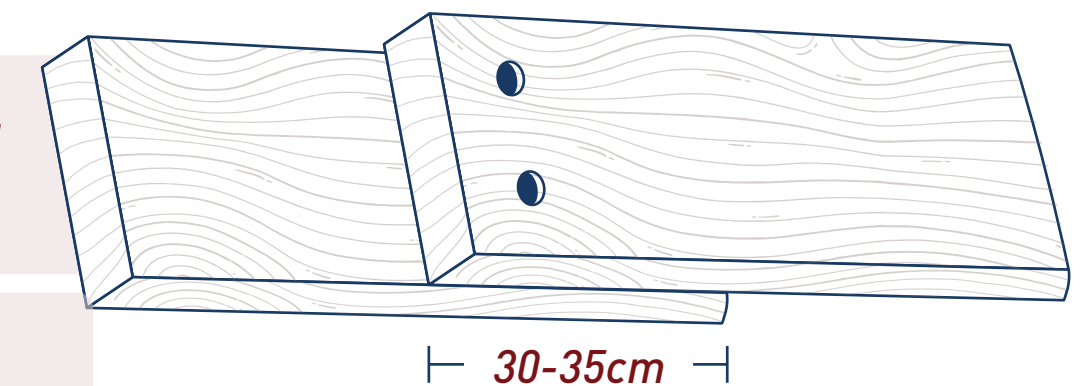
STRUCTURE STABILITY



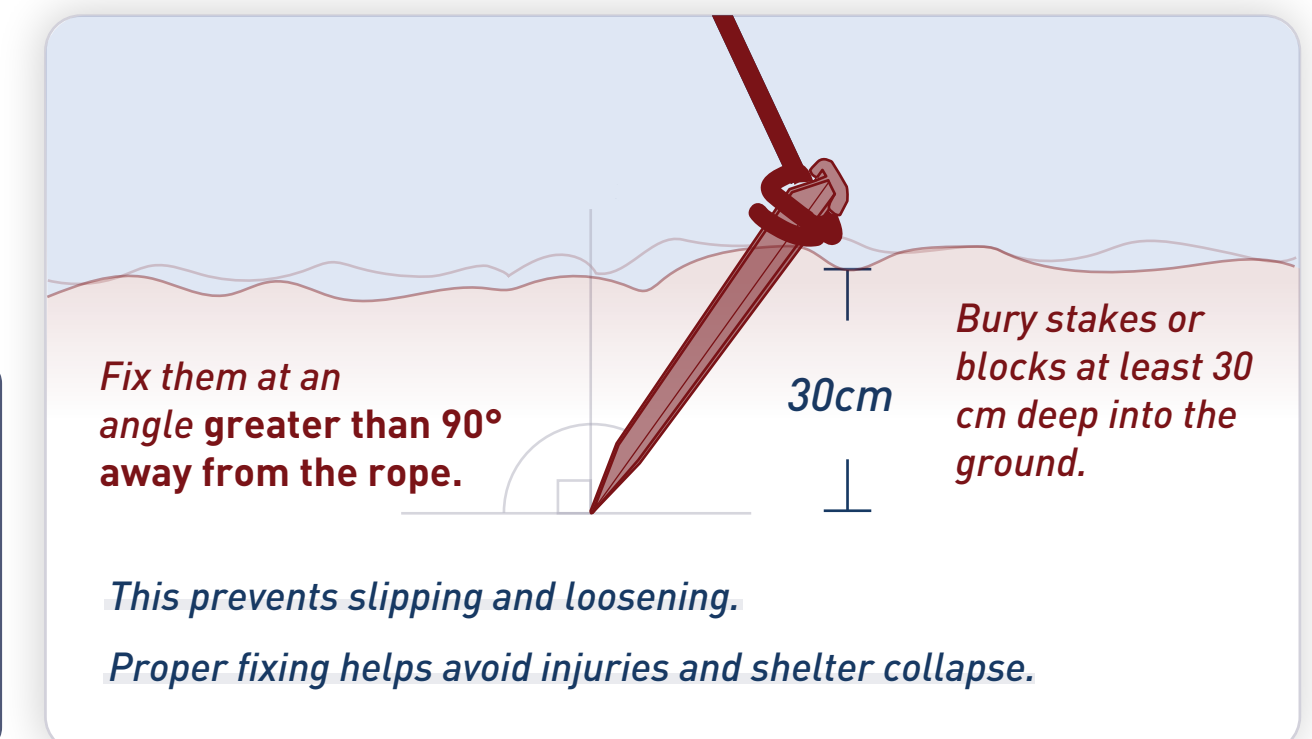
Avoid joining timber lengths as this will make structural members weaker.

However, if timber pieces are short, increase the overlap length **(35-30CM)** between them.

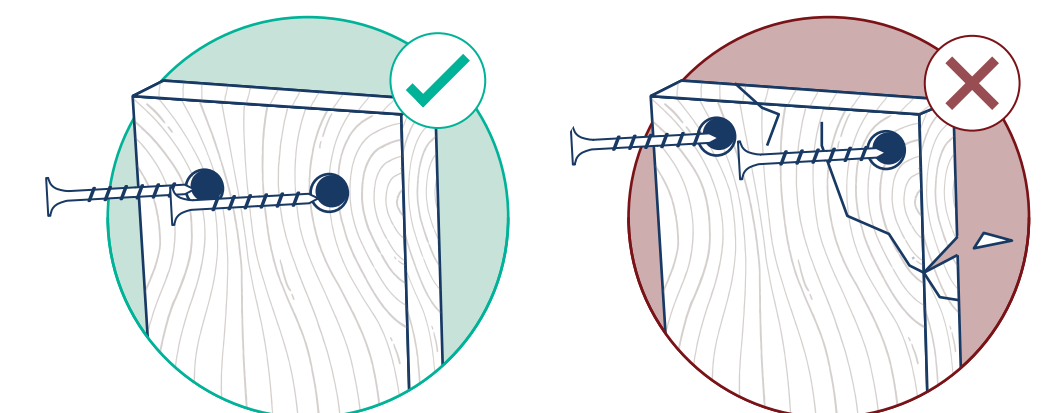
Make sure overlaps are tight and securely fastened.



In hard ground, hammer stakes deep into the soil at an angle.

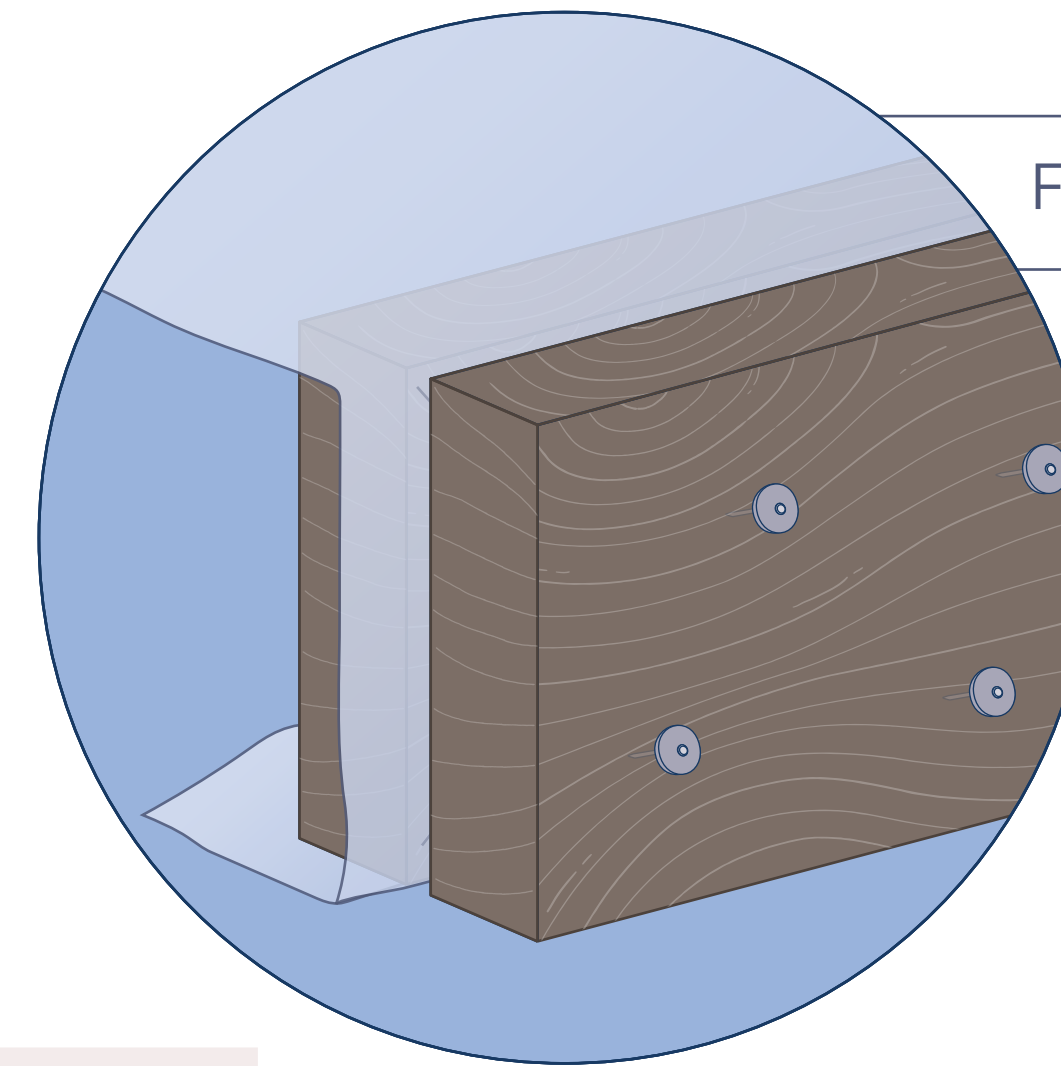
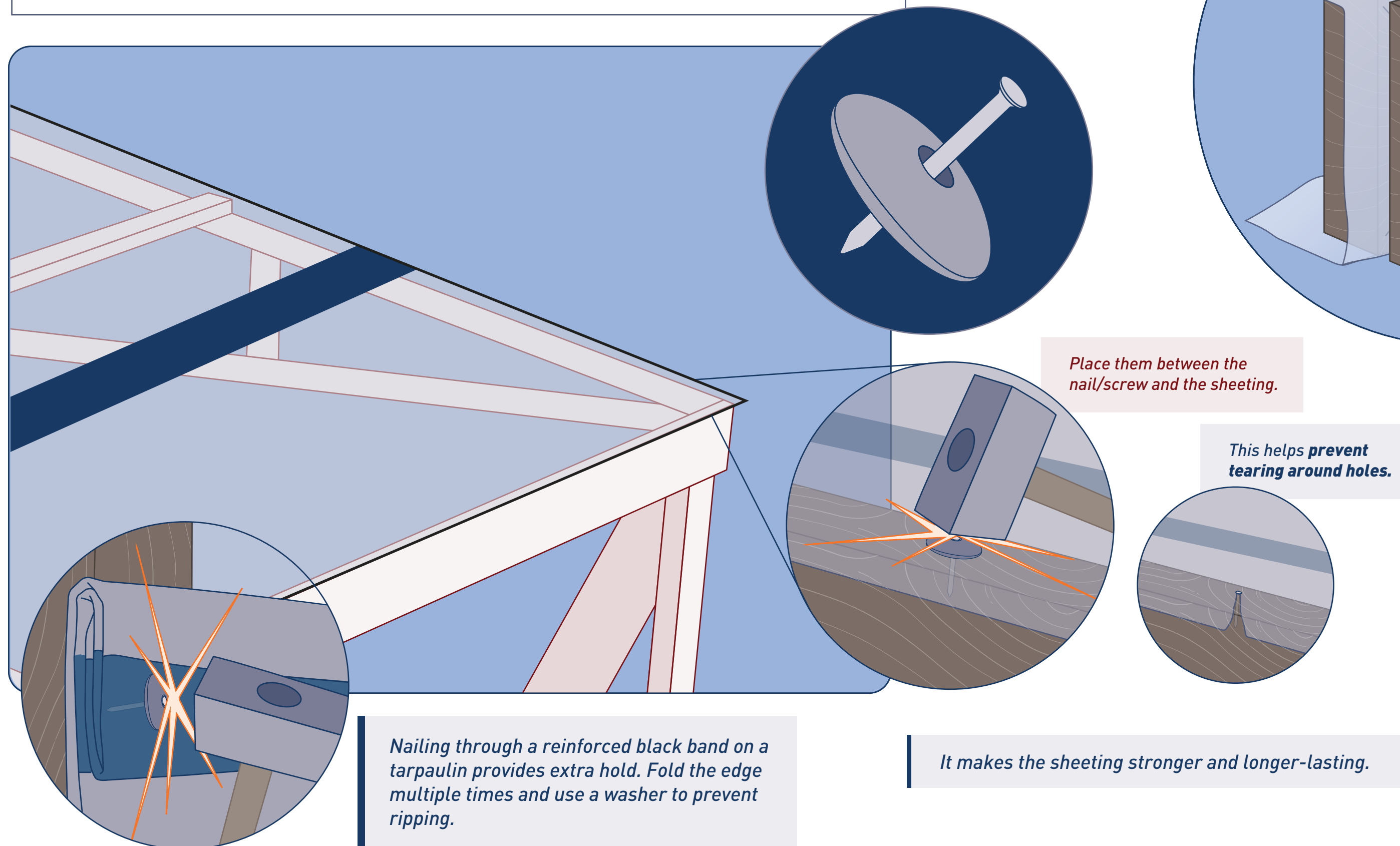


Leave space between the nails and away from the edges to avoid cracks.



FIXING TARPAULINS AND PLASTIC SHEETING

For nails and screws always use washers, if washers are not available, then use bottle cap or salvaged materials :

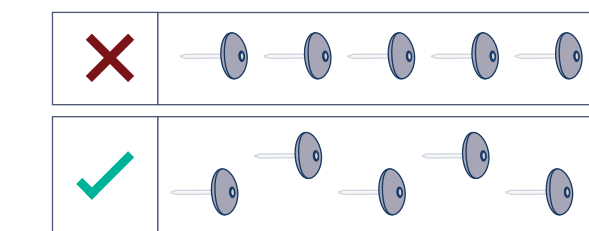


Fix Sheeting:

Wrap the sheeting around the frame where possible.

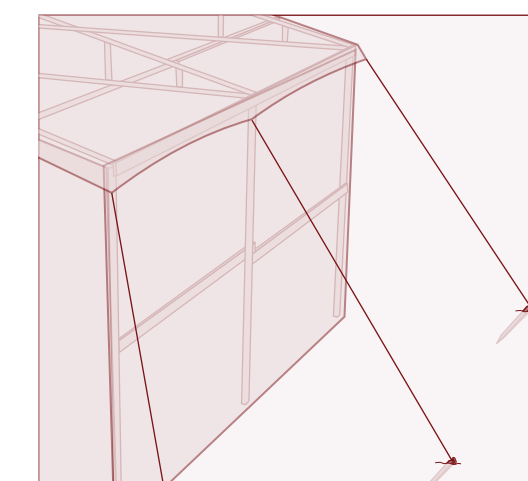
This reduces tearing at fixing points.

Do not align nails in one straight line.

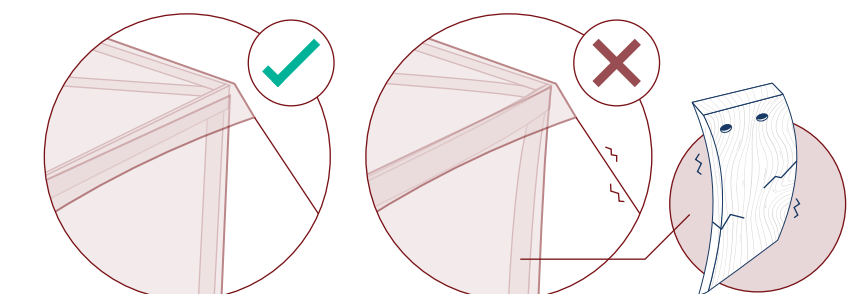


**Offset nail spacing as illustrated above to avoid splitting of timber*

Tie ropes:



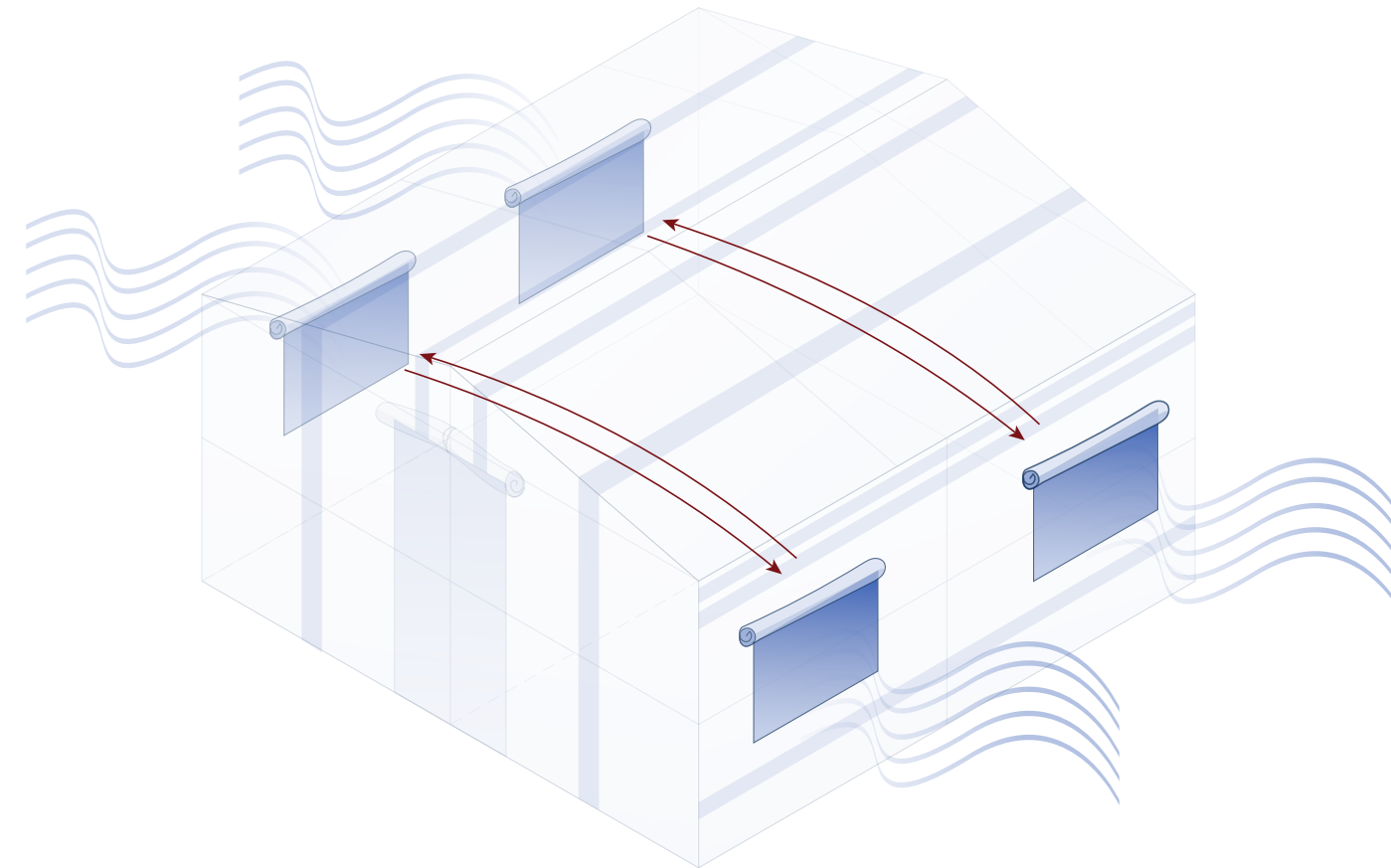
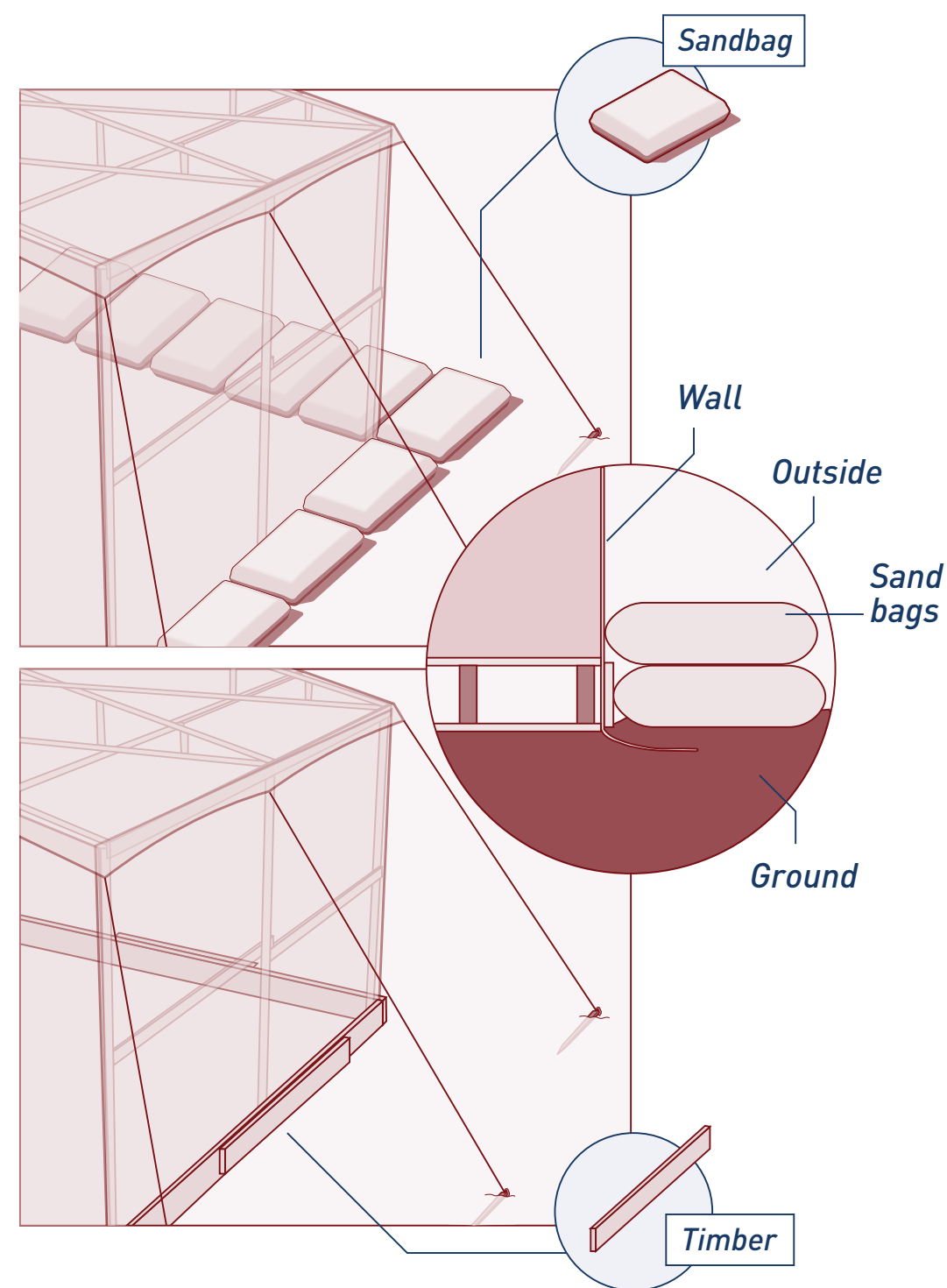
The tarpaulin should be pulled tight to keep the structure square, but not so tight that it bends the timber.



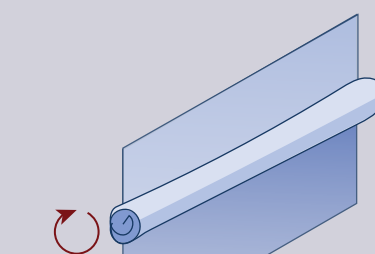
Regularly maintain your shelter, and fix issues immediately, especially after storm.

IMPROVING COMFORT

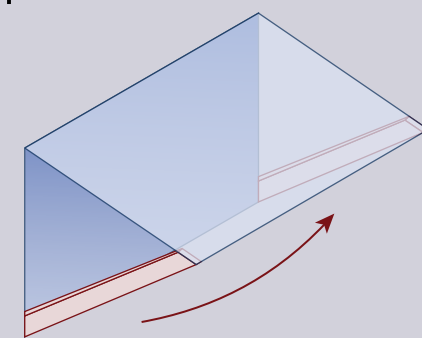
The base of walls should be sealed against wind, water and provide a degree of protection against pests. Sandbags can be placed along the base of walls or the bottom edges of tarpaulin can be buried to achieve the same protective effect. Timber can also be used to provide base boards securing the bottom edges of walls.



Use flaps, screens or shutters to control the air flow, to protect against rain or dust, and to control sunlight, use existing materials such as cloth to make covers.



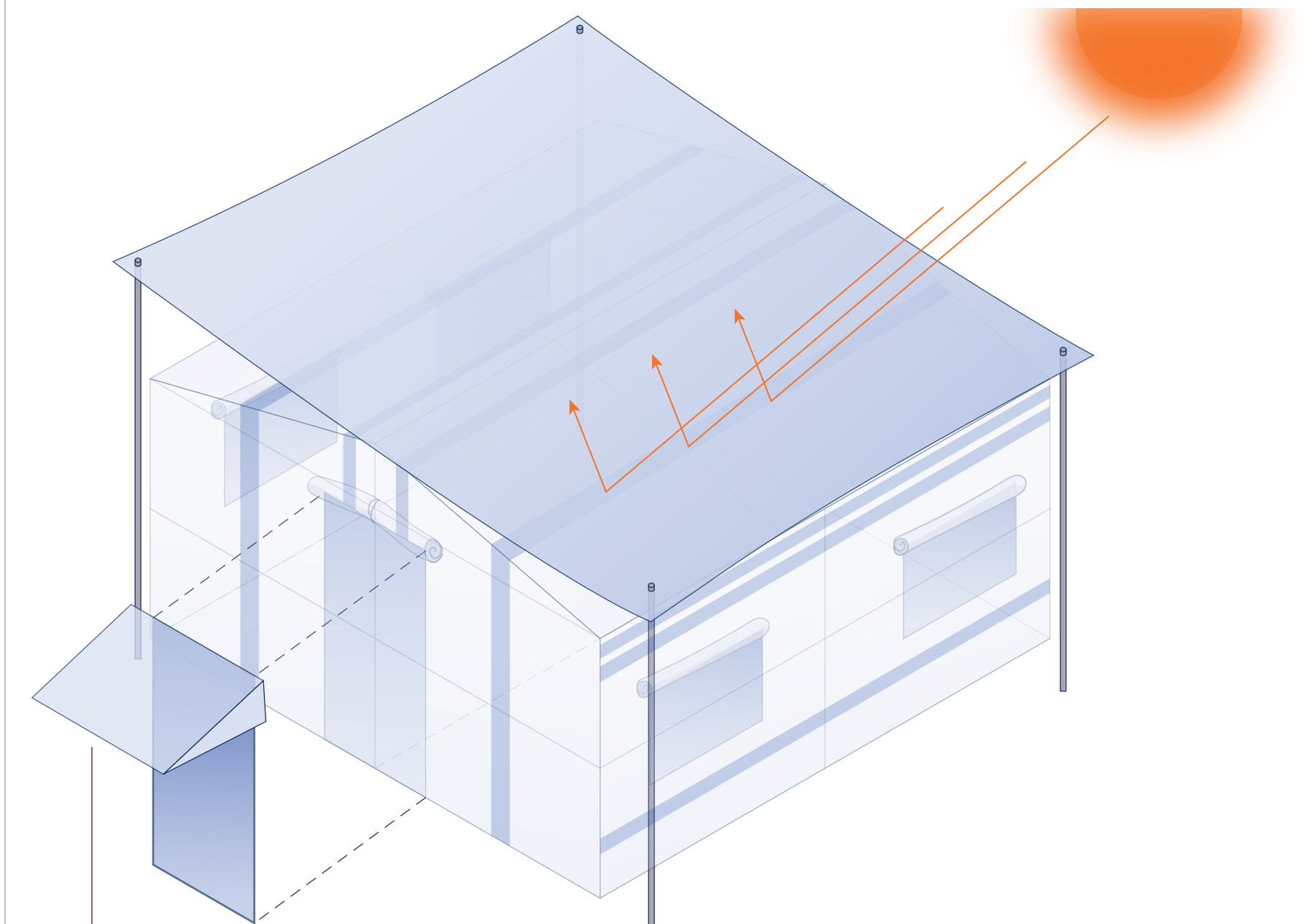
Or



To improve cross-ventilation, **add more than one window opening in shelters, on opposite or adjacent walls**

based on family needs, prioritize providing additional layering to the wall to improve shelter opacity. Internal partitions should be at least 1.5m in height.

Install an additional shading layer above the tent roof (about 10cm gap) using materials such as nylon sheets, fabric or light-colored tarpaulin. This improves ventilation, reduces direct sunlight exposure, and helps keep the shelter cooler



Add a sloped canopy above the door to prevent rainwater entry. If there is space, extend the canopy sideways to create a sheltered cooking space