

INCLINED ROOF EMERGENCY SHELTER - MODEL 1

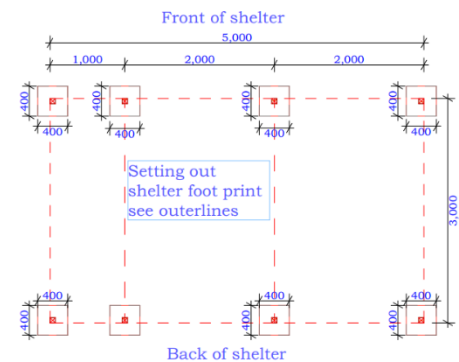
INSTALLATION STEPS

Materials check list. Check if all materials required to make shelter are available.

No.	Item	Description	Qty	
1	Wooden poles,	7.5(±0.5) cm x 7.5(±0.5) cm x 300(±3) cm	8	Pcs.
2	Wooden poles	5(±0.5) cm x 5(±0.5) cm x 400(±10) cm	4	Pcs.
3	Wooden plates	2.2(±0.2) cm x 100(±0.4) cm x 400(±4) cm	12	Pcs.
4	Wooden plates	2.2(±0.2) cm x 100(±0.4) cm x 300(±3) cm	7	Pcs.
6	Thermal insulation	Tin on both sides, 20mx1mx1.5cm	2.5	rolls
7	Plastic sheet – walls only	3.5m x 5.35m	4	Pcs
9	Plastic sheet – Roof & ground	3.5mx 5.35m	2	Pcs
10	Nails	76mm/3"	1	1kg box
11	Nails	50mm/2"	1	1kg box
12	Fender Washer	50mm/2"	0.5	1kg box
12	Door hinges	100mm/4" stainless steel	3	No.
13	Door latch barrel bolt	100mm/4" long, stainless steel straight barrel latch.	2	No.
14	Padlock	Padlock 38mm with 3 key's	1	Pcs
15	Door Handles	Steel handles 100mm	1	Pcs
16	Nylon rope	30m long	1	Roll.
17	Sisal rope	30m long	1	Roll.
18	Plastic Nylon attach	Nylon heavy duty, wire zip, self-locking	50	No.

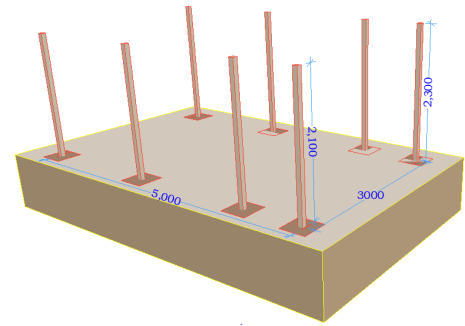
Shelter Foundation Set Out:

- Start with preparing the land and leveling the ground.
- User is recommended to use string and stakes to mark out the dimensions of the shelter and the 8 pillar pits to match the shown sketch.
- Mark 8No. holes of dimensions 400mmx400mm in plan,
- Using pickaxe and shovel, dig holes to depth of 500mm. (Poles will be installed in these holes)
- It may be useful to mark this depth on a piece of a stick so households can check the depth of the pits as they dig.
- The overall dimensions of the shelter are 3.0 meter by 5.0 meter from the center points of the corner pillars.



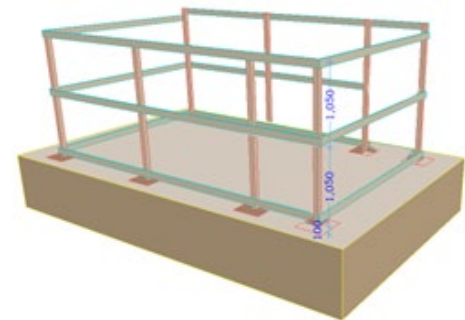
Installing Poles:

- One by one put wooden poles into foundations holes in true vertical position as shown in sketch.
- 4No. poles in front of shelter should measure 300cm, where 50 cm will be in ground while 250 cm will be above ground.
- 4No. poles at back of shelter should measure 300cm, cut off 40cm to have 260cm, where 50 cm will be in ground while 210 cm will be above ground.
- Fractions from wooden poles and wooden plates will be used as cross anchors at the bottom of the wooden poles to enhance support of column foundation on the ground.
- All poles should have anchor cleats, 20cm long fixed before putting poles in holes and backfilling with soil.
- Fill soil into holes and compact.



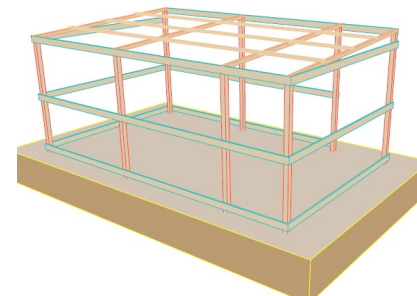
Install Wooden Plates

- Using claw hammer and nails, fix wooden plates to wooden poles as show in sketch, starting from bottom.
- Use the 3m plates for the short side and the 4m in the front long side (next to the door).
- In the back long side, use hand saw to cut the 4m plate to lengths of 1m, this will be used to join to 4m plate to complete 5m length at the back and above door opening.



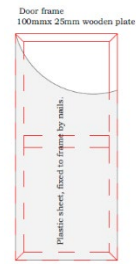
Install rafter & Purlins.

- Using saw, cut wooden poles 50mmx50mmx4000mm to be 50mmx50mmx3000mm rafters.
- The cut part 50mmx50mmx1000mm will be used as cross anchors in the foundations or diagonal element to connect rafters with columns.
- Using claw hammer and 3" nails, fix wooden pole size 50mmx50mmx3000mm rafters on the 75mmx75mmx3000mm wooden poles as show in sketch.
- In the rafters, using claw hammer and nails, fix 3No. wooden plates 4m (purlins).
- Using hand saw, cut wooden plate of length 4000mm at 1m, these pieces will be used to join and complete length of purlins to cover the 5m.
- It should be mentioned that door is recommended to be installed at the side with the higher roof level to ensure rain water slope is not to the door direction.



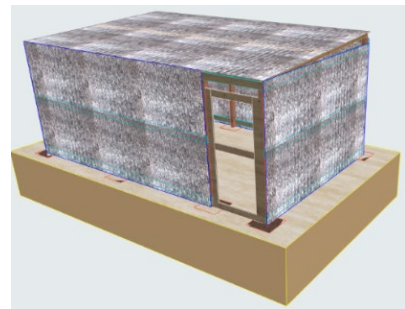
Installing Door Frame:

- Using hand saw, cut 22mmx100mmx 3000mm, wooden plate, into 3 pieces of 1m length.
- Using hand saw, cut 22mmx100mmx 4000mm, wooden plate, into 2 pieces of 2m length.
- Using claw hammer and nails, assemble wooden plate to form door frame, as shown.
- Fix 3No. hinges onto door frame (one at top, center and bottom)
- Fix door latch barrel bolt, one on inside faces the other on outside face.
- Fix door frame onto shelter frame as shown.



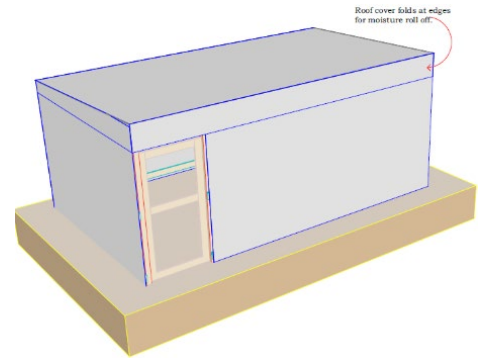
Fix Thermal Insulation:

- Using Nylon attach, fix thermal insulation onto shelter frame.
- Start with walls and finish with roof.
- Remember to fix thermal insulation on door frame using nylon adjustable cable straps (not shown on sketch)



Installing Plastic Sheets and Ropes:

- Using claw hammer and 2" nails with washer fender, fix plastic sheets onto shelter frame starting with walls and finishing with roof (use 5No. sheets+1No for ground).
- Using claw hammer and 2" nails with washer fender, nail wall plastic sheet onto door frame including center piece.
- If you find it necessary, create air ventilation on the wall.
- Using nylon rope, restrain plastic sheeting (roof and walls) onto shelter frame, to limit effects of blowing wind.



Gabled ROOF EMERGENCY SHELTER - MODEL 2

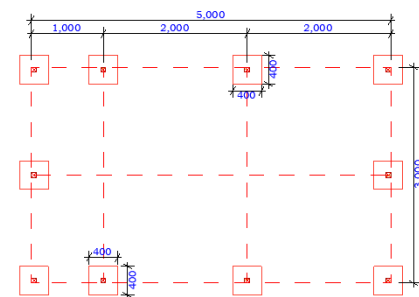
INSTALLATION STEPS

Materials check list. Check if all materials required to make shelter are available.

No.	Item	Description	Qty	
1	Wooden poles,	7.5(±0.5) cm x 7.5(±0.5) cm x 300(±3) cm	10	No.
2	Wooden poles	5(±0.5) cm x 5(±0.5) cm x 400(±10) cm	4	No.
3	Wooden plates	2.2(±0.2) cm x 100(±0.4) cm x 400(±4) cm	8	No.
4	Wooden plates	2.2(±0.2) cm x 100(±0.4) cm x 300(±3) cm	7	No.
5	Wooden pole	5(±0.5) cm x 100(±0.4) cm x 500(±5)cm	1	No.
6	Thermal insulation	Tin on both sides, 20mx1mx1.5cm	2.5	rolls
7	Plastic sheet – walls	3.55m x 5.35m	4	No.
8	Plastic sheet - floor	3.55mx 5.35m	1	No.
9	Plastic sheet – Roof	3.55mx 5.35m	1	No.
10	Nails	76mm/3”	1	1kg box
10	Nails	50mm/2”	1	1kg box
11	Fender Washer	50mm/2”	0.5	1kg box
12	Door hinges	100mm/4” stainless steel	3	No.
13	Door latch barrel bolt	100mm/4” long, stainless steel straight barrel latch.	2	No.
14	Padlock	Padlock 38mm with 3 key's	1	Pcs
15	Door Handles	Steel handles 100mm	1	Pcs
16	Nylon rope	30m long	1	Roll.
17	Sisal rope	30m long	1	Roll.
18	Plastic Nylon attach	Nylon heavy duty, wire zip, self-locking	50	No.

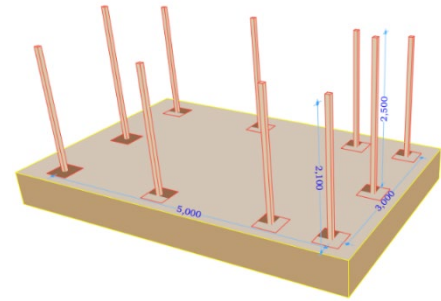
Shelter Foundation Set Out:

- Start with preparing the land and leveling the ground.
- User is recommended to use string and stakes to mark out the dimensions of the shelter and the 10 pillar pits to match the shown sketch.
- Mark 10No. holes of dimensions 400mmx 400mm in plan,
- Using pickaxe dig holes to depth of 500mm. (Poles will be installed in these holes)
- It may be useful to mark this depth on a piece of a stick so households can check the depth of the pits as they dig.
- The overall dimensions of the shelter are 3.0 meter by 5.0 meter from the center points of the corner pillars.



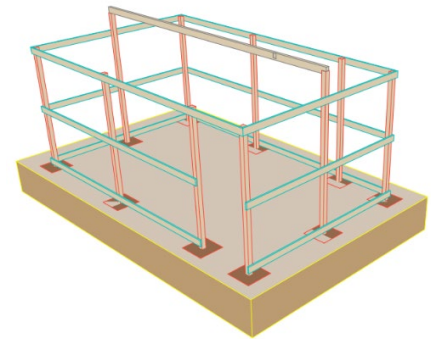
Installing poles:

- One by one put wooden poles into foundations holes in true vertical position as shown in sketch.
- 8No. poles should measure 300cm, cut off 40cm to have 260cm, where 50 cm will be in ground while 210 cm will be above ground.
- 2No. poles at center along the width of shelter should measure 300cm, where 50 cm will be in ground while 250 cm will be above ground.
- Fill soil into holes and compact.
- All poles should have anchor cleats, 20cm long fixed before putting poles in holes and back filling with soil.



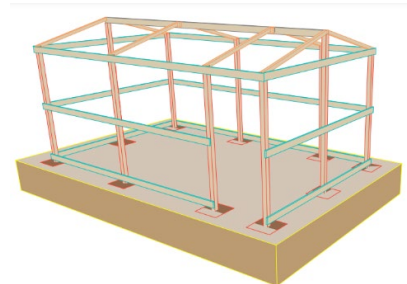
Install Wooden Plates

- Using claw hammer and nails, fix wooden plates to wooden poles as show in sketch, starting from bottom.
- Use the 3m plates for the short side and the 4m in the front long side (next to the door).
- In the back long side, use hand saw to cut the 4m plate to lengths of 1m, this will be used to join to 4m plate to complete 5m length at the back and above door opening.
- Once wooden plates are in place, using claw hammer and nails, fix roof beam (50mmx100mmx5000) as shown in sketch.



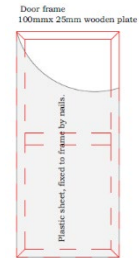
Install Rafters:

- Using hand saw, cut wooden poles 50mmx50mmx4000mm into two pieces of 1500mm (remaining fractions to be used to anchor foundations or to connect columns with rafters).
- Using claw hammer and 3" nails, fix wooden pole size 50mmx50mmx 3000mm, rafter on the 75mmx75mmx3000mm and on the 50mmx100mmx5000 wooden beam in the middle as shown in sketch.



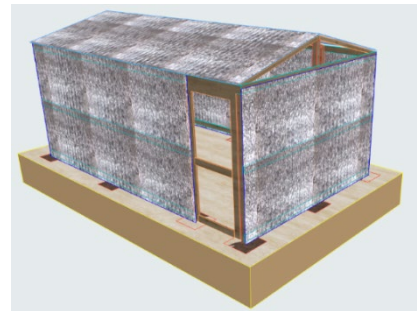
Fixing Door Frame:

- Using hand saw, cut 22mmx100mmx 3000mm, wooden plate, into 3 pieces of 1m length.
- Using hand saw, cut 22mmx100mmx 4000mm, wooden plate, into 2 pieces of 2m length.
- Using claw hammer and nails, assemble wooden plate to form door frame, as shown.
- Fix 3No. hinges onto door frame (one at top, center, and bottom)
- Fix door latch barrel bolt, one inside faces the other on outside face.
- Fix door frame onto shelter frame, door should swing inside the shelter when opened.



Thermal insulation:

- Using Nylon attach, fix thermal insulation onto shelter frame.
- Start with walls and finish with roof.
- Completed insulation fixing should appear as shown in sketch.
- Remember to fix thermal insulation on door frame (not shown on sketch)



Plastic sheets and rope:

- Using claw hammer and 2" nails with washer fender, fix plastic sheets onto shelter frame starting with walls and finishing with roof.
- Using claw hammer and 2" nails with washer fender, nail wall plastic sheet onto door frame including center piece.
- Similarly fix plastic onto wooden pole, using utility knife, cut out plastic around door frame.
- If you find it necessary, create air ventilation above door frame.
- Using sisal rope, restrain plastic sheeting (roof and walls) onto shelter frame.

