

'Ashiyana' – A Sustainable Interim Shelter

The design of a livable, inclusive, environmentally sustainable, easy to build, disaster resilient “Interim Shelter” having more than 50% local economy component, and 90% recycling potential.



Disaster resistant low height wall house



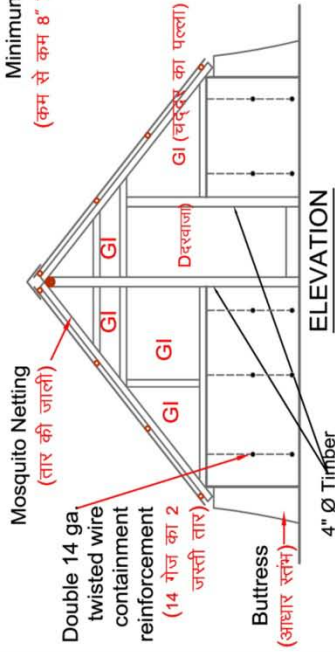
Stone walls in mud mortar with CGI roof



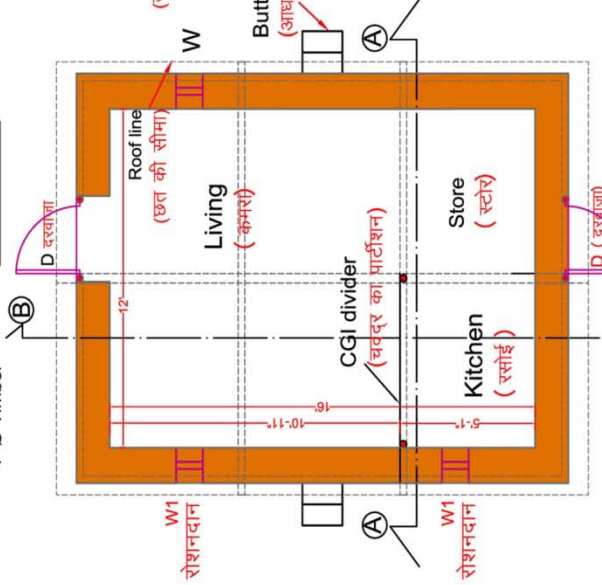
Interior of a house with owners

Interim Shelter Details

- Made out of local stone and earth for making random rubble masonry in mud mortar, with corrugated galvanized iron (CGI) sheet roofing supported on wooden under-structure
- Being earthquake and cyclone resistant with the use of double strands of 12 gauge GI wire “containment reinforcement” and wooden wall plates securely attached to walls
- Having approximately 200 square feet carpet area with a kitchen space separated by light weight flexible, disaster resilient divider wall of GI sheeting and timber.
- Each shelter with labor component of approx.50% of the total cost, and could be equivalent to the livelihood for nearly 170 days for a mason.



ELEVATION

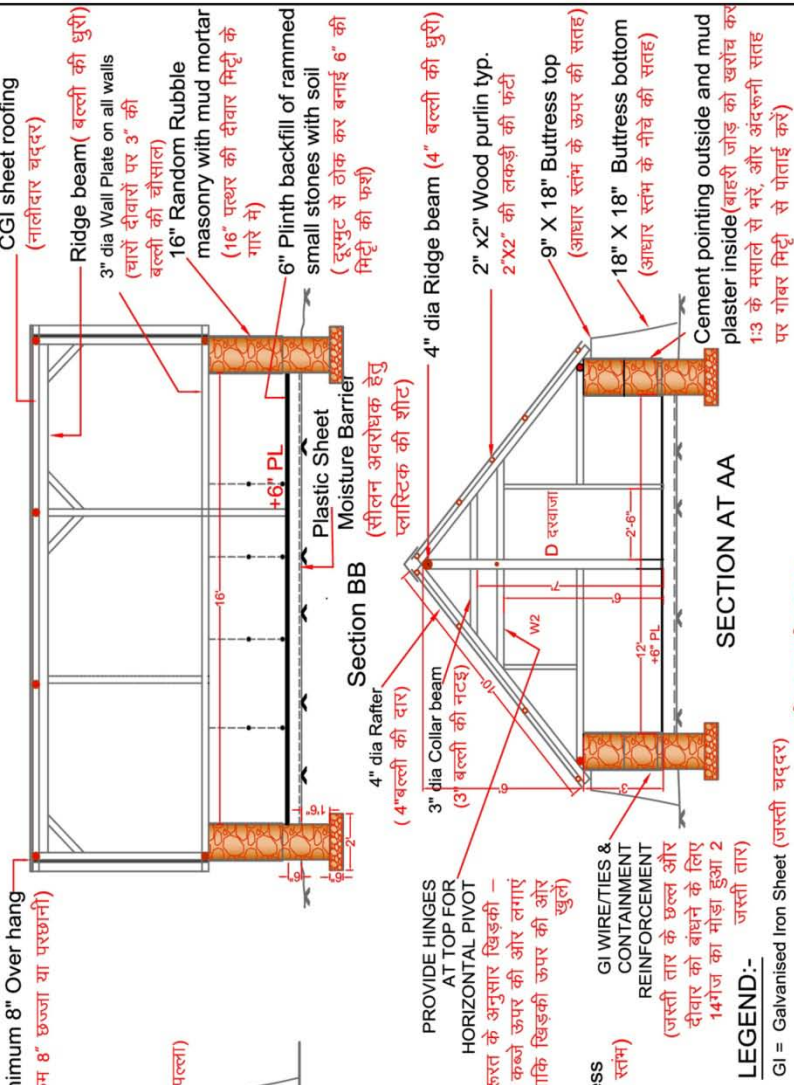


PLAN

Attention:

The size and construction materials could be changed to adopt to the local conditions and requirements.

(ध्यान दे : घर का नाप और सामग्री जगह और जरूरत के अनुसार बदला जा सकता है)



SECTION AT AA

LEGEND:-

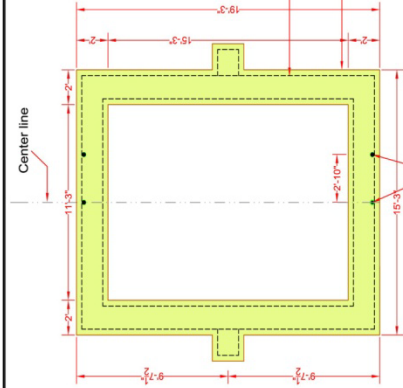
- GI = Galvanised Iron Sheet (जस्ती चददर)
- CGI = Corrugated Galvanised Iron Sheet (नालीदार जस्ती चददर)
- Provide hinges at top for horizontal pivot जरूरत के अनुसार खिड़की - कब्जे ऊपर की ओर लगाएं ताकि खिड़की ऊपर की ओर खुले
- D = 2' 6" x 6' 0" - GI sheet shutter दरवाजा 2' 6" x 6' 0" चददर का पल्ला
- W1 = 1' 3" x 1' 3" रोशनदान 1' 3" x 1' 3", मच्छर दानी - Mosquito Netting
- W2 = Free size - GI sheet shutter खिड़की 1/4 नाप जरूरत के अनुसार चददर का पल्ला

Note:

- All timber is round unless noted otherwise.
- Wall plate to be anchored with GI wires to wall.
- Door & Window shutter frame to be made of 1" x 2" wood.

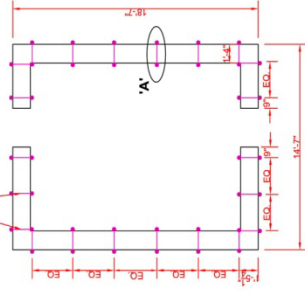
सूचना:

- जहाँ बताया नहीं गया वहाँ सभी लकड़ी बल्ली की है
- चौसाल को दीवार के साथ जस्ती तारों से बांधें
- दरवाजे और खिड़की के पल्ले 1"x2" लकड़ी से बनाये



4" Ø HOLE TO BE LEFT FOR 2 POSTS ON BOTH SIDE. 3'-0" DEEP
(दोनों छटी दीवारों में 2 खम्बे गड़ाने के लिये 4" व्यास के 3'-0" गहरा खदख बनाएं)

Wire tie to be placed at 2 levels at 0'-6" above ground level and 2'-0" above ground level during wall construction Typ. छल्ले दीवार में दो जगह पर लगाने हैं 1. जमीन की सतह से 6" ऊपर और 2. जमीन की सतह से 2'-0" ऊपर



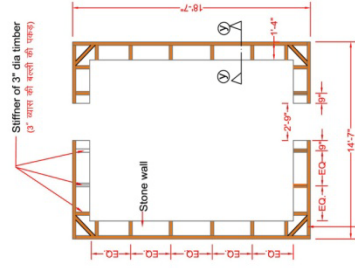
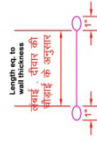
LOCATION OF WIRE TIES TO BE PLACED
(छल्ले लगाने की जगह)

TIES FOR ANCHORING CONTAINMENT REINFORCING WIRES
चारों से दीवार को बांधने के लिये छल्ले

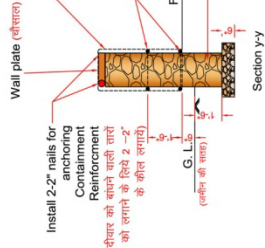
USE 14 GAUGE GI WIRES FOR ALL TIES
(सभी छल्ले के लिये, 14 गेज, जस्ता तार का प्रयोग करें)

Four 14 ga. twisted gi wires with loops on both ends extending out 1" on both side of wall.
(छल्ले 14 गेज के 4 जस्ता तार को मोड़कर बनाएं। छल्ले के दोनों ओर 1" का हुक बनाये जो दीवार की दोनों ओर बाहर निकले)

GI WIRE TIE



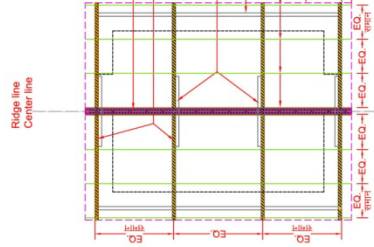
Wall plate 3" dia timber on all the walls
(चारों दीवारों पर लगी हुई 3" व्यास की बल्ली की पौसाल)



Note:
1. Make wall plate with 3"-4" diameter wood
2. Make all wood to wood connection with steel straps and 2" nails
सूचना:
1. 3"-4" व्यास की बल्ली की पौसाल बनाये
2. लकड़ी से लकड़ी का जोड़ लोहे की पट्टी और 2" की कील से बनाये

LOCATION OF WALL PLATE AT TOP OF THE WALL
(दीवार के ऊपर पौसाल लगाने की जगह)

CARPET AREA : 192 SQFT



Note:
1. All timber is 3"-4" diameter round timber unless noted otherwise.
2. All purfins are 2"x2" timber.
3. All timber to timber connection are to be done using nails and 1/2" metal straps or 14" GA. GI wires.

सूचना:

1. जहाँ बताया नहीं गया वहीं सभी लकड़ी बल्ली की है
2. सभी फंटीया 2"x2" लकड़ी की
3. लकड़ी से लकड़ी का जोड़ लोहे की पट्टी और 2" की कील से बनाये

**Material Quantity Estimate for Interim Shelter 16' 0" x 12' 0" carpet area,
Foundation at 2' depth, Containment Reinforcement from floor level**

Item No.	Description	size	unit	Quantity
A	Materials			
1	Stone for walls including foundation, plinth and buttresses - See under labor cost	Random Rubble	<i>Chatta</i> or 125cft.	6.0
2	Round timber or <i>ballis</i>	3"-4" dia. - 12' long	No.	24.0
3	Timber for purlins - 4 on both sides	2" x 2" - 7' long	No.	24.0
4	Timber for doors, windows etc.	2"x1.5" - 7' long	No.	12.0
5	GI sheet for cladding	3'x10'-24ga - 6 nos.	Kg.	77.0
6	CGI sheets for roof and partition	3'x10' - 24 ga. 15 nos. or 4'x10'-24 ga - 11 nos.	No.	15.0
7	J bolts with nuts and flat metal washer - along periphery - top & bottom 8 each, edges 2 each on each side of roof	3" - 40 nos.	Kg.	4.0
8	Nails	4"	Kg.	2.0
9	Nails	2.5"	Kg.	2.0
10	Nails	2"	Kg.	1.0
11	Nails for metal strap	1.5"	Kg.	2.0
12	Metal strap (Packaging - High Carbon Steel)	1/2" - 3/4"	Kg.	5.0
13	GI wires	14 ga.	Kg.	8.0
14	Washers - rubber	For J bolt & Nail	Packet	2.0
15	Washers - metal - small for 2.5" nails	For 2" nail	Kg.	0.5
16	Door fittings - Qty. 2	2'-6" x 6'	No.	2.0
17	Window Fittings - Qty. 1	2'-6" x 2'	No.	1.0
18	Mosquito netting - metal wire	2.5'x10'	sq.ft.	25.0
19	Cement for pointing on outer face	Bag	Bag	1.0
20	Sand		Cu.ft	6.0
21	Polyethylene sheet floor moisture barrier and timber column wrapping		sqft	235.2
22	Coal-tar		Kg.	1.0
	Material subtotal			
B	Labour			
23	Mason - 4 Nos.	5 days	Manday	20.0
24	Labour for masonry - 2 Nos.	5 days	Manday	10.0
25	Carpenter - 2 Nos.	4 days	Manday	8.0
26	Labour for carpentry - 1 Nos.	4 days	Manday	4.0
27	Site leveling and clearing		Manday	2.0
28	Stone breaking and carting		Manday	108.0

Prepared By:

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