

HOW TO BUILD A TRANSITIONAL CLASSROOM

अस्थायी कक्षाकोठा निर्माण गर्ने तरिका।



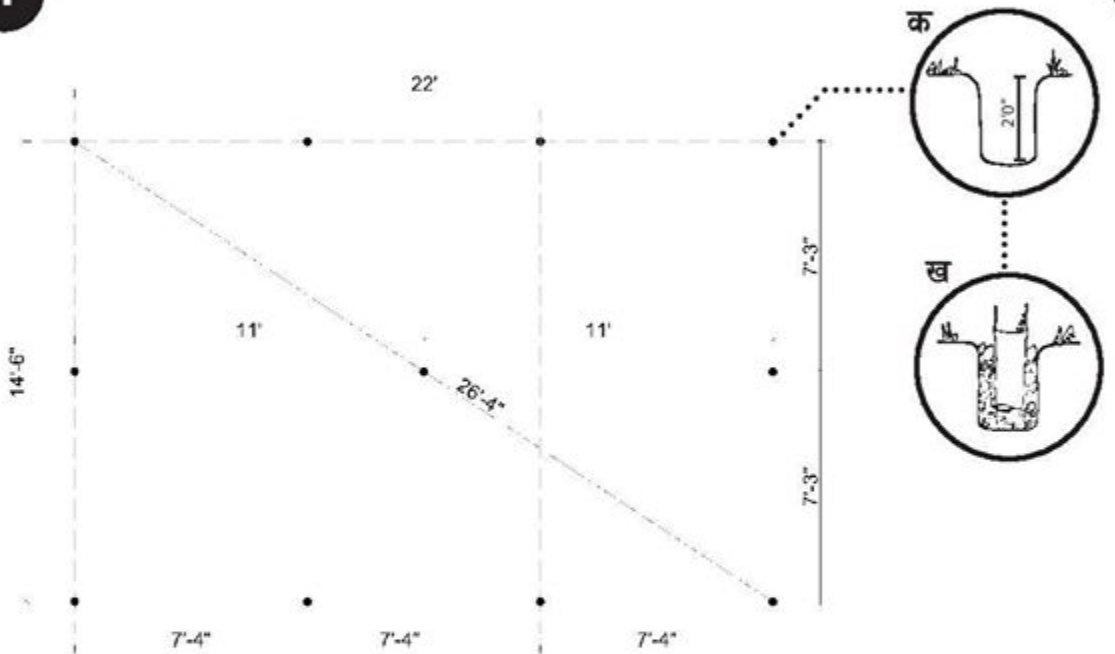
वीबारी | abari
bamboo and earth initiative



PREPARATION / पूर्व कार्य

- Recruit local head teachers to manage the process for each school in the VDC
- Show pictures and designs, and send workers to gather 3 yr old bamboos.
- Invite carpenters and interested villagers from all local wards where classrooms are needed.
- Demonstrate the techniques to build quick, strong, safe classrooms in multiple locations.
- परियोजना गर्न इच्छुक शिक्षकहरूलाई भेला गरौं ।
- चित्र र डिजाइन हेरि ३ वर्ष पुरानो बाँस सङ्कलन गरौं ।
- कक्षाकोठा निर्माण गर्न स्थानीय बासिहरूलाई भेला गरौं ।
- बलियो र सुरक्षित बनाउने प्रविधी सबैलाई सिकाउँ ।

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MEASURE, LEVEL, and DIG / नाप + खल्डो खन्ने

- Make sure you have a level site of the correct size.
- Clear away any debris or plants.
- Measure and mark out the corners with pegs and place string lines between them.
- Ensure the site is SQUARE. When it is square the diagonal measurement will be 26'4". Check it.
- Measure and place more pegs and lines to mark the pole positions
- Dig 2 foot deep, 8 inch wide holes at the peg locations.
- नक्सा बमोजिम मापन स्पष्ट जग्गा निश्चित गरौं ।
- जग्गामा कुनै पनि अनावश्यक वस्तुहरू भए हटाऔं ।
- किल्ला र धामोले नक्सा अनुसार मापन चिनो बनाऔं । निर्माण क्षेत्र २६'४" अनुपात वर्ग कोणमा छ भनेर निश्चित गरौं ।
- नाप अनुसार अरु किल्ला र खम्बा राखौं ।
- नक्सामा उल्लेखित ठाउँमा २ फीट गहिरो र ८ इन्च फराकिलो प्वाल खनौं ।

Inventory / आवश्यक सामग्री



Bamboo / बाँस
12 pcs



Drill / ड्रिल



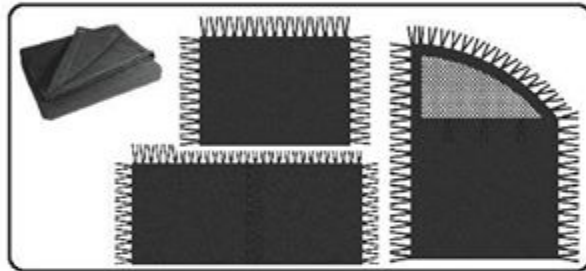
GI Wire & Rope / तार डोरी
1 Roll Each



Shovel & Pick/बेल्वा र खलि



Saw & Hammer / करेली हथौडा



Canvas/ पाल

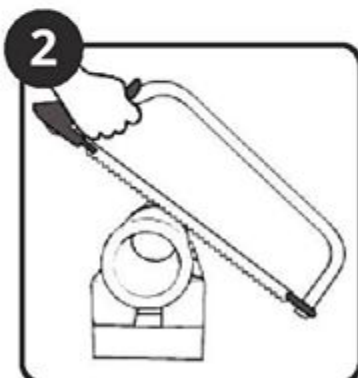
Roof Piece X 1 Small Side Piece x 2 Longer Side Piece x 2 Door Piece x 2



Sand Cement Aggregate /
बालुका सिमेन्ट मिट्टि

Sand X 10 Cement X 2 Aggregate X 3
बालुका X 10 सिमेन्ट X 2 मिट्टि X 3

CUTTING & TREATMENT



1. Post/खामा

7'6" X 8 pcs
11' X 3 pcs

2. Rafter/बाढौं भाटो

24' X 3 pcs
7'10" X 4 pcs

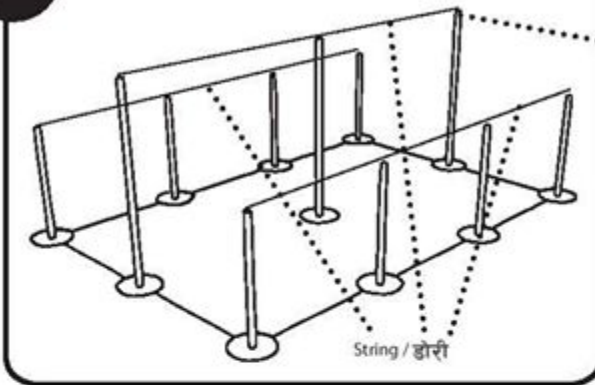
3. Purlin/सेप्टी

20' X 12 pcs

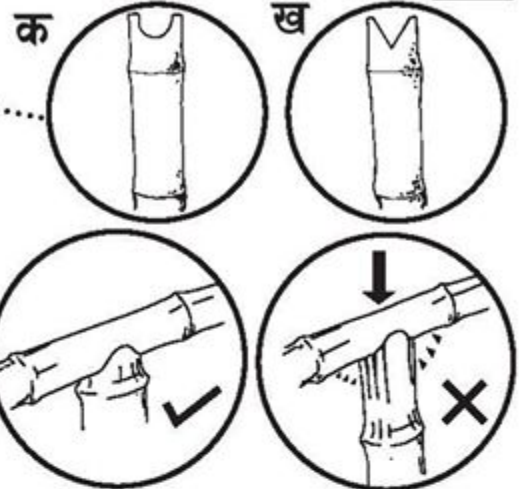
- Cut bamboos to the lengths shown above. This includes 2 feet extra to sit in the ground for the posts.
- Where joints are needed, always cut bamboo just after a node and never in the middle of two nodes
- Cut fish mouth joints as shown below.
- Apply 3 ft. of Bitumen/Black Japan at bottom of each bamboo post and leave it to dry.
- २ फिट जमिनमा गडिने गरि आवश्यकता अनुसार बाँस काटनु होस्।
- बाँसलाई माछाको मुख आकारमा र आँखलाको माथि काटनुहोस्।
- बाँसमा ३ फीट जति बिटुमिन अथवा ब्ल्याक जापान लगाउनु होस् र सुक्नलाई छोडनुहोस्।

INSTALL THE POST / खामा गाड्ने

3



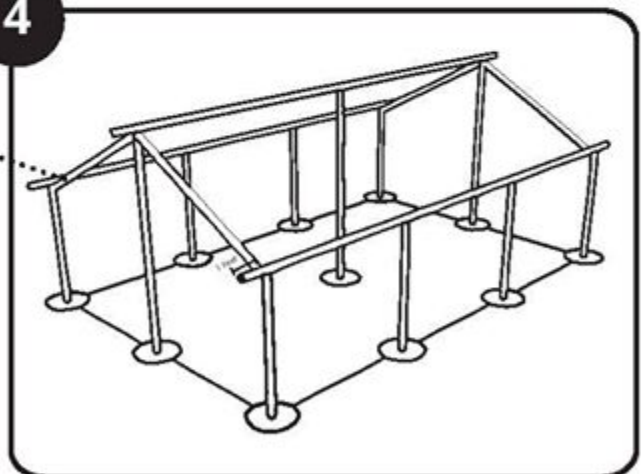
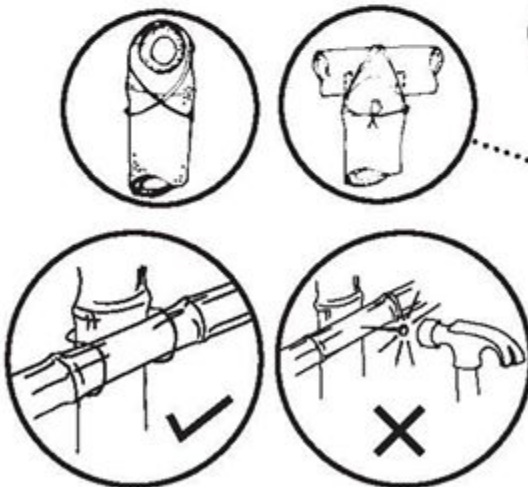
- Place 3 posts 9 feet above ground - for the middle pillars. Place 8 posts 5 feet 6" above ground - for the sides. Loosely fit into the holes.
- Make sure the heights are correct and 2 feet of the post is underground.
- Run a string line along the top of the posts from one end to the other to align the tops.
- Add sand and gravel around the posts. Make sure the top string lines are straight as you compact around the posts to fix them.



- बीचमा ३ फीटको ३ वटा खामा र दायाँ बायाँ ५ फीट ६ इन्चको ३ वटा खामा कोखामा राखौं।
- ती खामा निश्चित २ फीट जमिन मुनि जाने बनाऔं। एउटा खामाको माथिबाट अर्को खामाको माथि सम्म डोरी तान्नु।
- खामाको कोखामा बालुवा र गिट्टिले भरौं। तानेको डोरि सिधा छ भनि खयाल गरौं।

TIE THE RAFTERS / डाँडाँ भाटो राख्ने

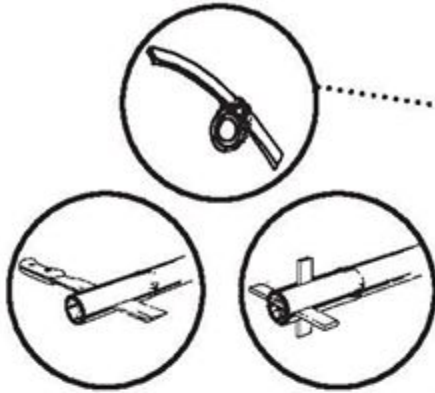
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- Place the rafters and bracing.
- Drill and tie them to the post with wire or use Jute to bind them. NEVER nail the bamboo.

- डाँडाँ भाटोलाई नक्सा अनुसार राखौं र खामासित तारले अथवा जुटको डोरीले बाँधौं।

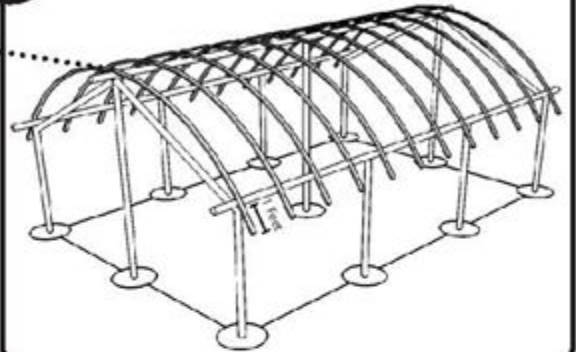
ADD THE PURLINS / सेप्टी राखने



Bamboo splitting process / भाटा बनाउने तरिका।

- Quarter cut long strong bamboos and remove chaff to make strong perlines of the required length.
- Place purlins and tie them to the rafters with wire at 18 inch or 2 foot wide intervals.

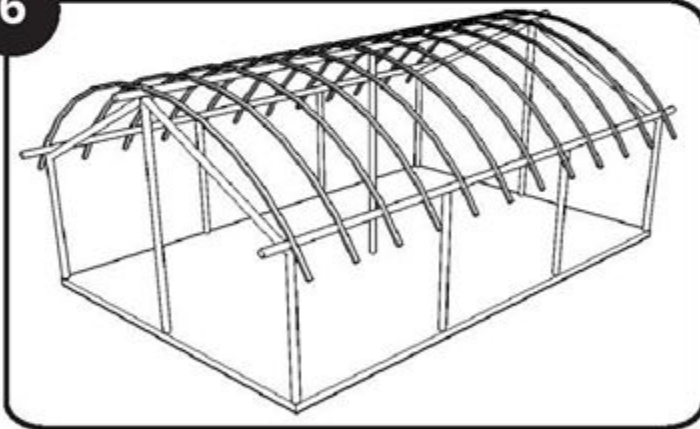
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- मजबुत बाँसलाई १/४ भागमा आवश्यकता अनुसार काटौं र बाँसबाट अनावश्यक बस्तुहरू हटाऔं।
- सेप्टीलाई नक्सा अनुसार राखौं र डाँडा भाटोसित १८ इन्च अथवा २ फिटको अन्तरलमा तारले बाँधौं।

FLOORING / भुईँ

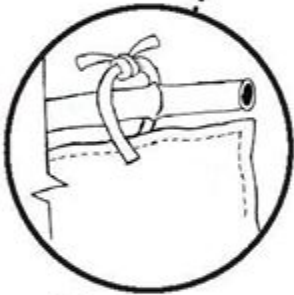
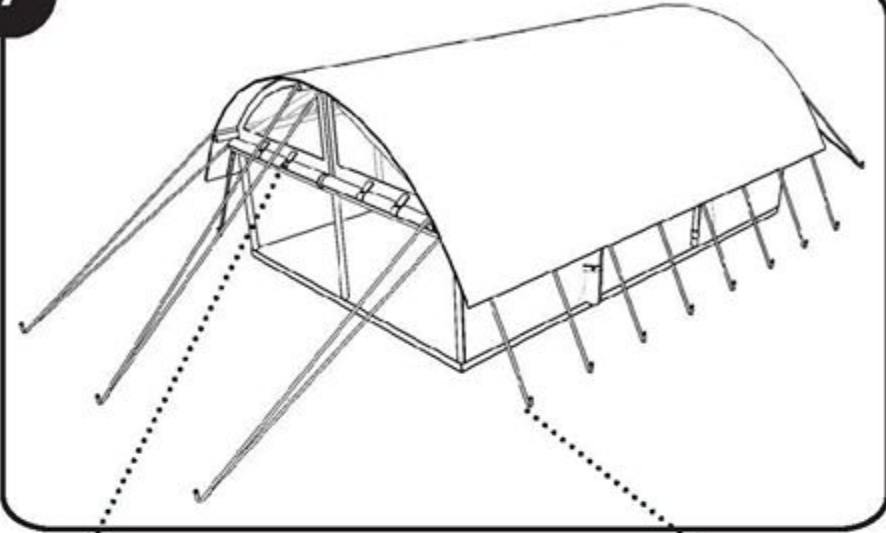
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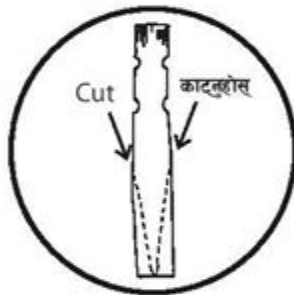
- Dig a 4 inch foundation trench and build a small wall 6 inches high, and 8 inches wide, around the inside perimeter of the posts.
- Use salvaged stones or aggregate as solling in order to bring the whole floor of the classroom at least 4" above the ground.

- ४ इन्च गहिरो खल्डो खन्नुहोस् र खामाको परिधि वरिपरि ६ इन्च उचाइ र ८ इन्च चौडाइको सानो गाडो बनाउनुहोस्।
- बचेको इँटा, धुङगा र गिट्टि प्रयोग गरि घर भित्रको भुईँ ४ इन्ची अग्लो बनाऔं।

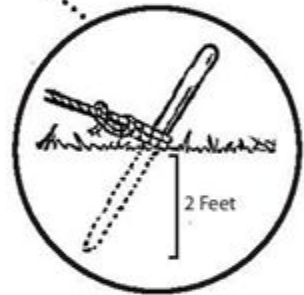
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Tying the canvas
क्यानभास बाढ्ने तरिका



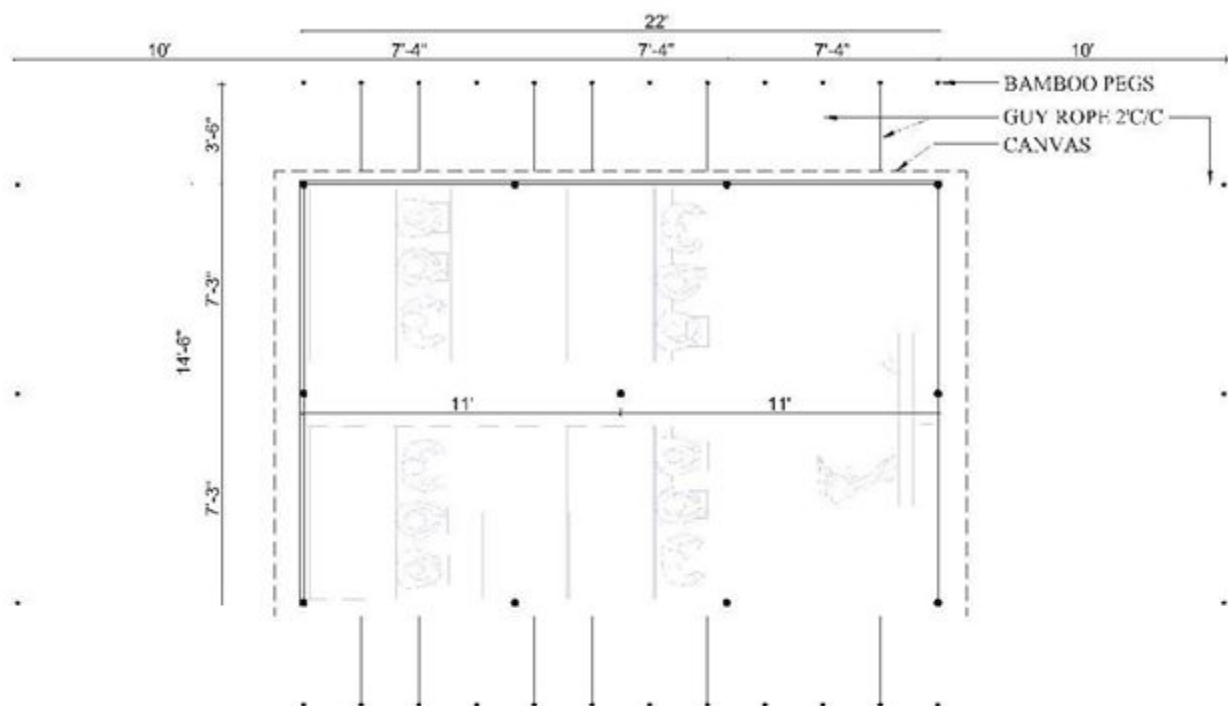
Making Pegs
किल्ला बनाउने तरिका



Making Pegs
किल्ला गाड्ने तरिका

- Install the top canvas over the finished structure. Secure the canvas and the frame with all the ropes shown above. Use long pegs.
- Make sure pegs are 2 ft. deep in the ground.
- Install the side and door pieces and tie the canvas tightly to the bamboo posts and rafters
- Sides and doors can be opened as shown, for a pleasant daytime environment.
- Close the tent every evening and ensure all ropes are tight, to protect against wind and rain in the night.
- Dig drainage ditches along the sides of the tent to take the rain water away from the building.
- Ensure access ways to the classroom are drained and sprinkled with sand or giti to not slip.
- छानामा पाल राखी र डोरीले लामो किल्लामा बाधी ।
- किल्ला जमिनको २ फिट भित्र गाडिएको छ भनि खयाल गर्नु होला ।
- झ्याल र ढोकाको लागि पाल राखी र डोरीले खामा र डौँडा भाटोसंग कस्सेर बाधी ।
- बेलुका पाल राम्ररी बन्द रख्नुहोला ।
- पानी र हुरि बतासबाट बच्न पाल राम्ररी खामा र डौँडा भाटोसंग बाध्नुहोला ।
- पाल वरिपरि जमिनमा पानी जानको लागि नाली बनाउनुहोला ।
- चिप्लिनबाट बच्न कक्षाकोठा वरिपरि जमिनमा बलुवा र गिट्टी छर्नुहोला ।

Floor Plan / नक्सा



CONCEPT/DESIGN



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