

BAMBOO HOUSING

BASIC CONSTRUCTION GUIDE

LOW-COST. STRONG. SUSTAINABLE.

Practical guidance for building affordable bamboo homes in the tropics.

Simple methods that work with local materials and real-world budgets.

Choose the options that fit your needs and the resources you have.



FOOTINGS

KEEP BAMBOO OFF THE SOIL.

A solid footing stops termites and moisture from damaging bamboo columns.

Raise footings above the highest flood level in your area.

Keep the site clean and treat bases yearly to deter termites.

Use prefabricated concrete or custom-built concrete, or rock, as a low-cost option.

"For best results, a bamboo structure needs big boots and a wide hat." — Bamboo Proverb



ROOF

CHOOSE THE RIGHT ROOF FOR
YOUR BUDGET AND CLIMATE.

CORRUGATED STEEL SHEETS

BEST FOR DURABILITY AND RAINWATER COLLECTION.

LONGEVITY: 10-YEAR LIFESPAN.

BAMBOO SHINGLE

NATURAL AND RELATIVELY AFFORDABLE.

LONGEVITY: 5-YEAR LIFESPAN.

BAMBOO ROOFING

COST-EFFECTIVE AND LOCALLY SOURCED.

LONGEVITY: 4-YEAR LIFESPAN.

THATCHED (NOT RECOMMENDED)

SHORT LIFESPAN AND HIGH MAINTENANCE.

LONGEVITY: 1.5-YEAR LIFESPAN.



FLOOR (RAISED)

COOLER HOME. DRY SPACE BELOW.

A raised floor improves airflow and lowers indoor temperature.

It keeps the living area dry and creates useful storage space beneath.

A strong, level floor supports comfort, durability, and long-term value.



FLOOR (NON-RAISED)

A cheaper option that needs good care.

Coat the floor to protect against germs.

Build the floor above the highest flood level in your area.

FLOORING TOPPING (BEST OPTION)

Ratio 6:2:2 — Soil, Sand, Clay.

Add straw, lime, and/or cow manure; each at 5% of total volume.

Tamp the soil with a flat, heavy DIY tool before and after topping.

FLOOR COATING (ALTERNATIVE)

Option 1: Blood and wood ash.

Option 2: Linseed, sesame, or coconut oil.

Option 3: Limestone powder slurry.



WALL

COVER **100%** OF THE STRUCTURE
TO PREVENT WETNESS AND FUNGUS.

Use mud and lime below the 45° line from
the overhanged roof.

Choose timber for all columns for
superior fungal resistance.

Build strong with the right mix: 6:3:1 –
clay, sand, fiber additives.

Apply 2/3 layers, 1.5 cm thick each.

Finish with a lime coating for water resistance.

Other options: tarpaulin, bamboo mats,
flattened bamboo shingles, thatch.



BRACING

STRONG DIAGONALS. STABLE HOMES.

Bracing keeps your bamboo house steady in strong winds and earthquakes.

Install bracing in every span at the walls, floors and roof frames.

Use X-bracing across each frame or single diagonals in alternating spans.

Elevated houses need 45° knee bracing at the floor beams and columns.



JOINTS

STRONG CONNECTIONS. LASTING STRUCTURES.

Robust bamboo joints built by hand.
Keep nodes near the joint for maximum
strength and durability.

1

FISH MOUTH JOINT

2

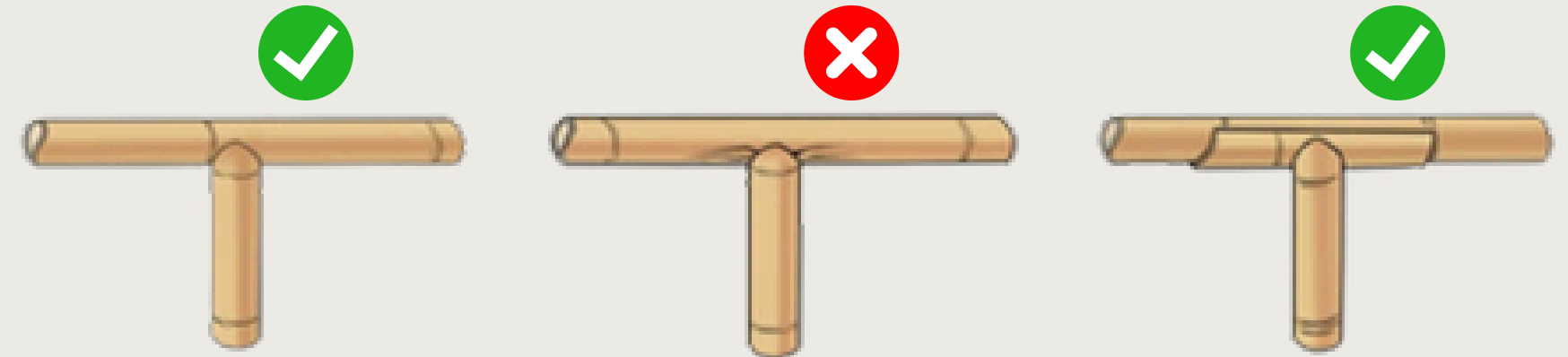
ROLLED JOINT

3

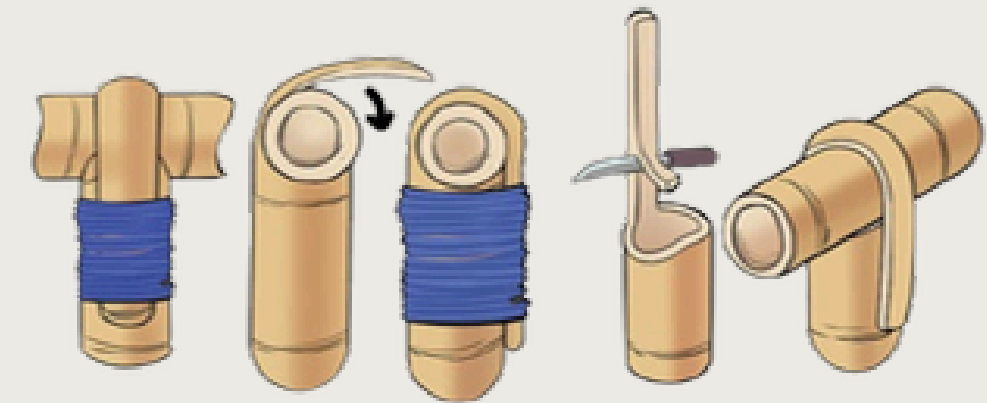
BAMBOO NAIL JOINT WITH
ROPE KNOT REINFORCEMENT

BAMBOO CONNECTIONS

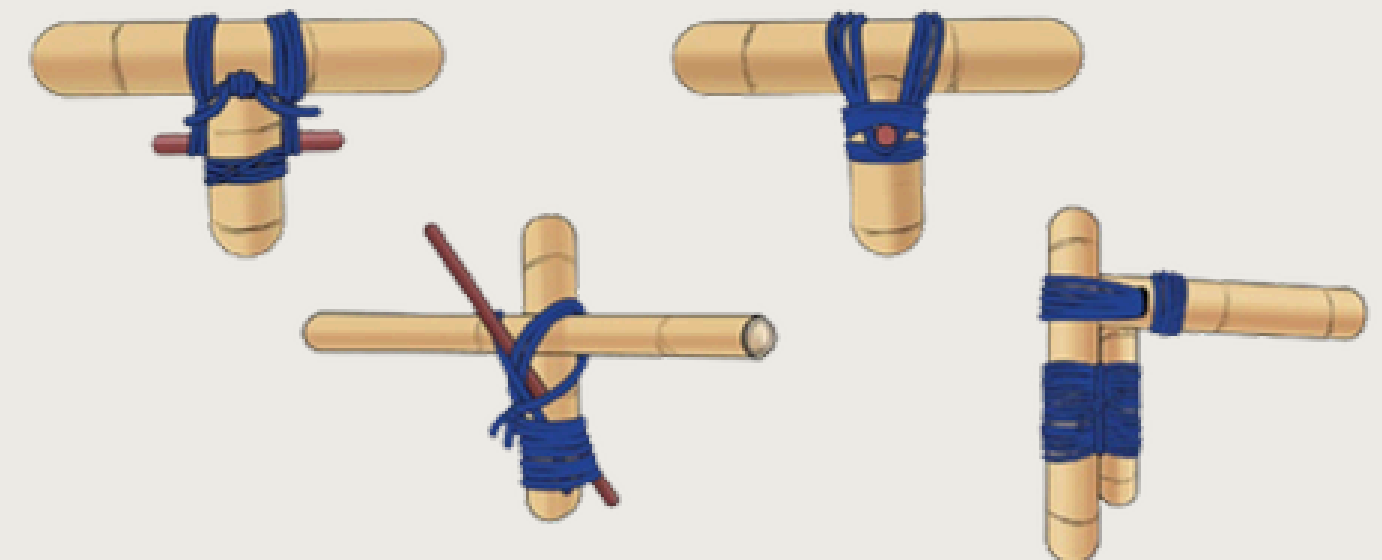
1 Fish Mouth Joint: Joint should be close to nodes



2 Rolled Joint



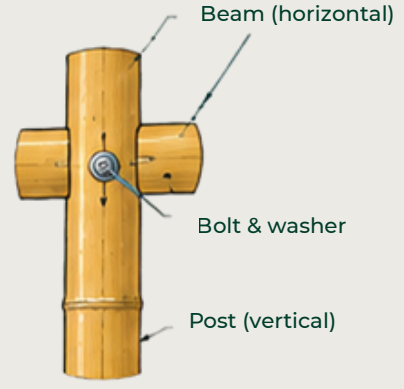
3 Bamboo Nail Joint with Rope Knot



4	POST & BEAM JOINT
5	RAFTER TO BEAM JOINT
6	DIAGONAL BRACING JOINT
7	T-JOINT

MORE CONNECTIONS

4 Post & Beam Joint



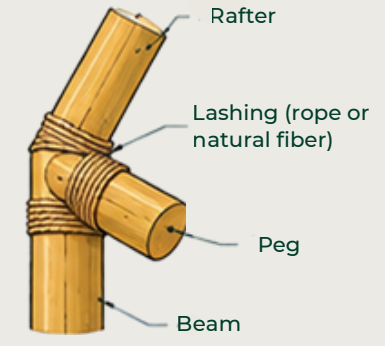
Beam (horizontal)

Bolt & washer

Post (vertical)

A notch is cut into the beam and post to create a snug fit, reinforced with a both and washer for added strength and stability.

5 Rafter to Beam Joint



Rafter

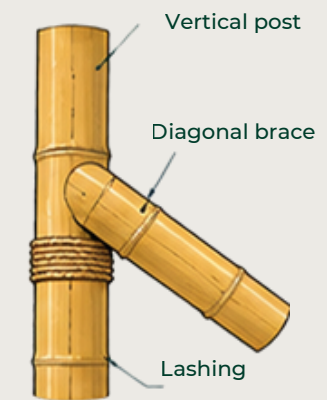
Lashing (rope or natural fiber)

Peg

Beam

The rafter is connected to the beam using natural fiber lashings and a bamboo peg for a firm, flexible and earthquake-resistant connection.

6 Diagonal Bracing Joint



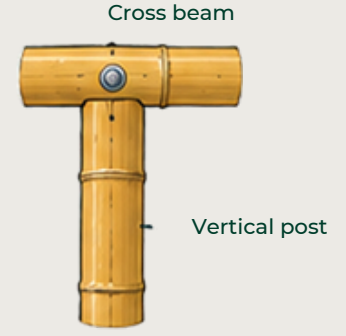
Vertical post

Diagonal brace

Lashing

Diagonal bracing adds lateral stability. The brash is lashed to the posts using strong natural fiber rope or wire.

7 T-Joint (Notched and Bolted)



Cross beam

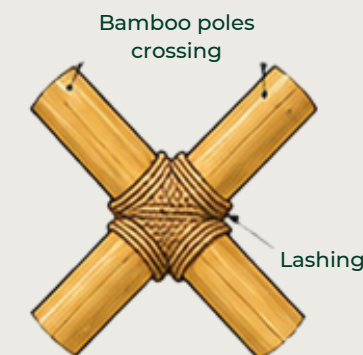
Vertical post

A notch is made in the post or beam to allow the other member to seat properly. A bolt ensures the joint is secure and durable.

8	X-JOINT
9	FLOORING JOINT
10	BASE PLATE JOINT
11	ROOF RIDGE JOINT

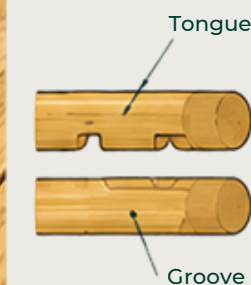
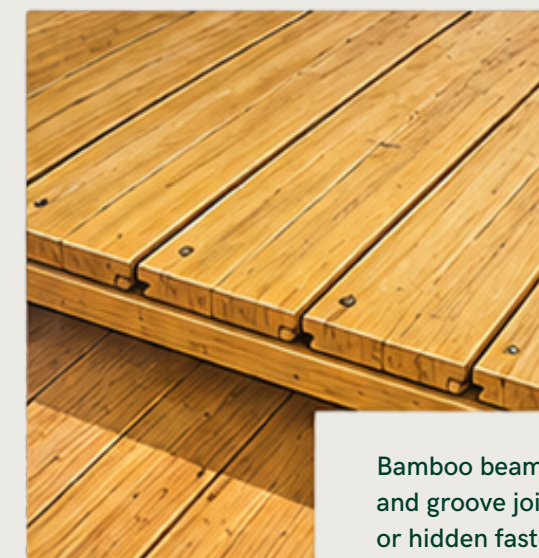
STILL MORE CONNECTIONS

8 X-Joint



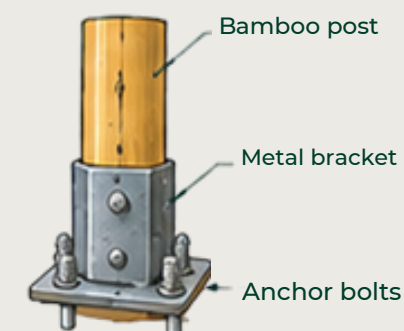
Used for trusses, frames and roof structures. The crossing poles are held together with strong lashing, providing flexibility and strength.

9 Flooring Joint



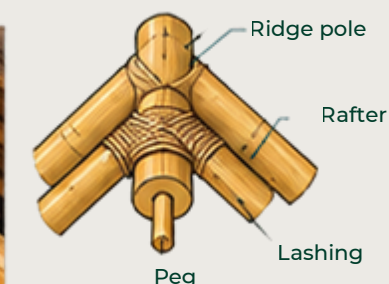
Bamboo beams are milled with tongue and groove joints and a tight fit. Screws or hidden fasteners are used to secure the boards to the sub-frame.

10 Base Plate Joint



Used where bamboo meets a concrete or solid foundation. A metal bracket keeps the post stable and secure.

11 Roof Ridge Joint



The ridge pole connects the roof rafters at the top. Lashings and pegs keep the structure strong and weather-resistant.

ROPES, SCREWS & NAILS

THE RIGHT CONNECTIONS MAKE A **STRONGER HOUSE**.

Use quality ropes and fasteners that work with bamboo, not against it.

Combine ropes with screws or bamboo nails for the best strength.

Choose the right option for a safer, longer-lasting structure.



LEARN MORE

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Source: housing-now.org

