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A project of Volunteers in Asia

When You Build a House

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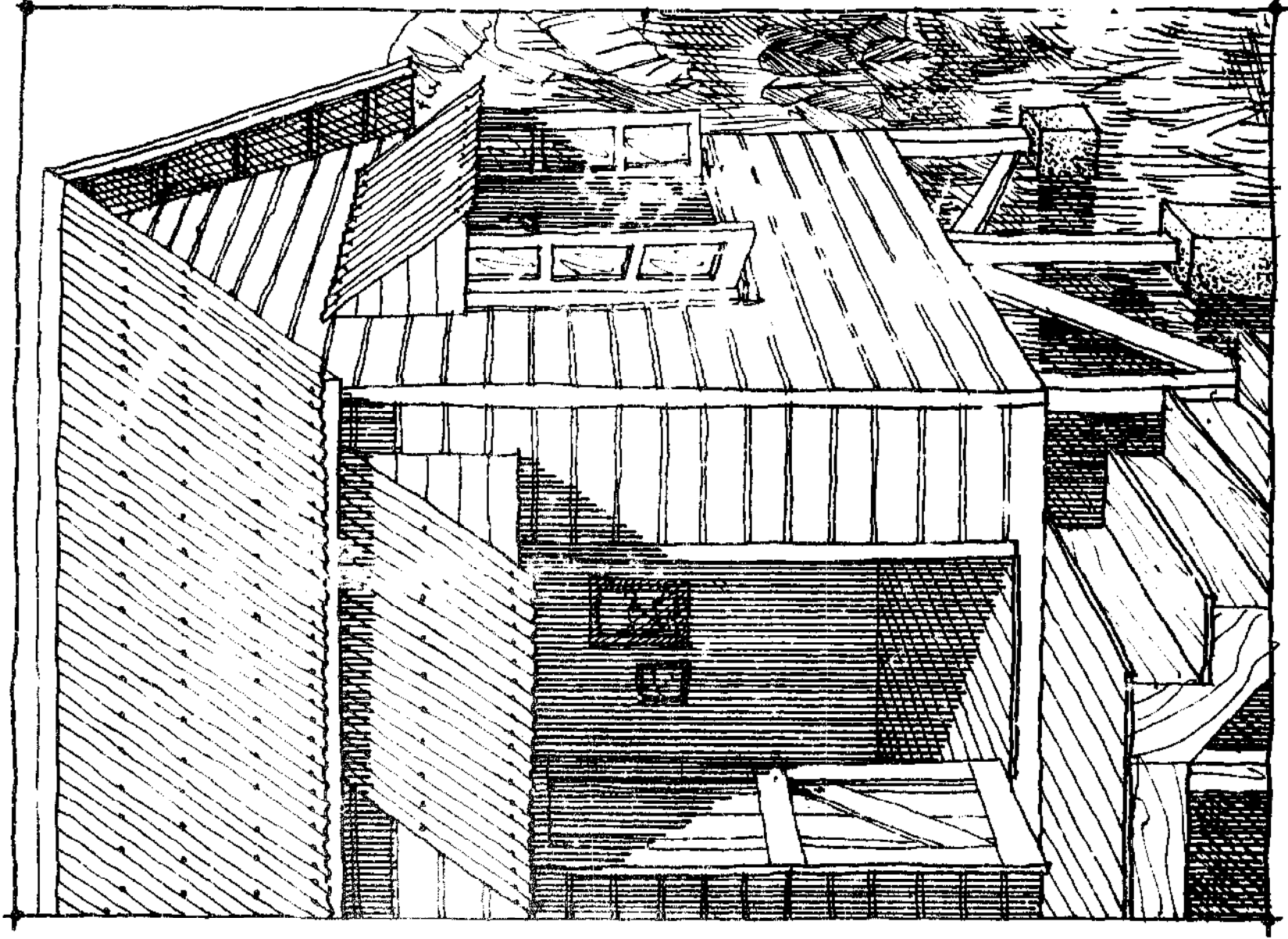
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When you build a house

a manual of
construction
details for
caribbean
houses with
emphasis on
protection
from strong
winds.

developed by e.h. robinson
for owners: builders of houses
in the Glebe community,
St. Vincent.



this manual was designed during the course of a two year involvement in administration and implementation of an aided, self-help housing program involving residents of a rural village in St. Vincent, West Indies. As an architect working with Peace Corps, I was providing technical assistance to the sponsoring organisations* with respect to program development, housing construction and housing education for owner-builders and skilled tradesmen in the village.

this information was distributed to project participants in conjunction with group discussion sessions in which all construction details and methods were fully explained, demonstrated and in some instances, revised as a result of participant response.

the details presented reflect a synthesis of research into existing information concerning construction/design details for hurricane/earthquake prone environments; local construction methods; appropriate design elements relative to the Caribbean climate and low-cost considerations.

eh. robinson

* CADEC [Christian Action for Development in the Caribbean] and the St. Vincent Christian Council

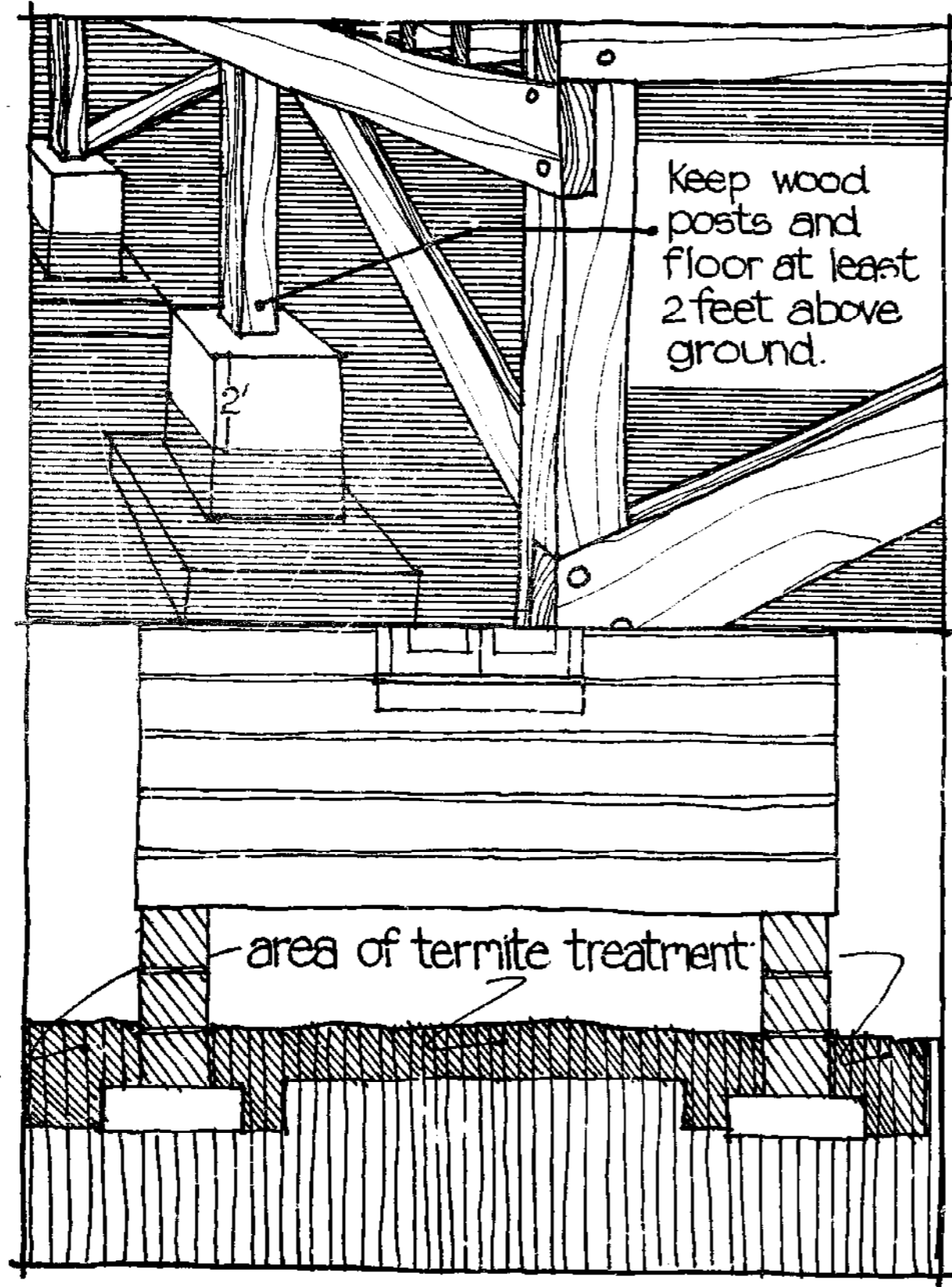
preface

120 families; the majority living in 2 room dwellings constructed of bamboo and timber. situated on steep, mountain terrain. Residents have settled the land, which belongs to a local church, on an informal basis for many years.

Many residents farm small mountain plots earning some seasonal income, others find occasional employment on nearby agricultural estates. Unemployment and overcrowding are serious factors influencing the overall development of the Glebe community.

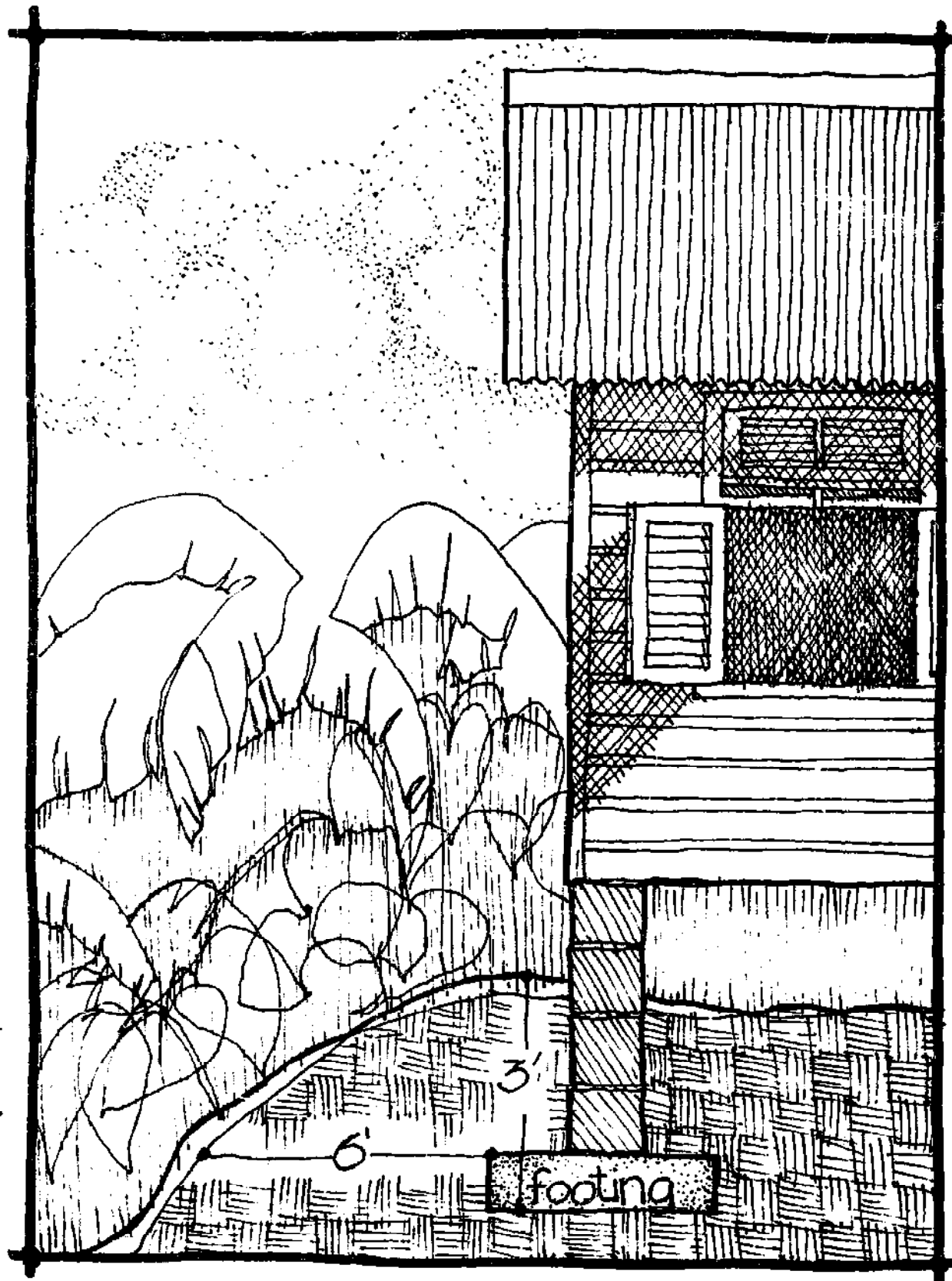
the glebe community





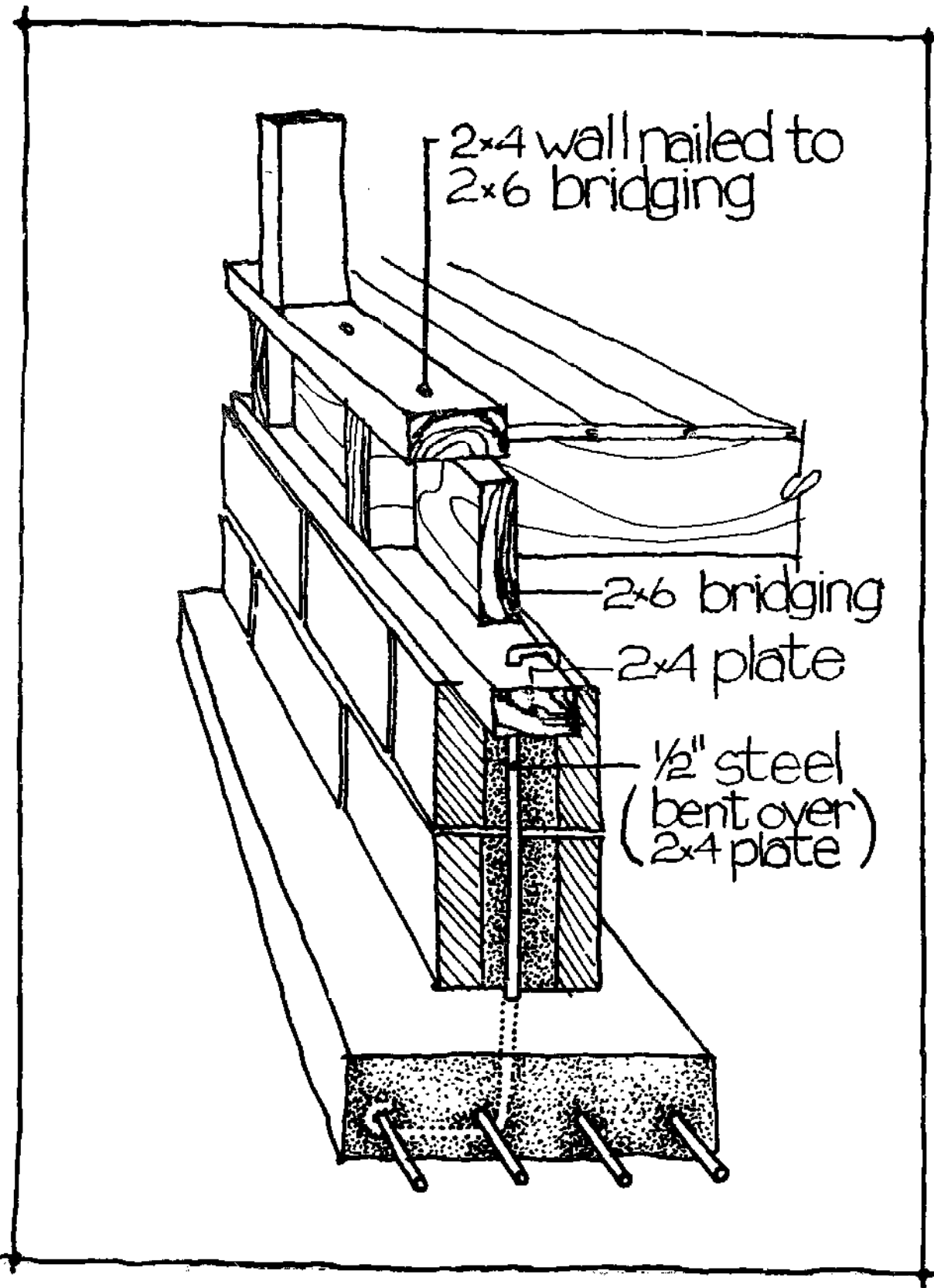
termite protection

termites can destroy a timber house unless the wood and the ground are treated. Keep all wood out of contact with the ground and use naturally resistive hardwoods.



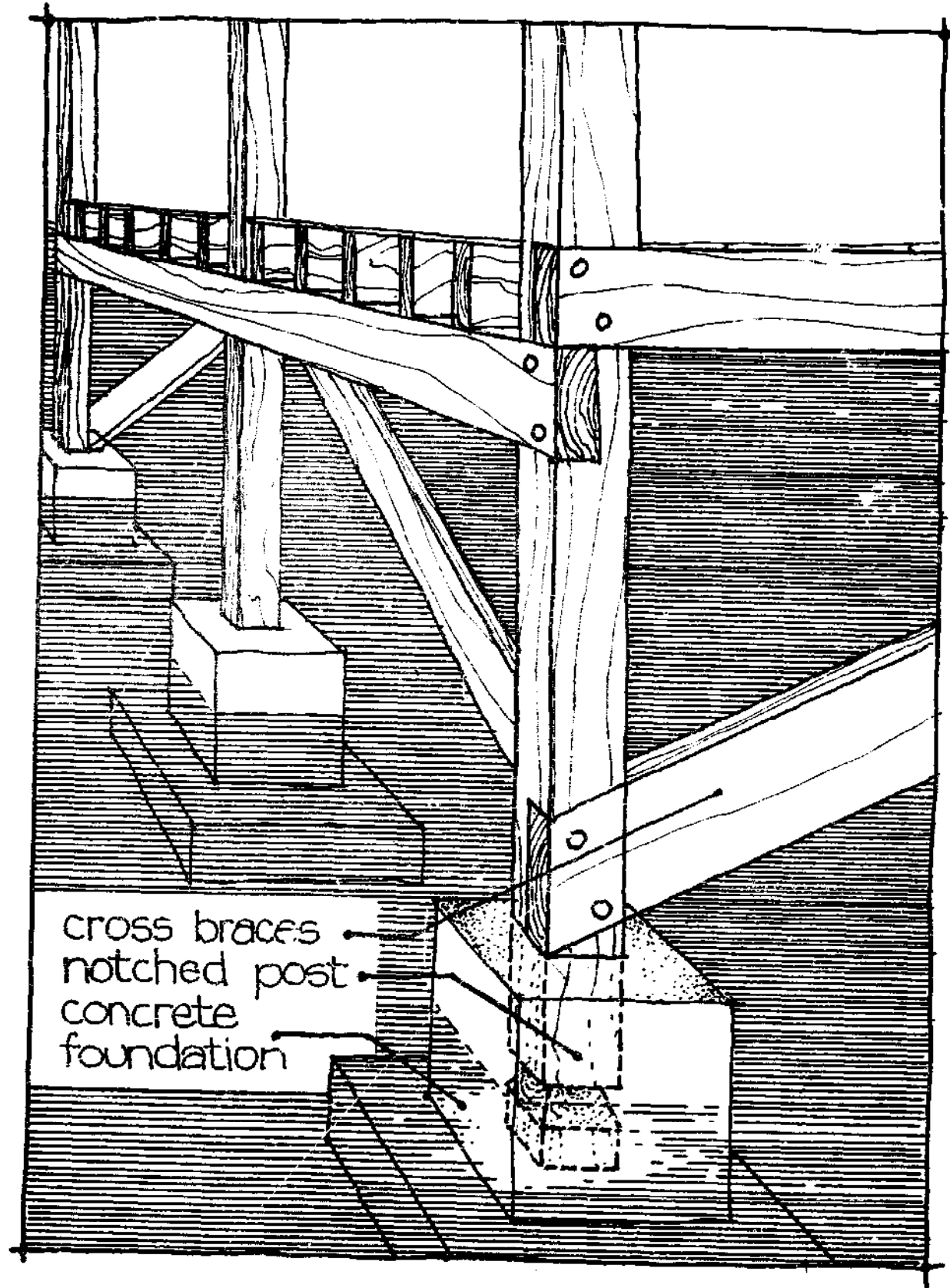
footings

build footings
at least 6 feet
away from the
edge of a slope
and at least 3
feet below the
ground to keep
the house from
sliding. footings
should be 2
feet wide.



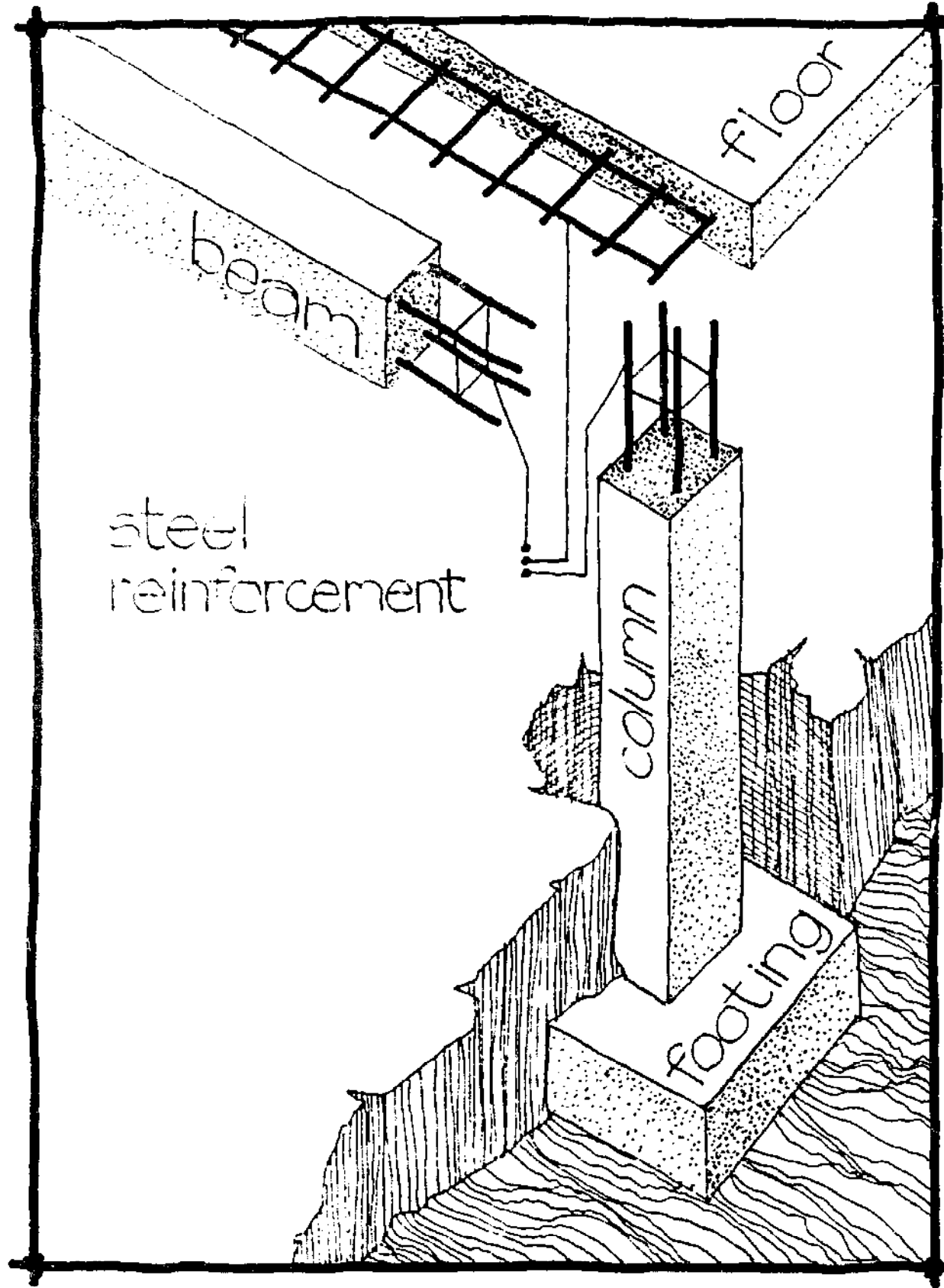
board walls/
foundations

if your house
is going to
stand up
against high
winds, the
walls must be
securely tied
to the
foundations.



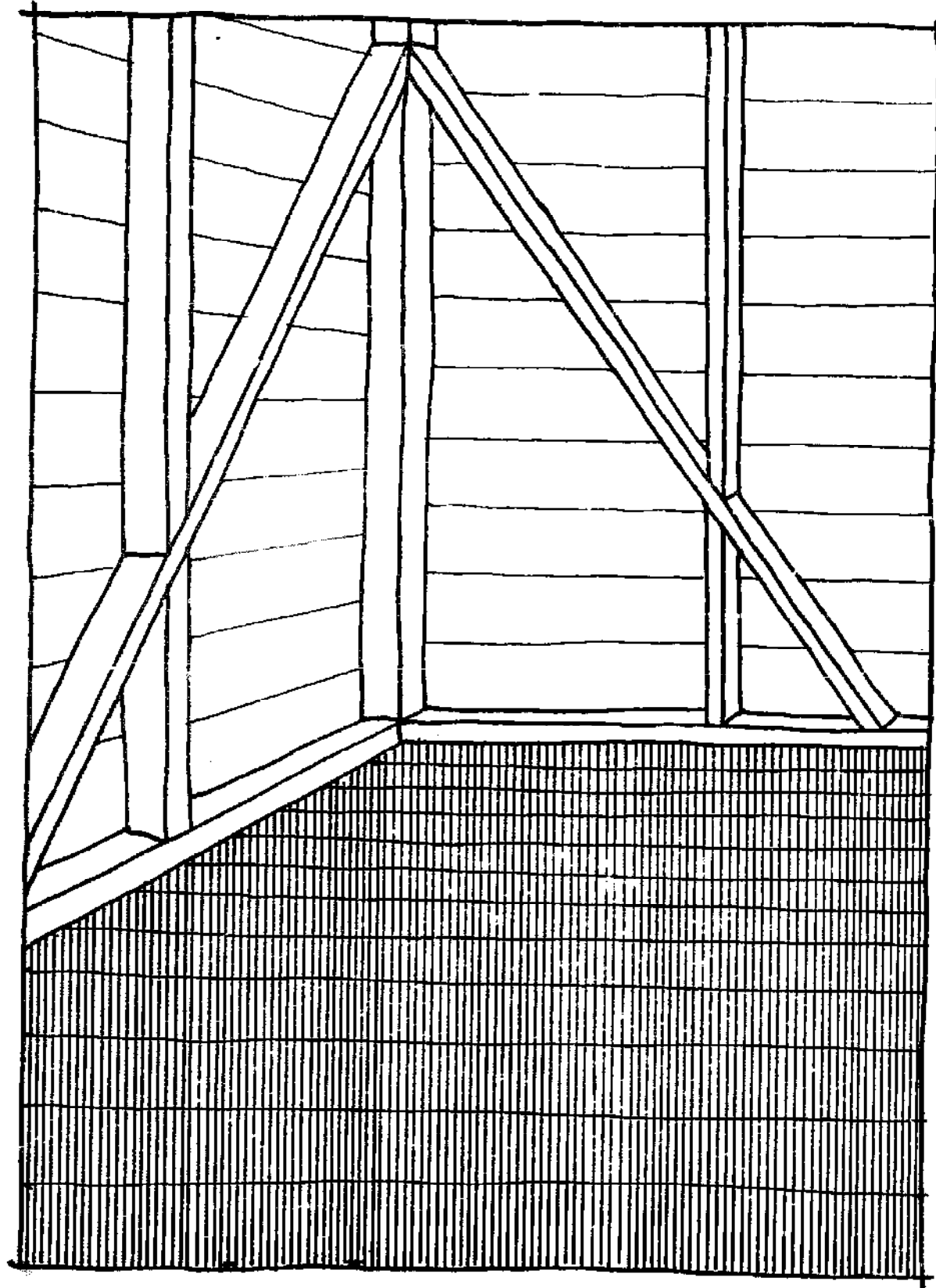
WOOD post construction

cut a notch in the end of the post before pouring concrete piers. Use cross bracing between all posts to protect against high winds.



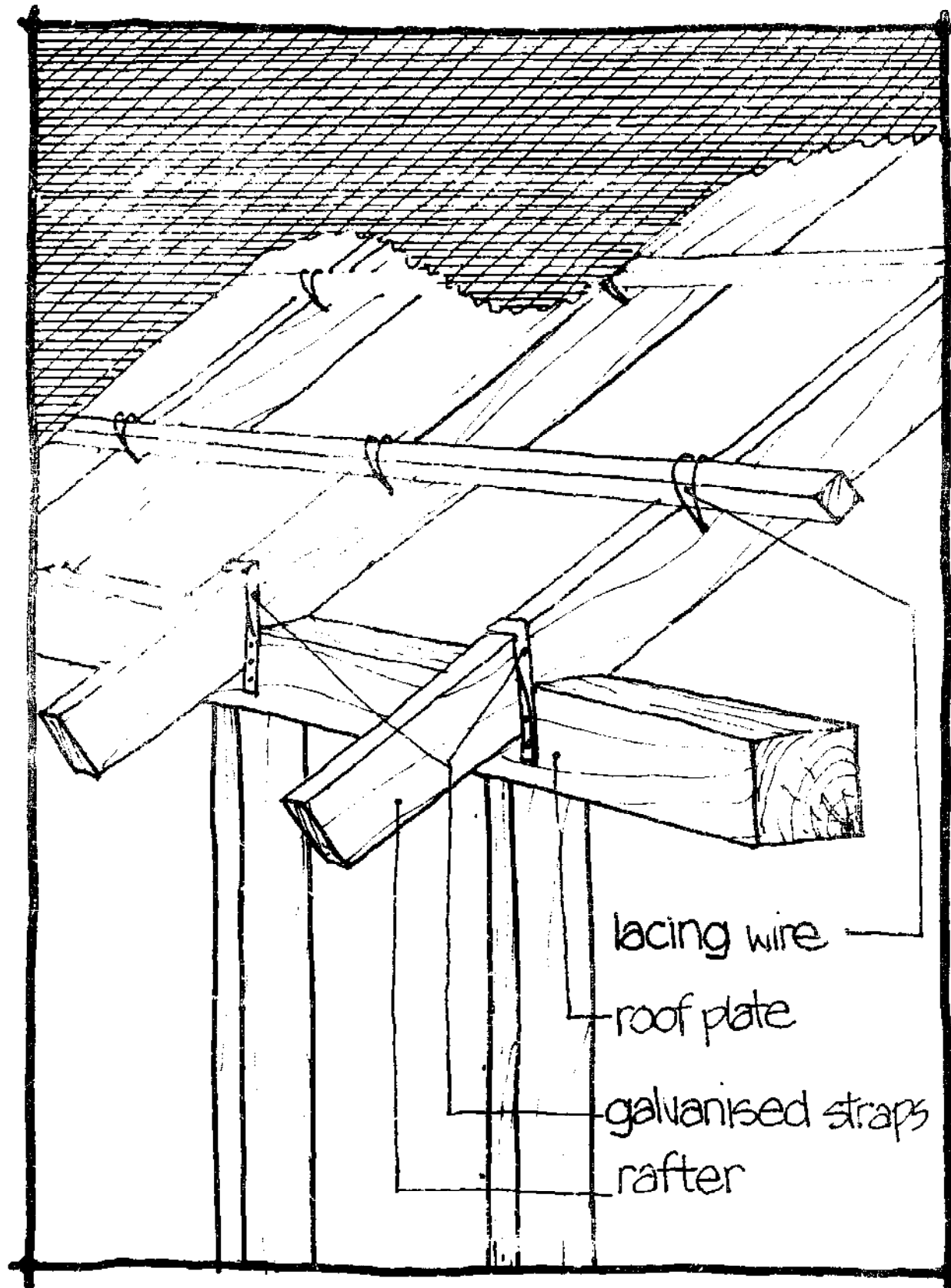
concrete
construction

use steel
reinforcement
in all floor or ring
beams; floors
built above the
ground; columns
and footings.



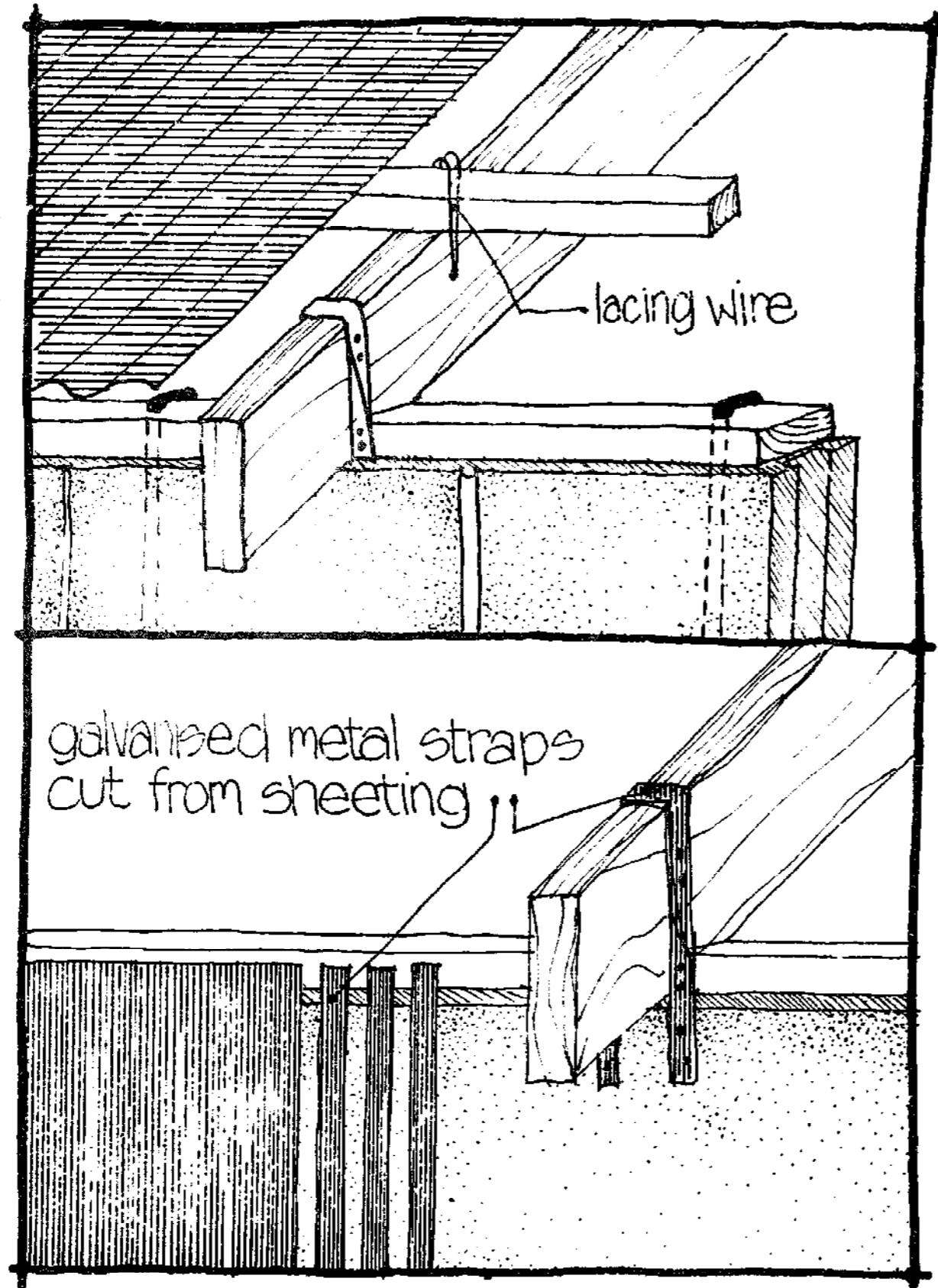
board walls

Use 2x4
bracing in
all corners
to protect
the walls
from the
force of
high winds.



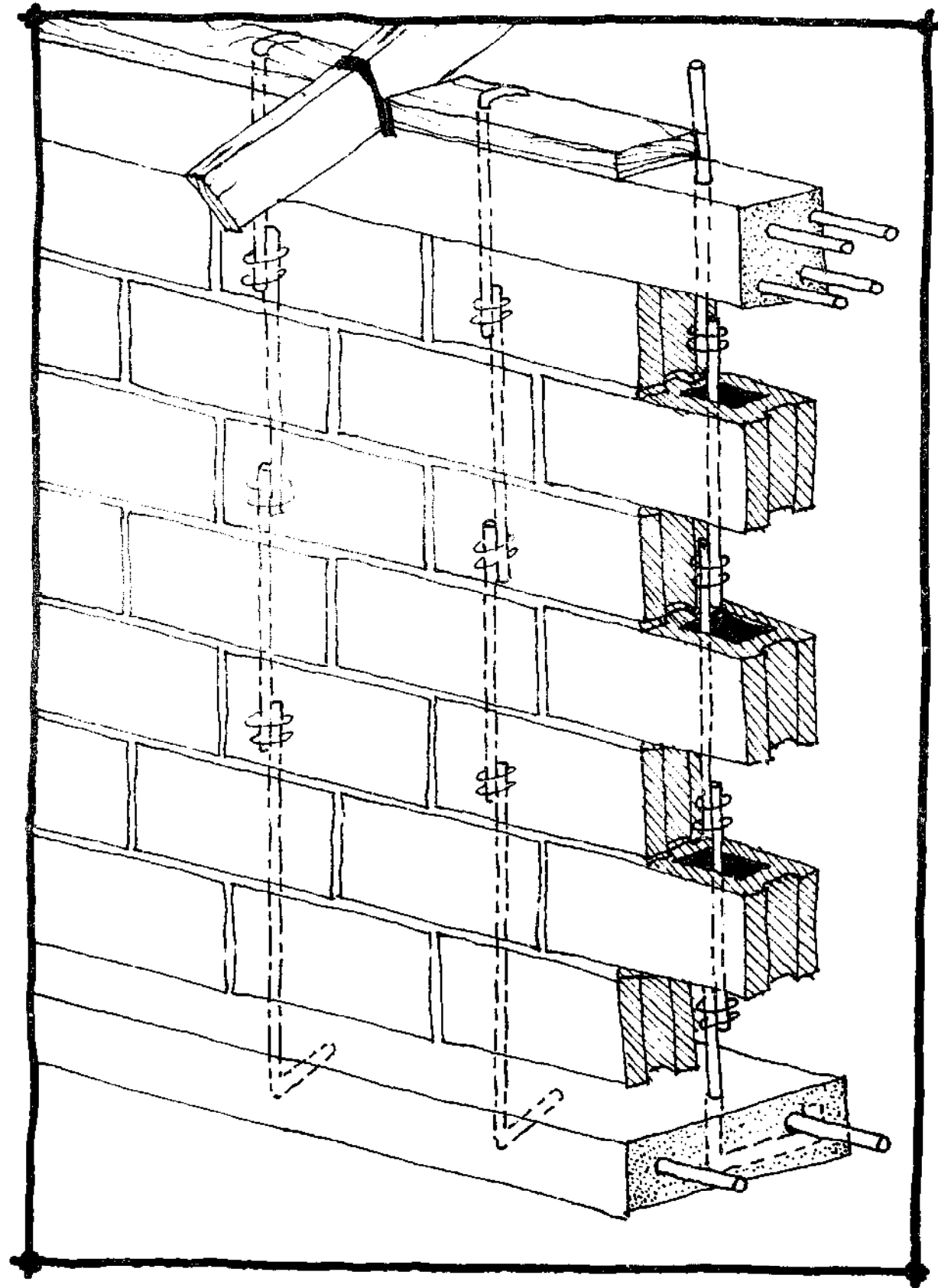
roof / wall connections

probably the most important construction details to resist high winds are the roofing connections. wall-to-rafter and rafter-to-purlin connectors should be used.



roof connections

purlins can be secured to rafters by bending lacing wire over purlin and through a hole drilled in rafter. the rafter can be tied to the wall using 1" wide strips cut from galvanized sheet.

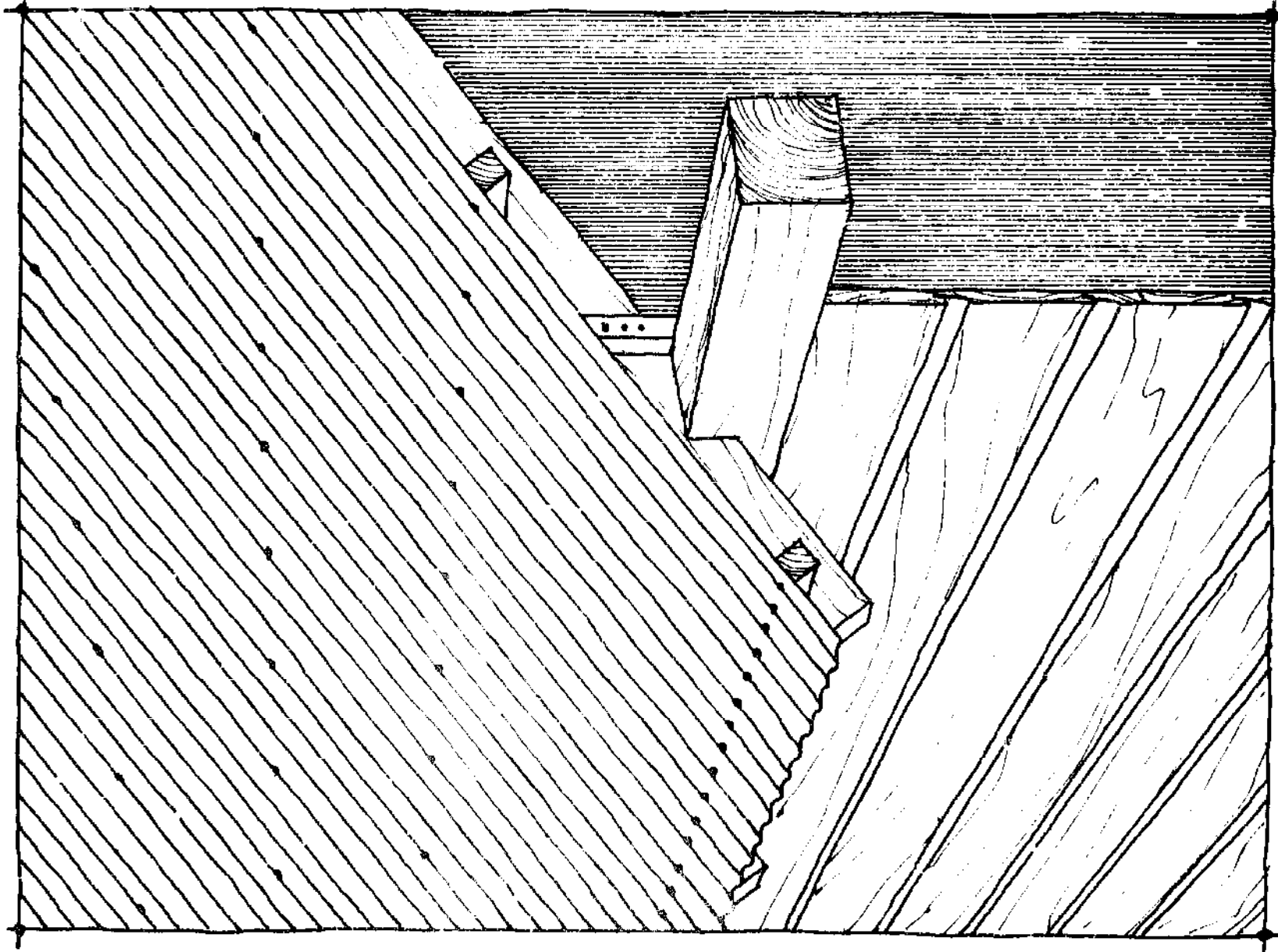


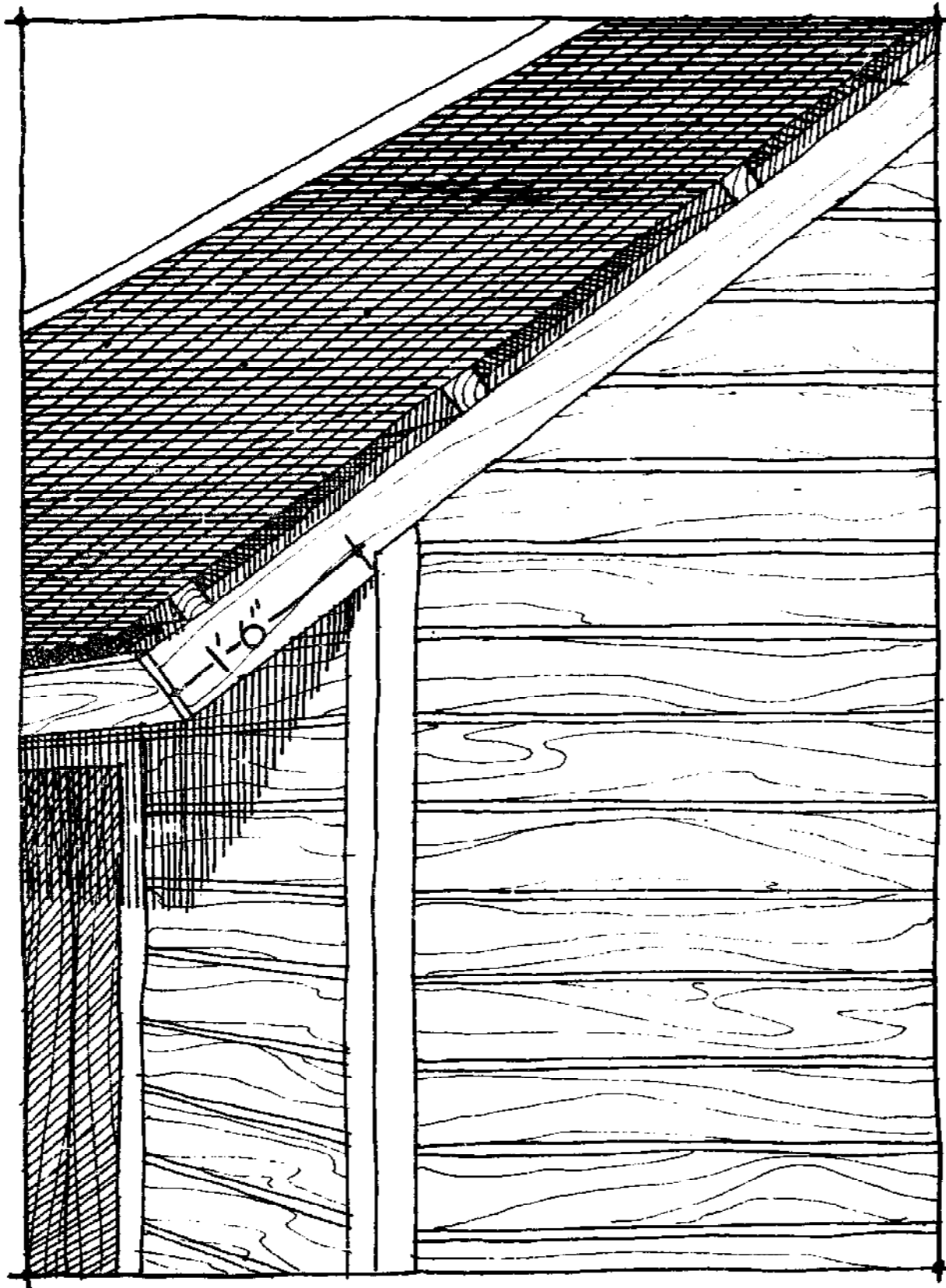
roof and wall connections

block walls should have $\frac{1}{2}$ " or $\frac{1}{4}$ " steel running from the foundation through the wall and ring beam. the steel can then pass through the wood roof plate and bent over to tie roof to wall.

roof connections

nail roofing to purlins through the top of the corrugations using $\frac{3}{4}$ " washers. roofing should be nailed at every corrugation on eave and ridge purlins as well as all end sheets.





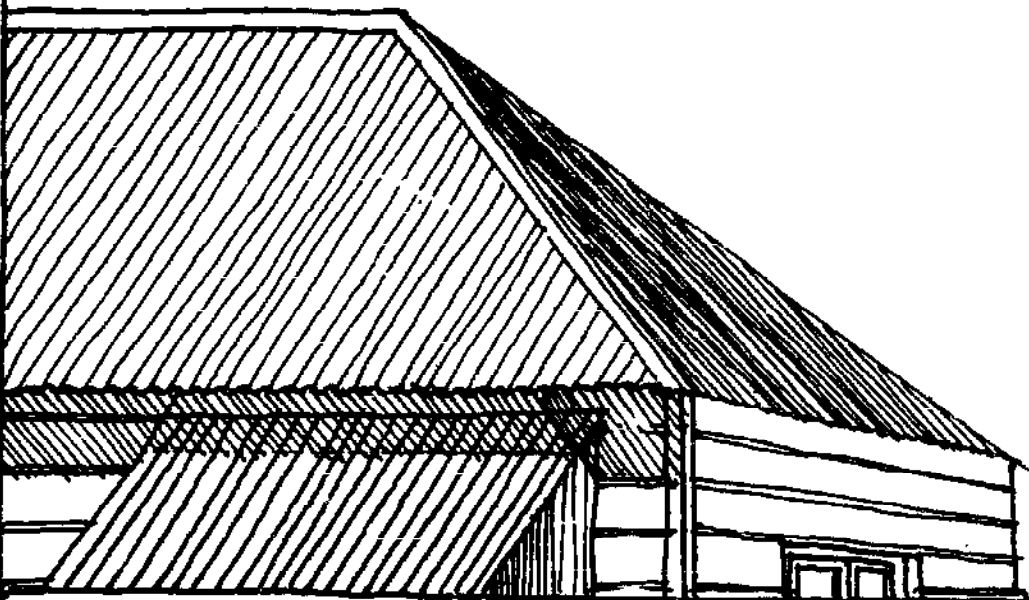
roof overhangs

to help prevent damage to your roof during high winds, limit overhangs as shown so that the wind can't lift off the roof.

gable roof



hip roof

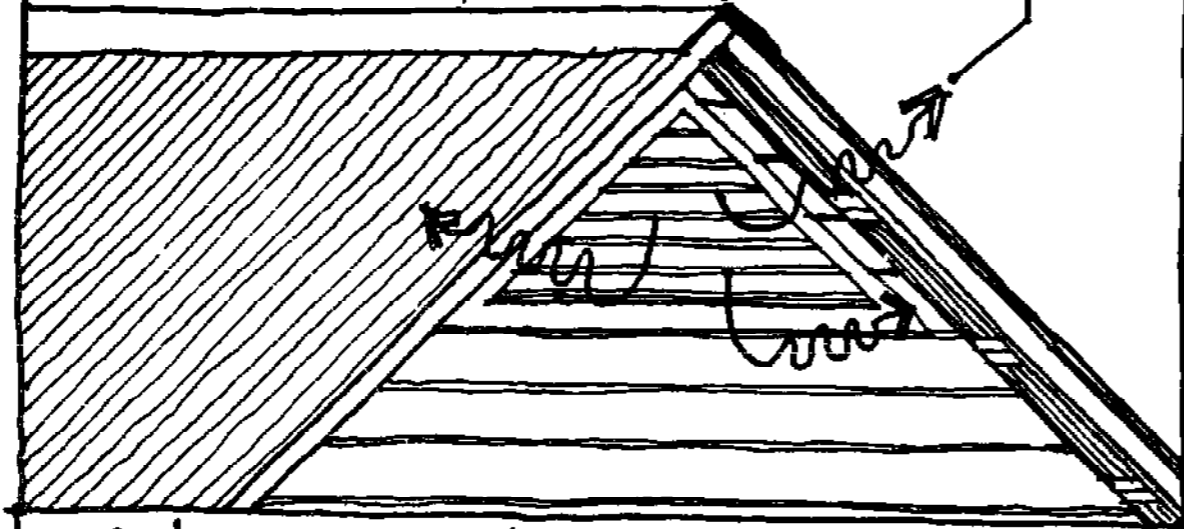


roofs for high winds

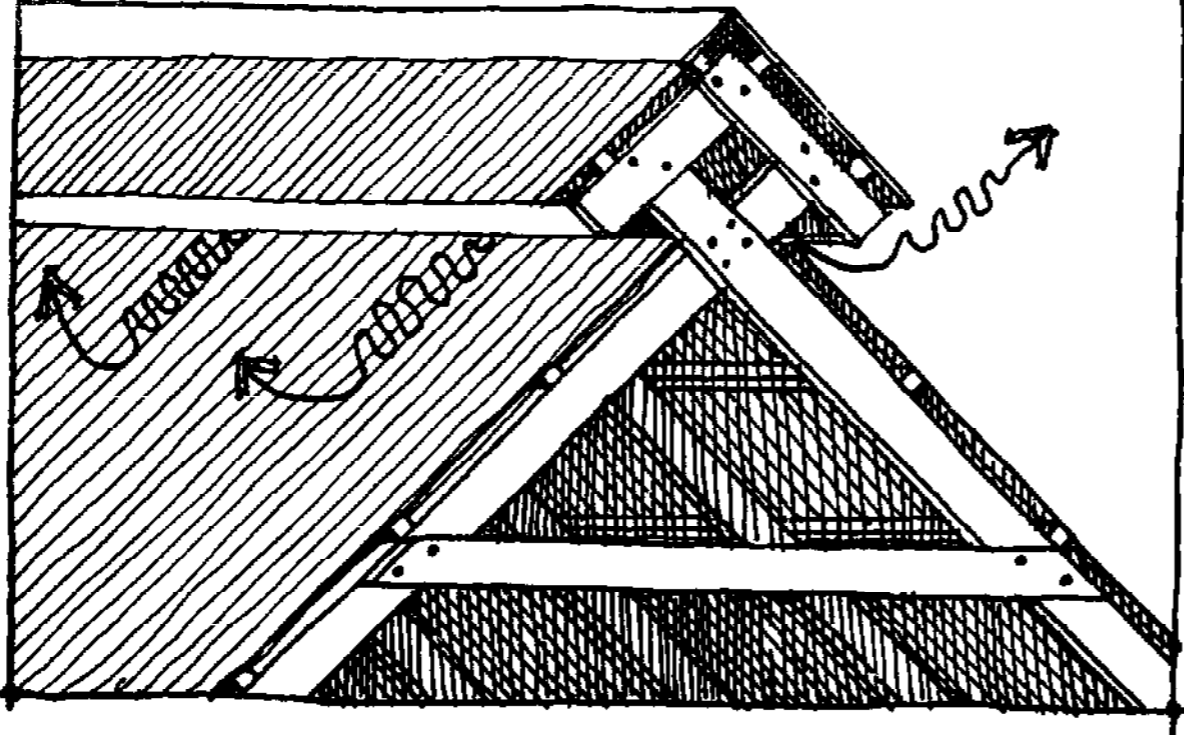
if you are building a gable roof, the roof pitch should be steep. between 6:12 and 12:12 slopes will be effective against high winds. hip roofs work best to resist high winds.

gable end roof vent

warm air escapes through vent in eave.

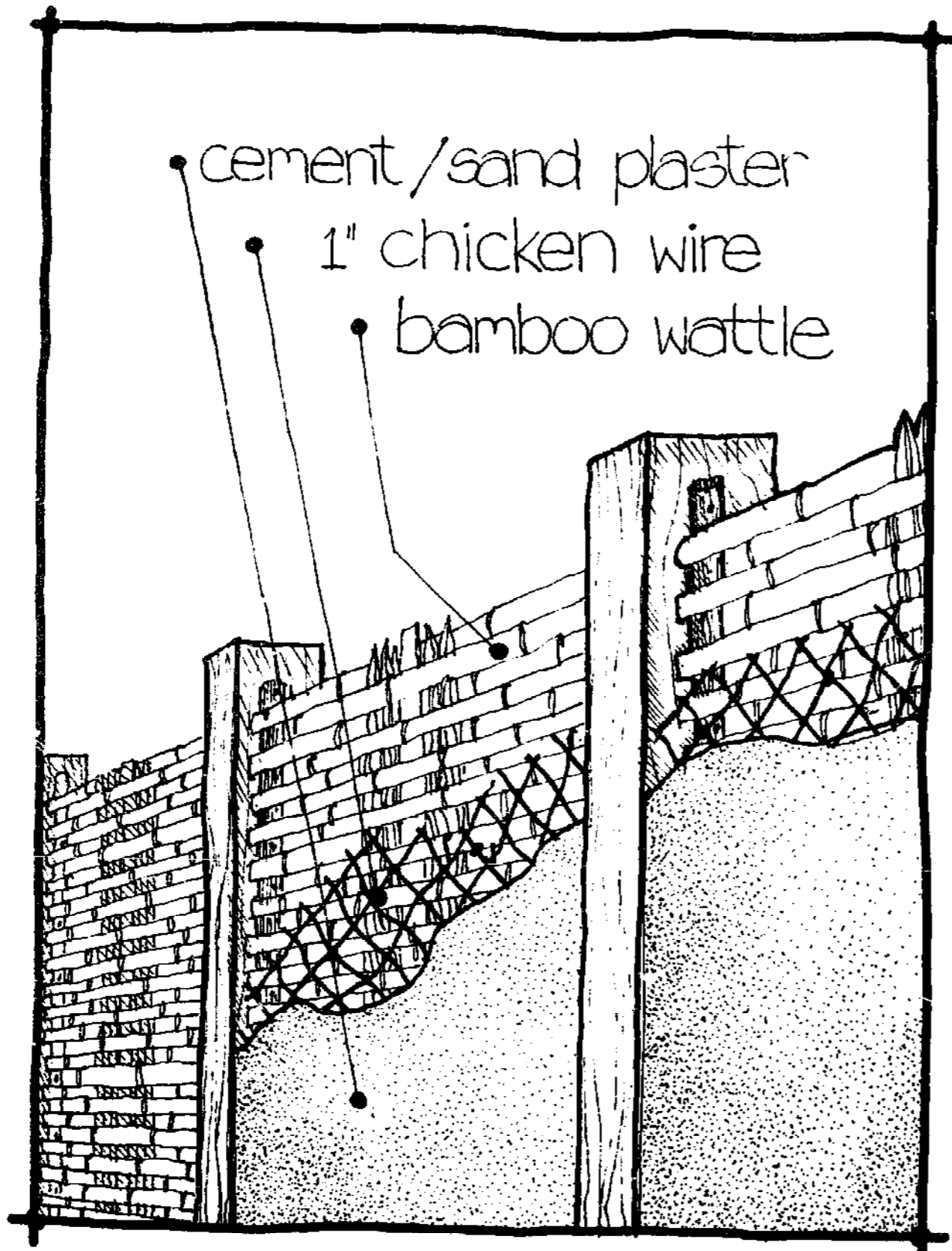


ridge vent



roof ventilation

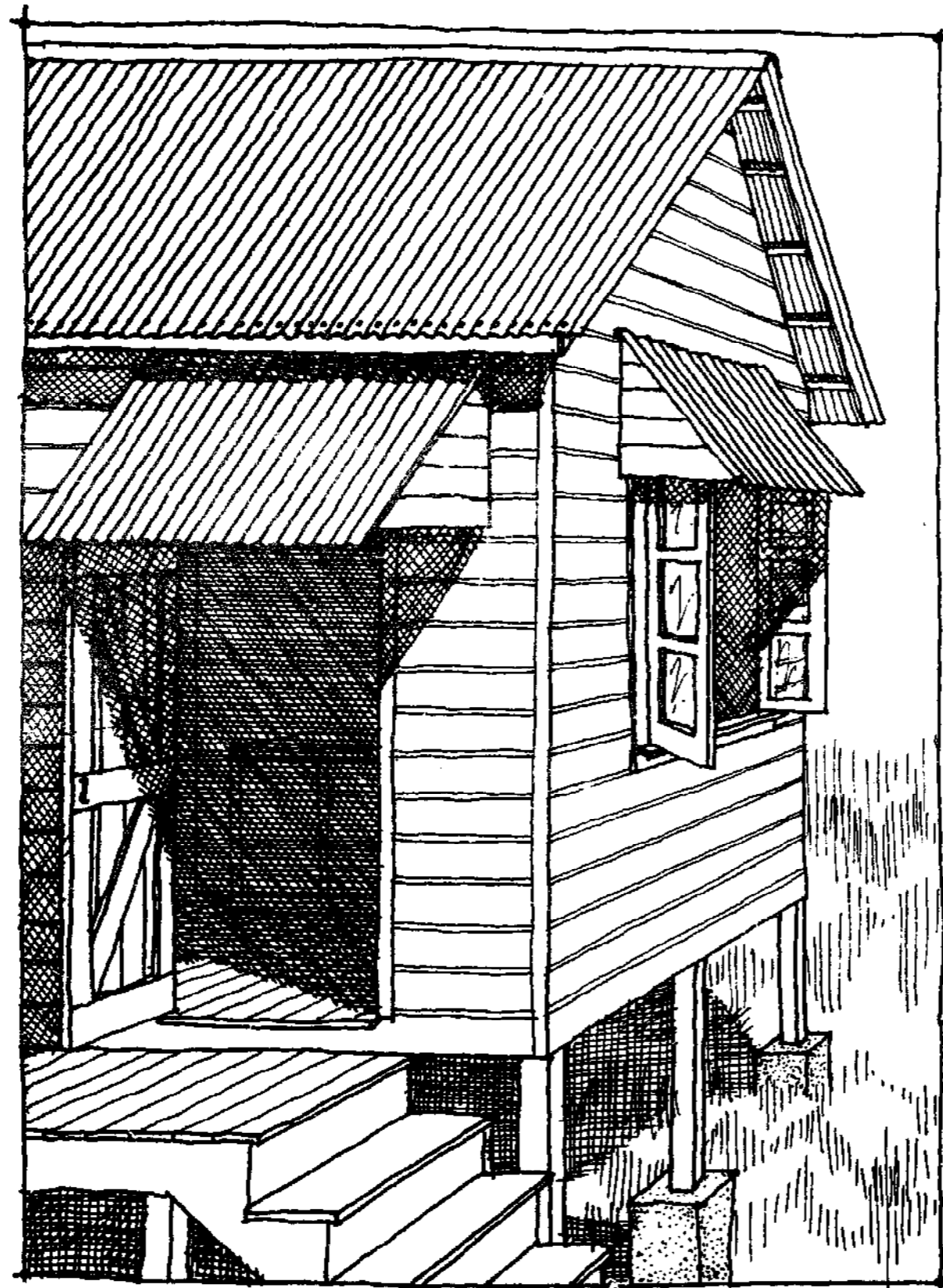
vents make your house cooler by allowing the hot air escape. vents such as these also help relieve the buildup of air pressure during high winds.



- cement/sand plaster
- 1" chicken wire
- bamboo wattle

bamboo construction

before using bamboo for building, soak in sea water for a few days and dry. when building a wattle wall that is going to be plastered, nail chicken wire to bamboo. this stops cracking.



door/window
awnings

overhangs
above doors
and windows
keep the house
cool and protect
the windows
and doors
from direct
exposure to
rain and sun.

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