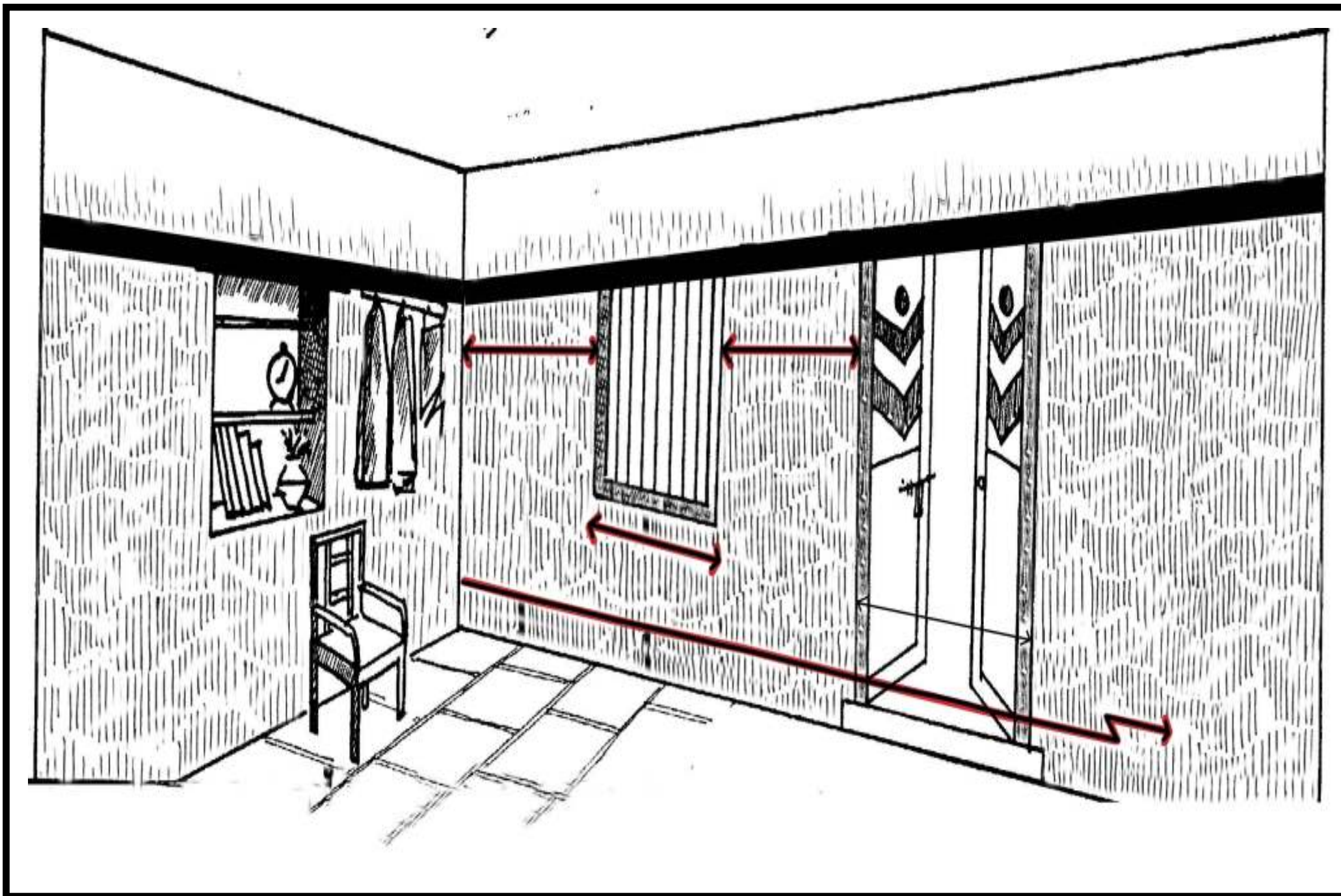


Building Earthquake Resistant Houses in Kashmir

Door & Window Openings

Earthquake shaking causes cracks at door and window opening corners since they weaken the walls. Such cracking can be prevented by **controlling the opening number, size and location, and encasing of openings.**



Control of Openings:

A. Walls with cement mortar

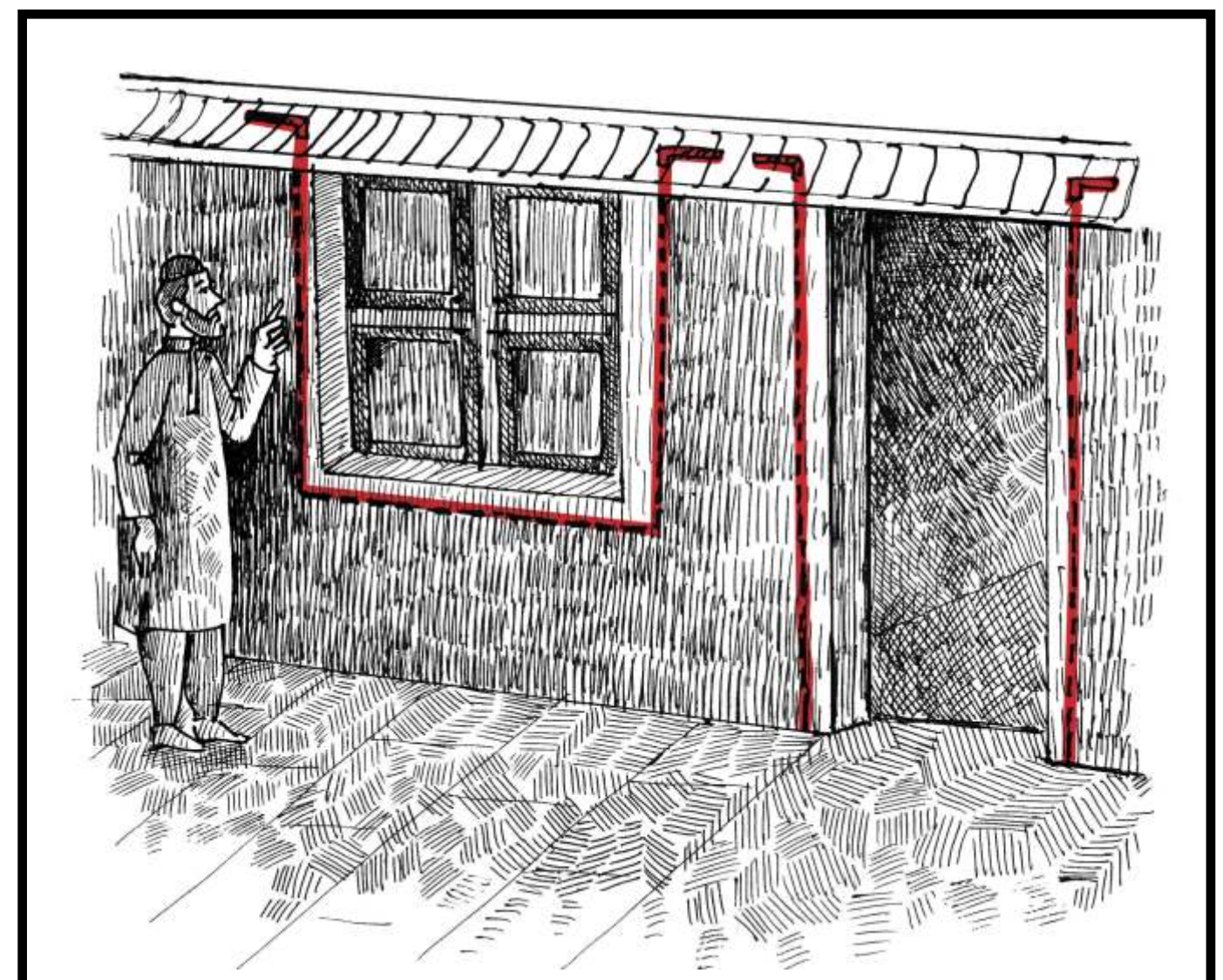
(1) Gap between opening and inside corner to be minimum 450mm (1'-6"), (2) Gap between opening to be minimum 600mm (2'-0"), (3) Total of all opening lengths to be no more than 50% of wall length for single story building and 42% for two story building.

B. Walls with mud mortar

(1) Gap between openings and inside corner to be minimum 600mm (2'-0"), (2) Gap between opening to be minimum 600mm (2'-0"), (3) Total of all opening lengths to be no more than 33% of wall length.

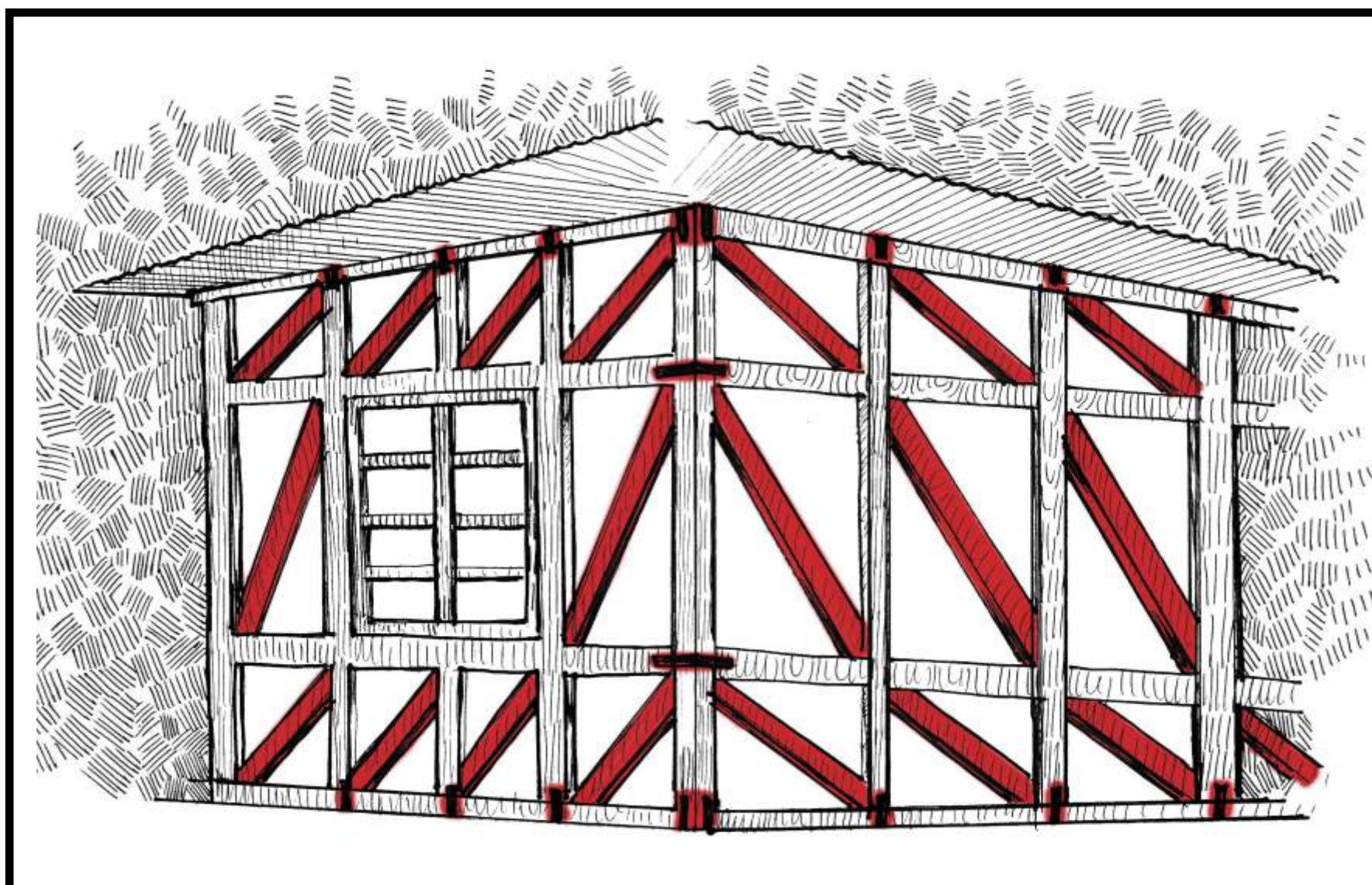
Encasing of Opening:

(1) All openings must have vertical reinforcement next to jambs within the masonry, (2) When the openings are larger they must be boxed in reinforced concrete.



Dhajji Diwari

Earthquake shaking in *Dhajji Diwari* causes breaking of plaster, weakening of timber joints and dislodging of bricks. Such damage can be prevented by **installation of bracings** and by **strengthening timber connections.**



How to install bracings?

(1) At least one diagonal brace must be provided in every 1.6m x 1m area of wall, (2) All horizontal struts must be placed not more than 1m apart.

How to make timber connections?

(1) All strong elements must be connected to each other using metal straps and wire nails.

Build Earthquake Resistant House
Because no one can predict when, where and how big earthquake will strike



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