

# BRINGING LIFE QUALITY TO RESIDENTS FROM ICA

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SBE Senior Capstone

## PROTOTYPE OF A BASIC HOUSE APPLYING PASSIVE ARCHITECTURE

### PROBLEM

What does a basic house with cross-ventilation look like?

Location: Ica, Peru

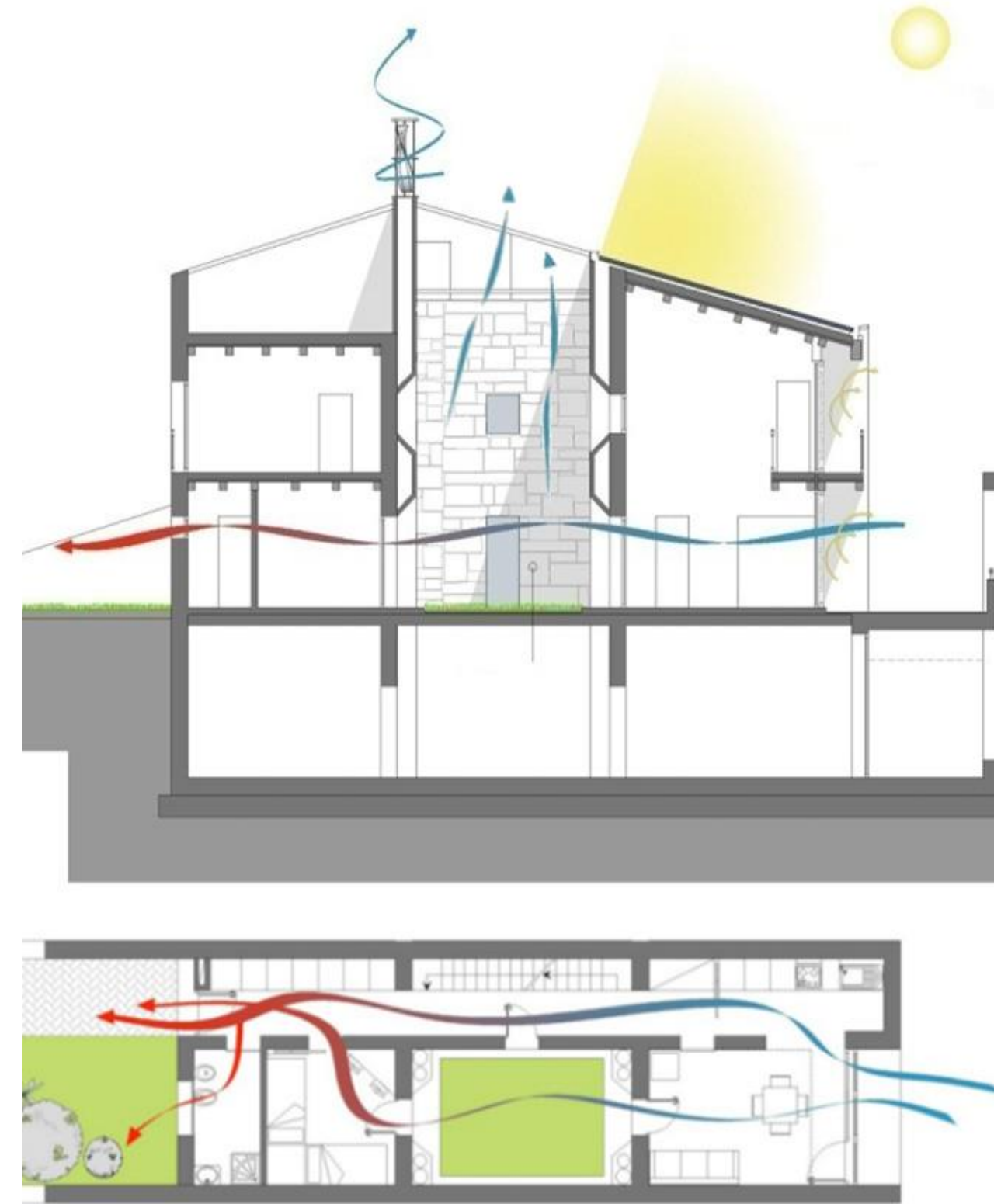
### MAIN PROBLEM IN ICA

- Lack of knowledge in using cross-ventilation and applying it in houses.
- The hot weather can explain part of the underutilization in Ica, which ranges from 18-33 °C
- Limited income of the citizens
- Lack of technology to apply air conditioning

### 3D OF THE HOUSE PROTOTYPE



### CROSS-VENTILATION



Retrieved from ResearchGate

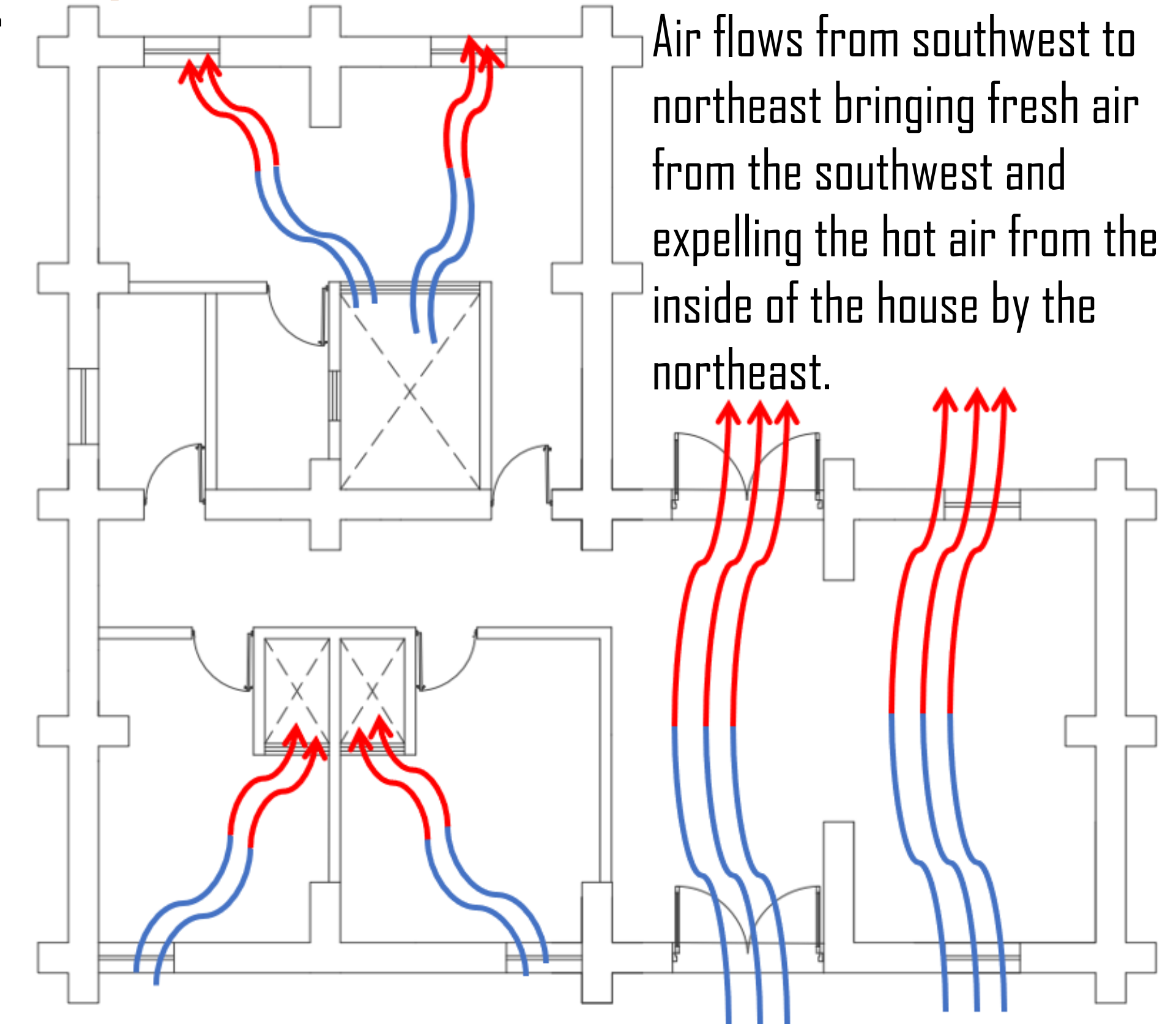
Natural cross-ventilation is where openings in a specific environment or construction are arranged on opposite or adjacent walls, allowing air to enter and exit

#### Recommendations for the design

- Consider the airflow
- Always have one opening for the air to enter and one for the air to exit
- Cross-ventilation must be applied in critical spaces, such as the bedroom, living room, and dining room to give comfort in through the house
- In order to avoid dust from the outside it is important to leave a space for plants in front of the window or opening.

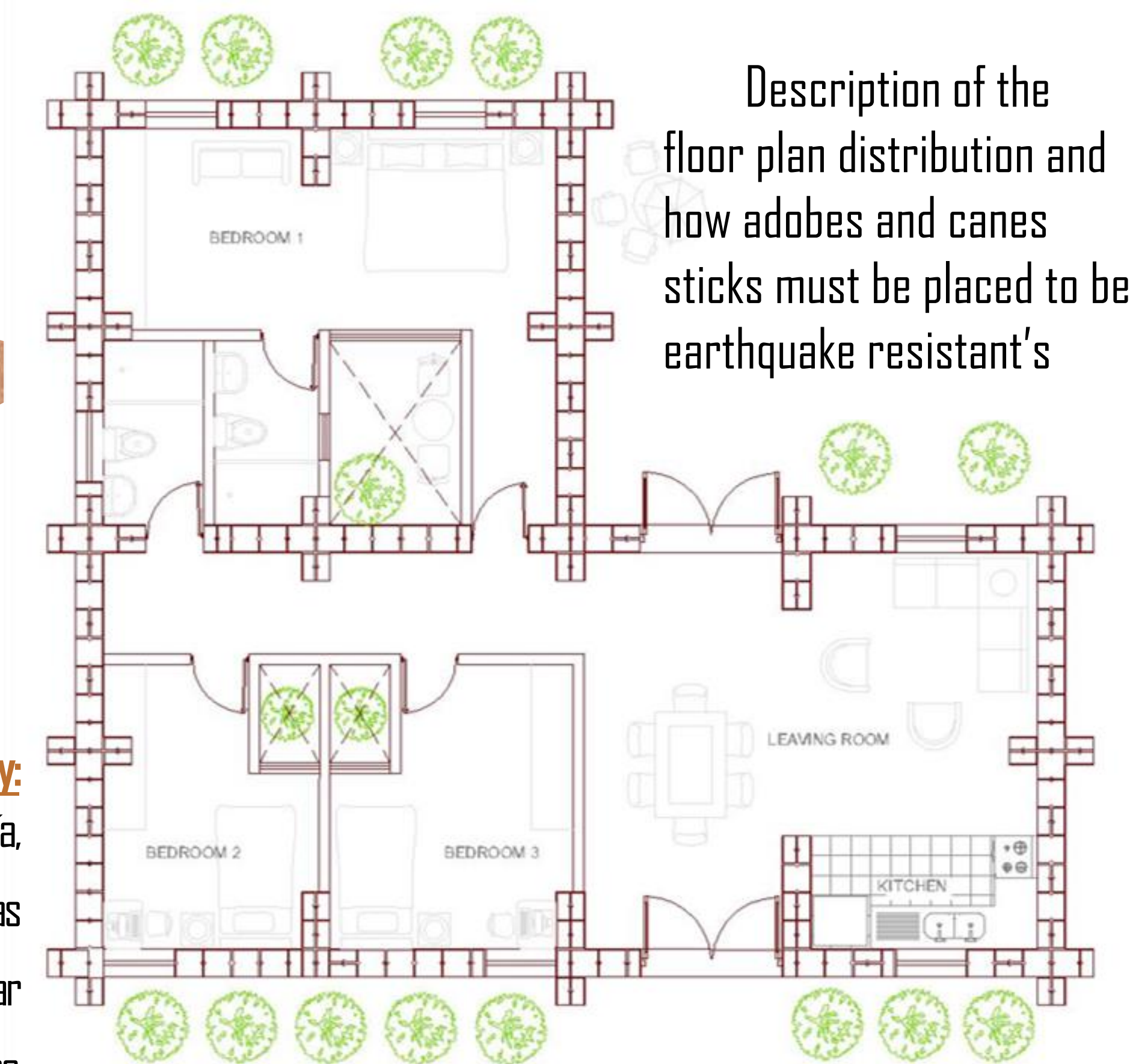
**SOLUTION:** Prototype of a basic house that applies cross ventilation and typical architecture of Ica

### Explanation of cross-ventilation



Air flows from southwest to northeast bringing fresh air from the southwest and expelling the hot air from the inside of the house by the northeast.

### Explanation of adobe and cane sticks colocation



Description of the floor plan distribution and how adobes and canes sticks must be placed to be earthquake resistant's

#### Bibliography:

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