

Indian Vernacular Architecture

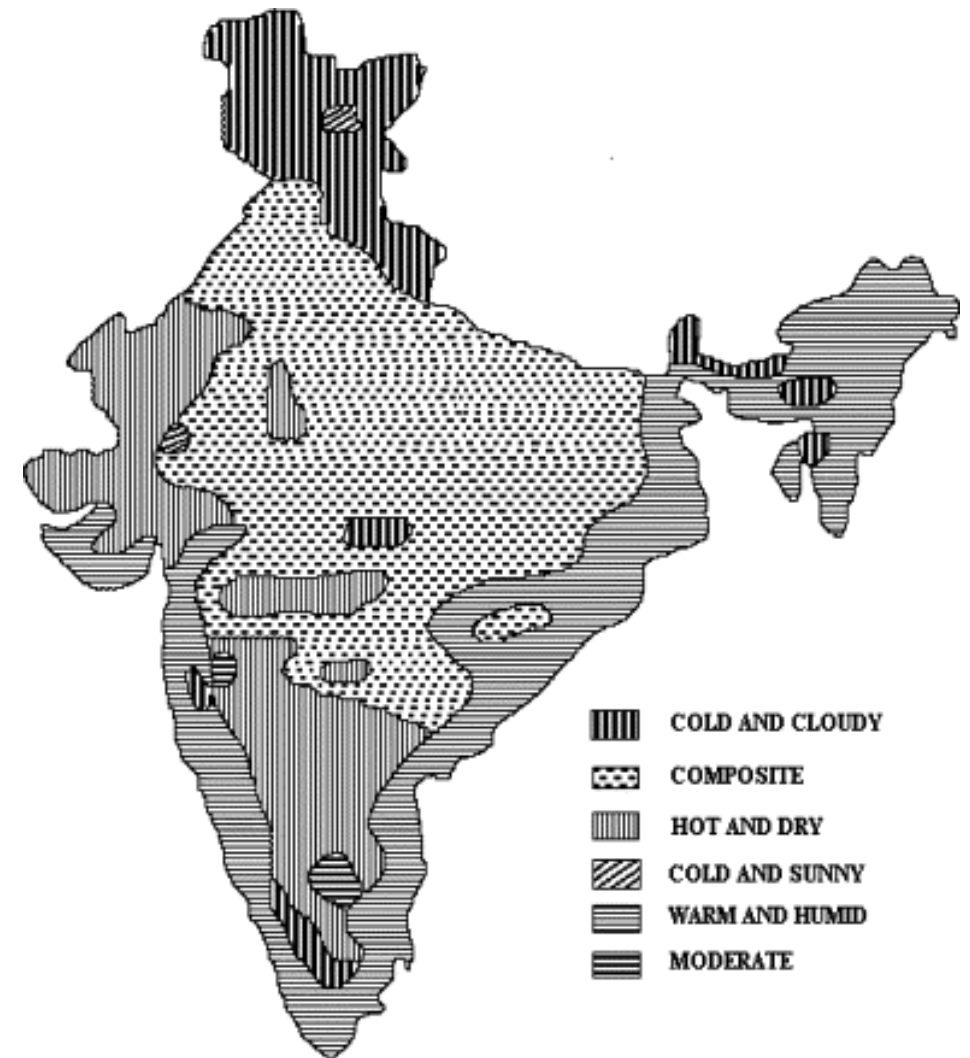
A Case of Vernacular Housing in Kerala

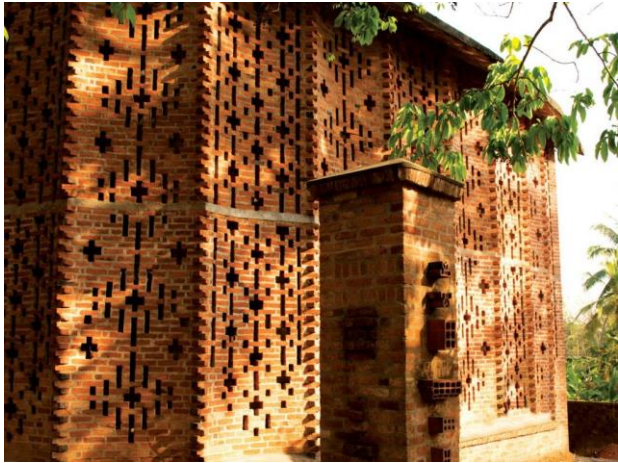
1: Vernacular Architecture in India

- Indian vernacular architecture the informal, functional architecture of structures, often in rural areas of India, built of local materials and designed to meet the needs of the local people.

Importance of Vernacular Architecture:

- Availability of resources
- Availability of skilled labor
- Community skills
- Culture
- Traditional ways
- Beliefs
- Historic significance
- Local techniques & technical skills

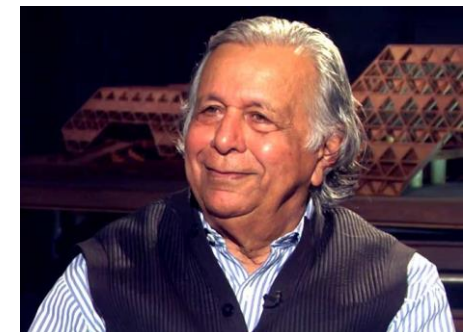




Laurie Baker



Charles Correa



Raj Rewal

North



West



North-East



2: Vernacular Housing in Kerala

Introduction

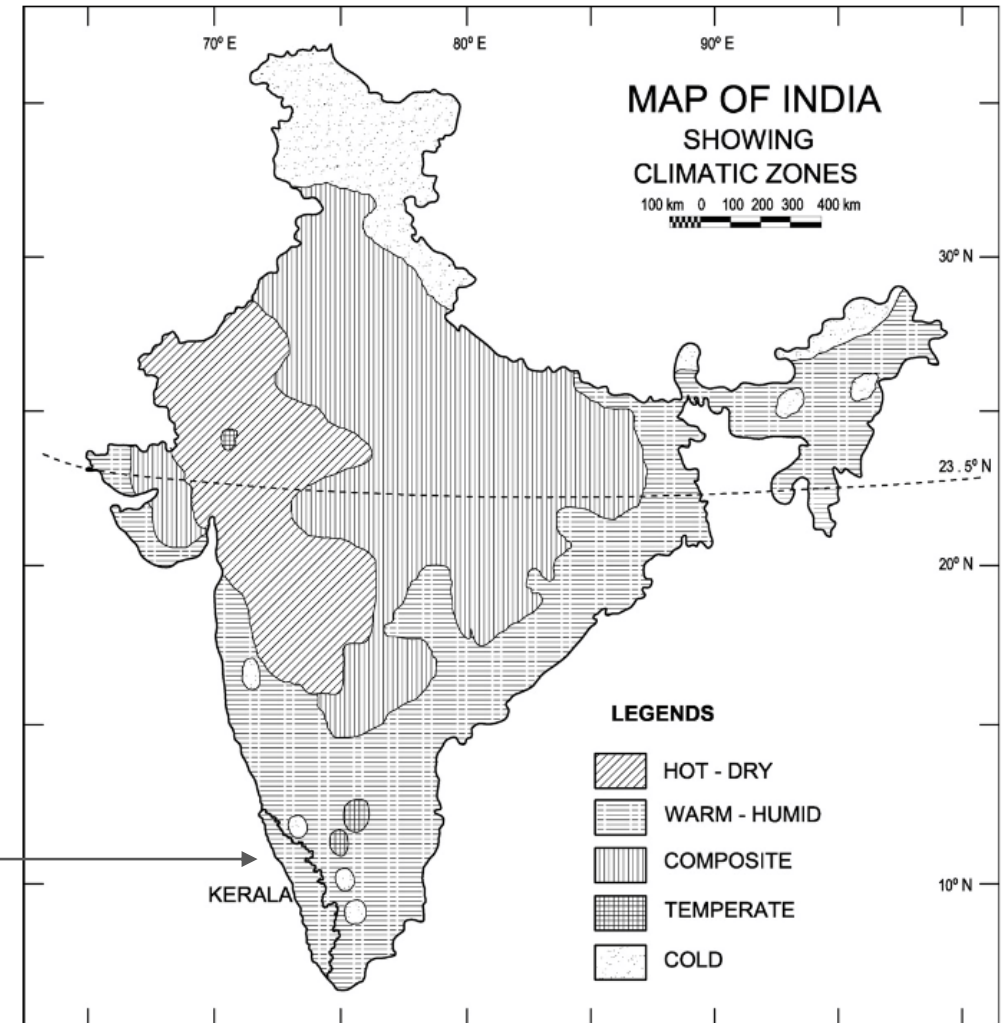
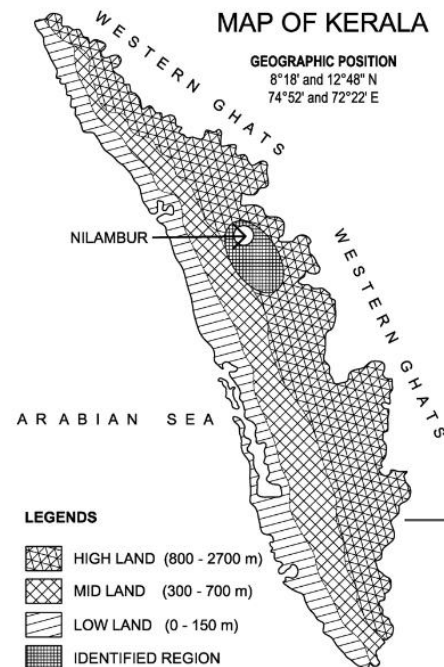
- Indigenous style of architecture - Climatic, geographic and historic factors
- Sustainable residential architecture
- Vernacular with a blend of modern needs



2.1: Vernacular Housing in Kerala

Climate

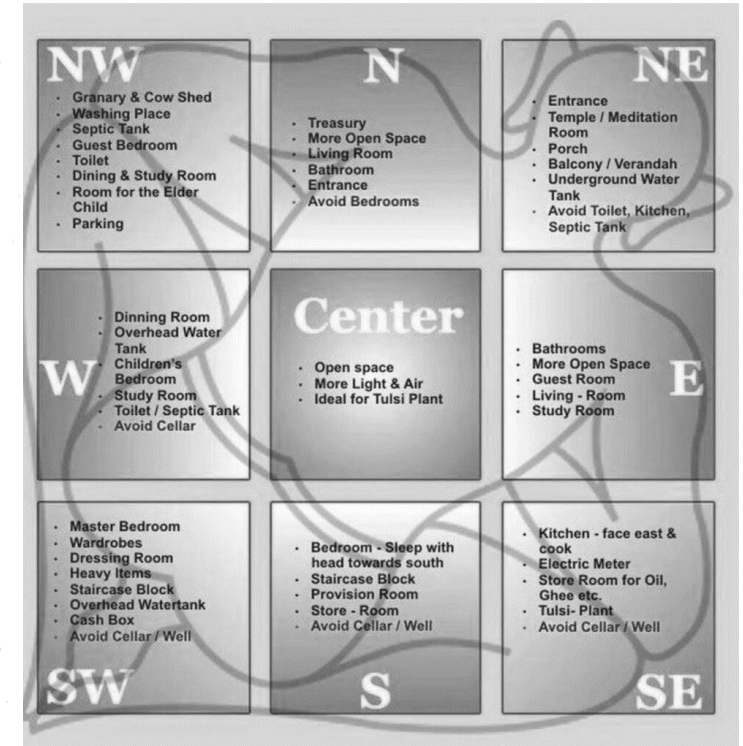
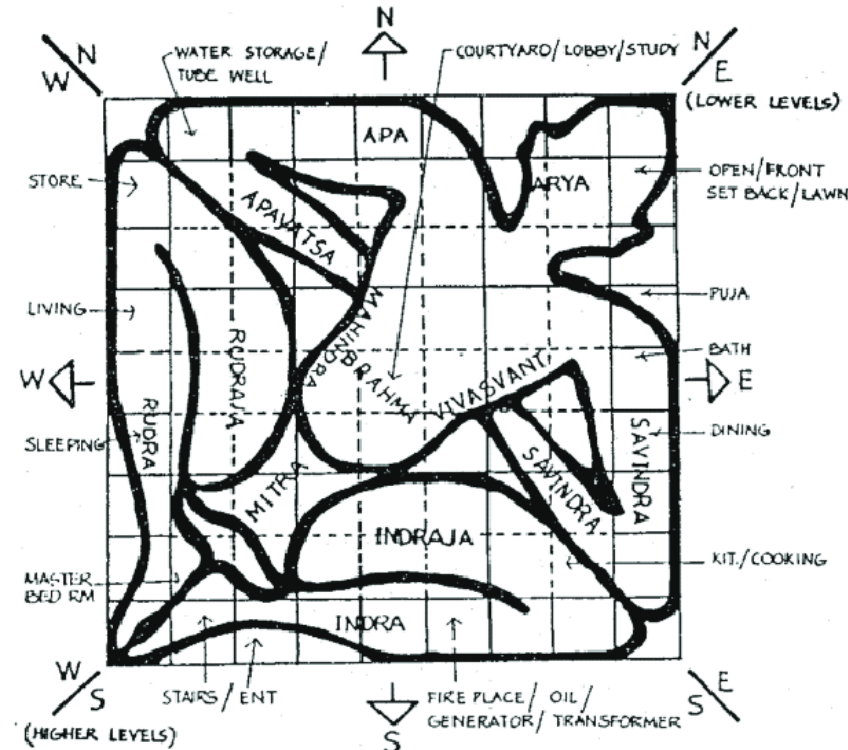
- Uneven terrain
- Wettest climatic conditions – heavy moisture and harsh tropical summers
- Rainy season is almost for half of the year
- South-West monsoon (Edavapathi) – June to August
- North –West Monsoon (Thulavarsham) – October to November
- Temperature varies from 21°C to 33°C



2.2: Vernacular Housing in Kerala

Culture

- Built according to the ***Vaastushastra*** – Indian Discipline of Architecture
- Treat the site and building as complementary
- Based on the regional style
- Highly effective in providing thermal comfort in all distinct seasons
- Cardinal directions as per Vaastu – solar path and shadows
- ***Entrance – South or East***
- ***Spaces used during day – North and South***
- ***Spaces used in the night - west***



- Formation of settlements based on clan-habitations

1) **Nayar –**

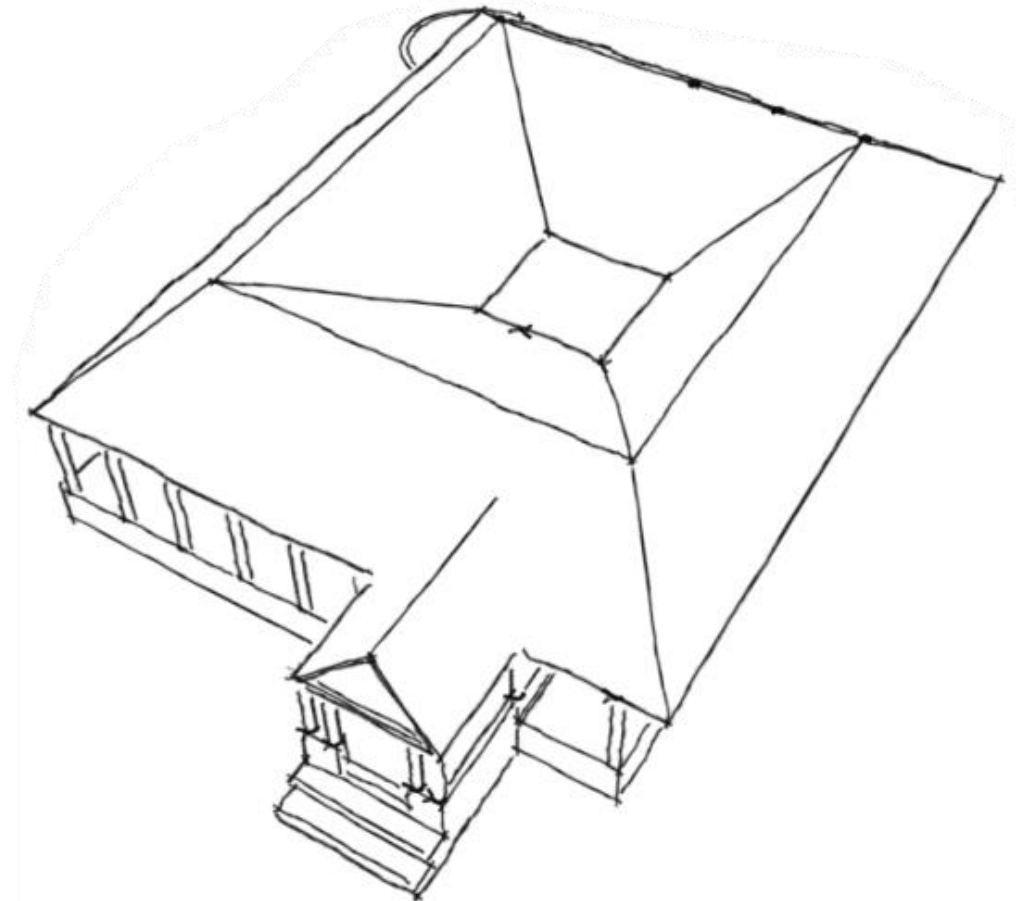
- House compound – **Taravad** (social unit of joint family)
- Spatial arrangement is less connected to Vaastu Shastra

2) **Brahmin community**

- House compound – **Mana or Illam**
- Spatial design based on Hindu culture and regional Vaastu Shastra

3) Rest of the people

- **Veedu**



3: Vernacular Housing in Kerala

Typologies

- Residential architecture of Kerala – functional, cultural and structural

- Types of Veedu:

- Artisans – Kudi
- Temple servants – Variyam
- Pariah – Cheri, Chala

→ Wretched humble house – Ordinary people and tribes

- Nayars – Taravad
- Brahmins – Manna

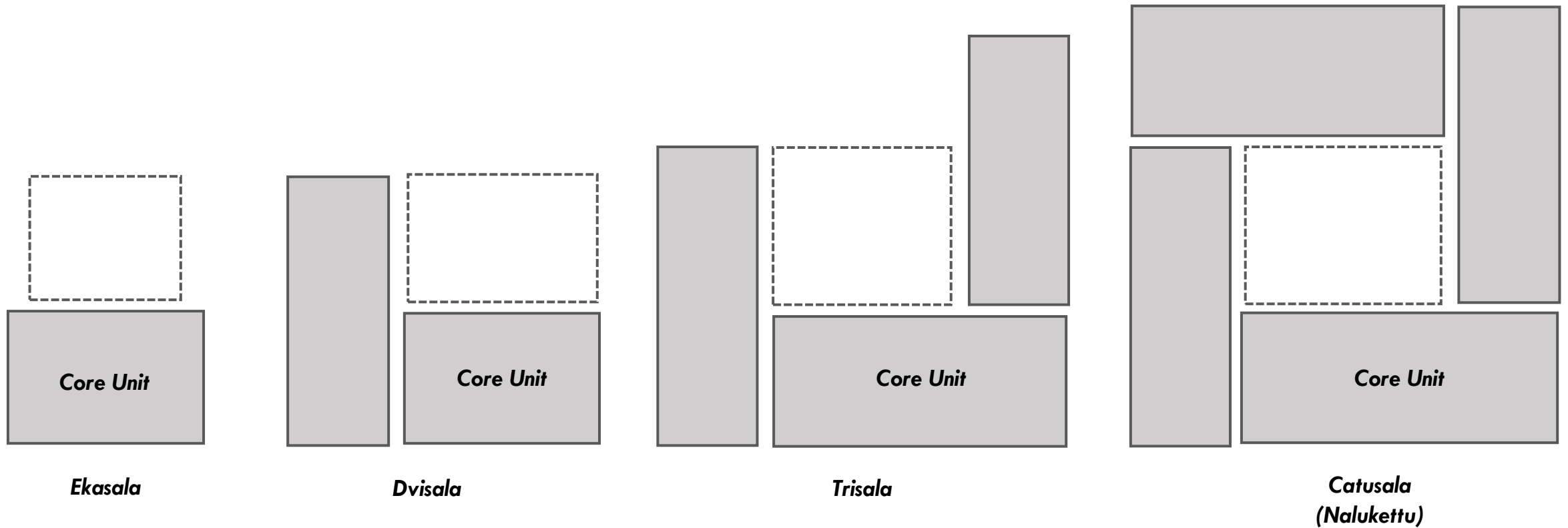
→ Ekasala (I-shaped single regular hall house) – Farmers or Middle-class people
Vernacular Courtyard House (Kutikettu) – Single Courtyard

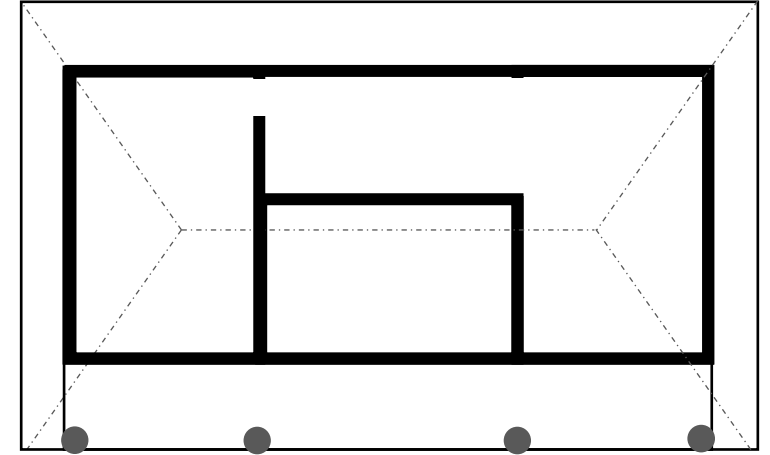
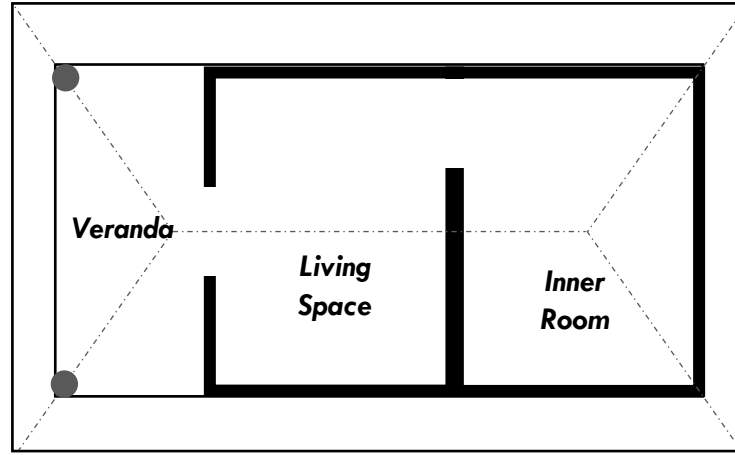
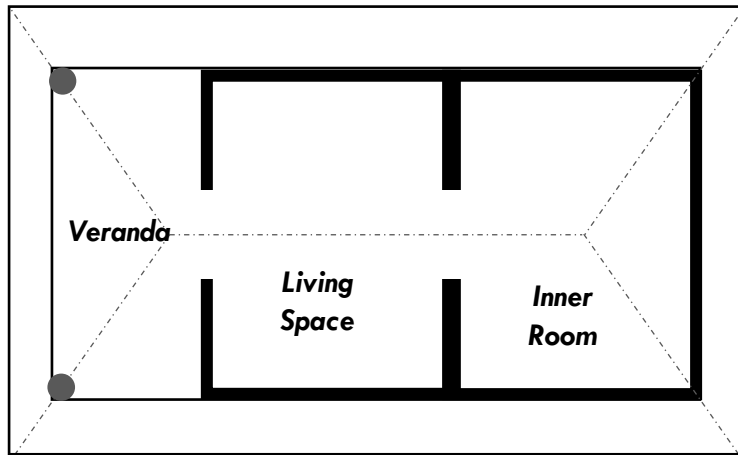
- Royal Family – Kottaram

→ The great mansion (Ettukettu and Patinjarukettu) – rich landlords

3.2: Veedu Evolution

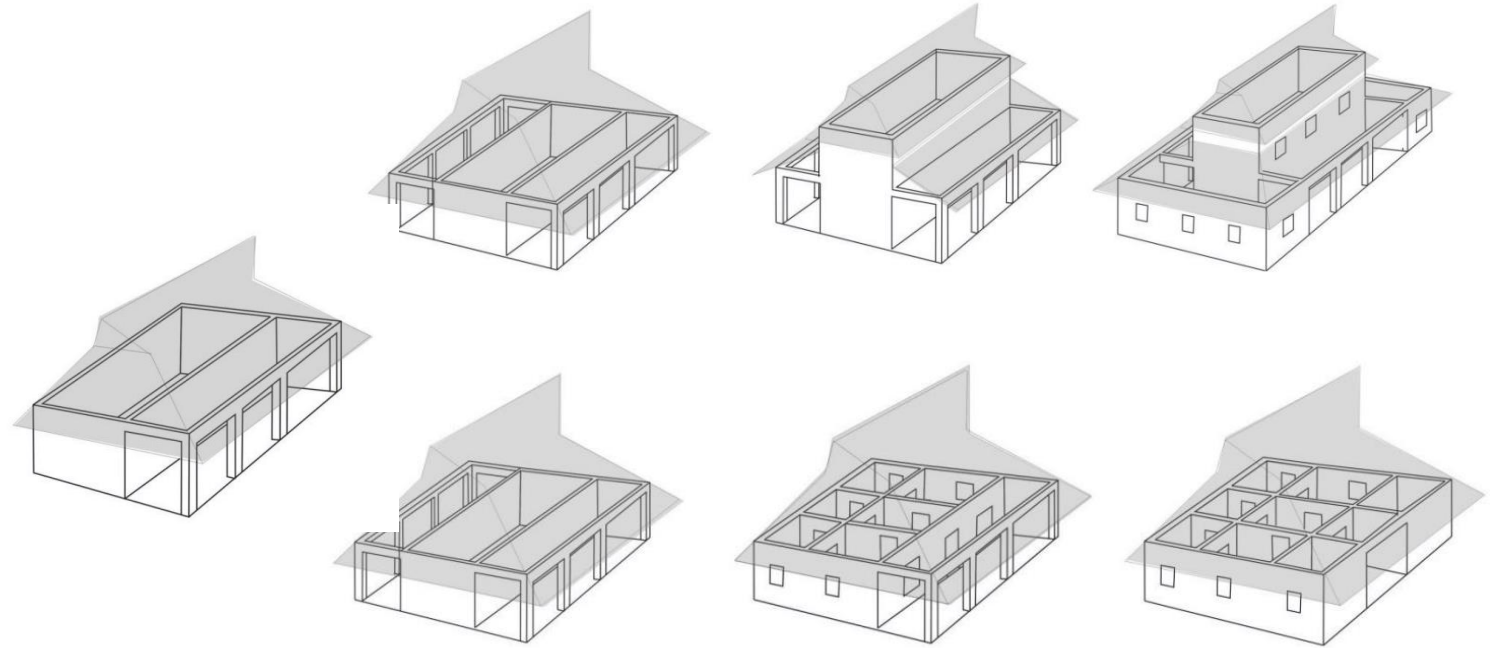
- Classical Indian architecture – concentric arrangement of buildings – **Sala (hall)**





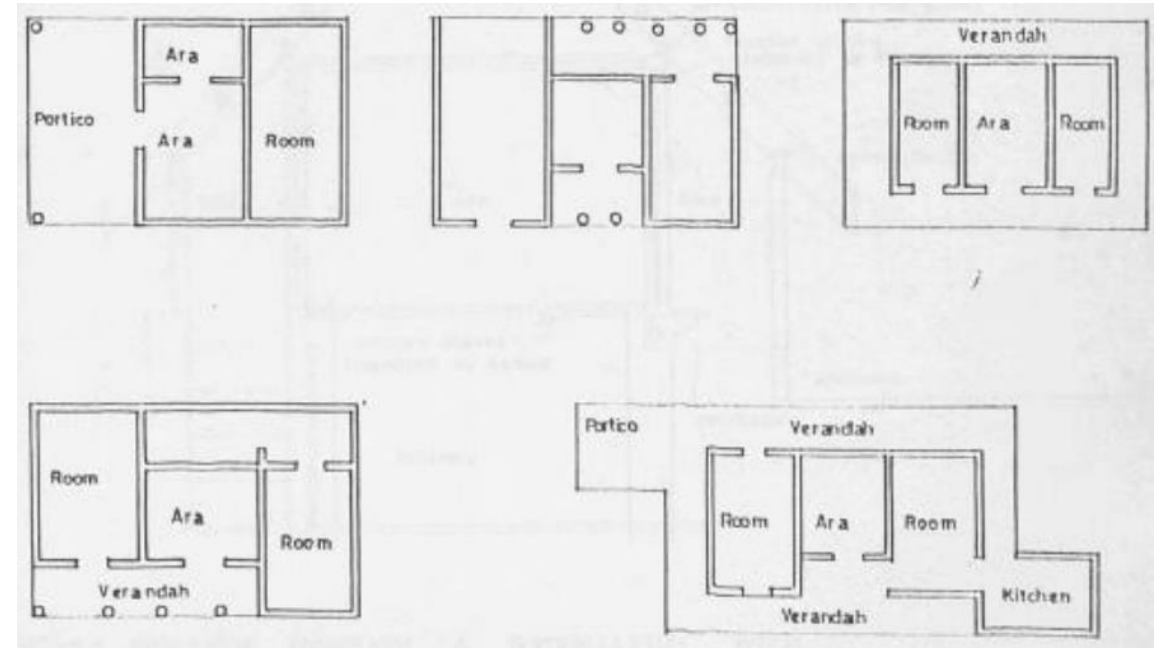
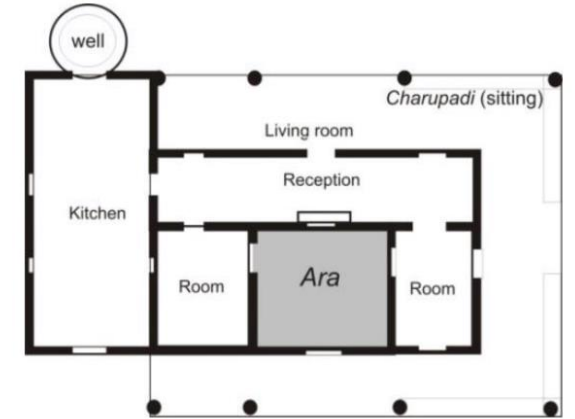
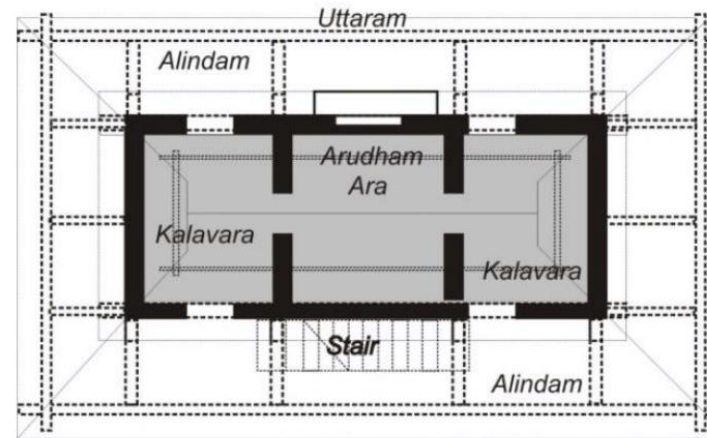
3.2: Ekasala - Rectangular Single Hall Building (I-Shape type)

- Rectangular hall type shelter
- Modified by repetition, extension, expansion or structural addition
- Wattle and daub construction in primitive shelter
- Horizontal annular beams, raised floor
- Compartmented into inner and front spaces
- Porch and sitting platform
- Significance of spatial openness, modifiable for various functions



3.2: Ekasala + Ara

- Agricultural living culture
- Kalavara – rectangular hall – functions as a dwelling space
- **Ara**
 - Granary/ Storage/ Treasury
 - Front door – domestic use and rituals
 - Back doors for circulating the grains
 - Semi-basement storage room called **Nilavara**
- Alindam – horizontal beam frame to create a veranda or porch (**Tazhavaram**)

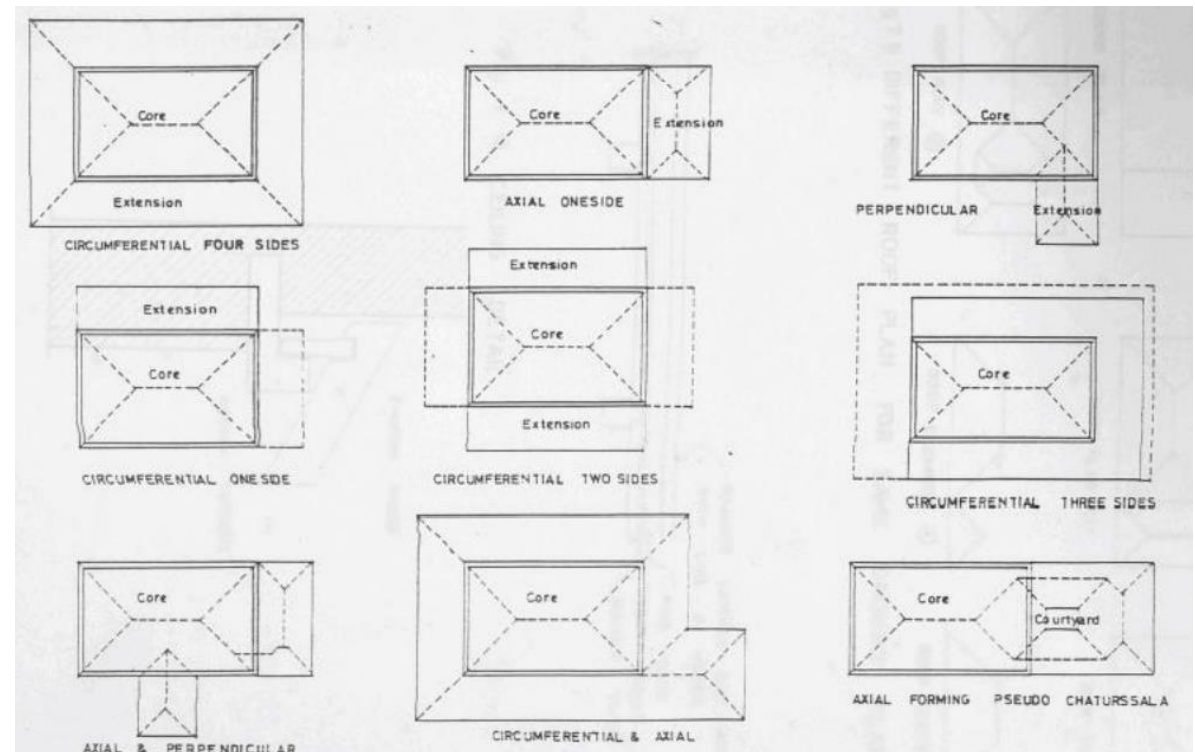
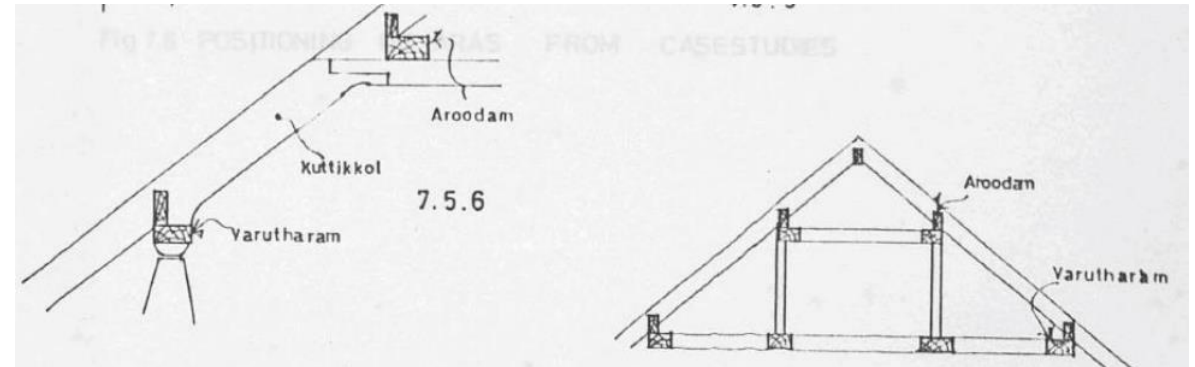
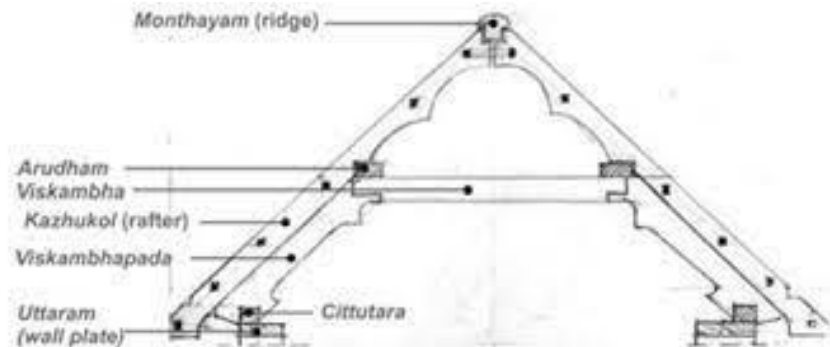


3.2: Ekasala + Ara

- Roof structures
- Three-dimensional space frames

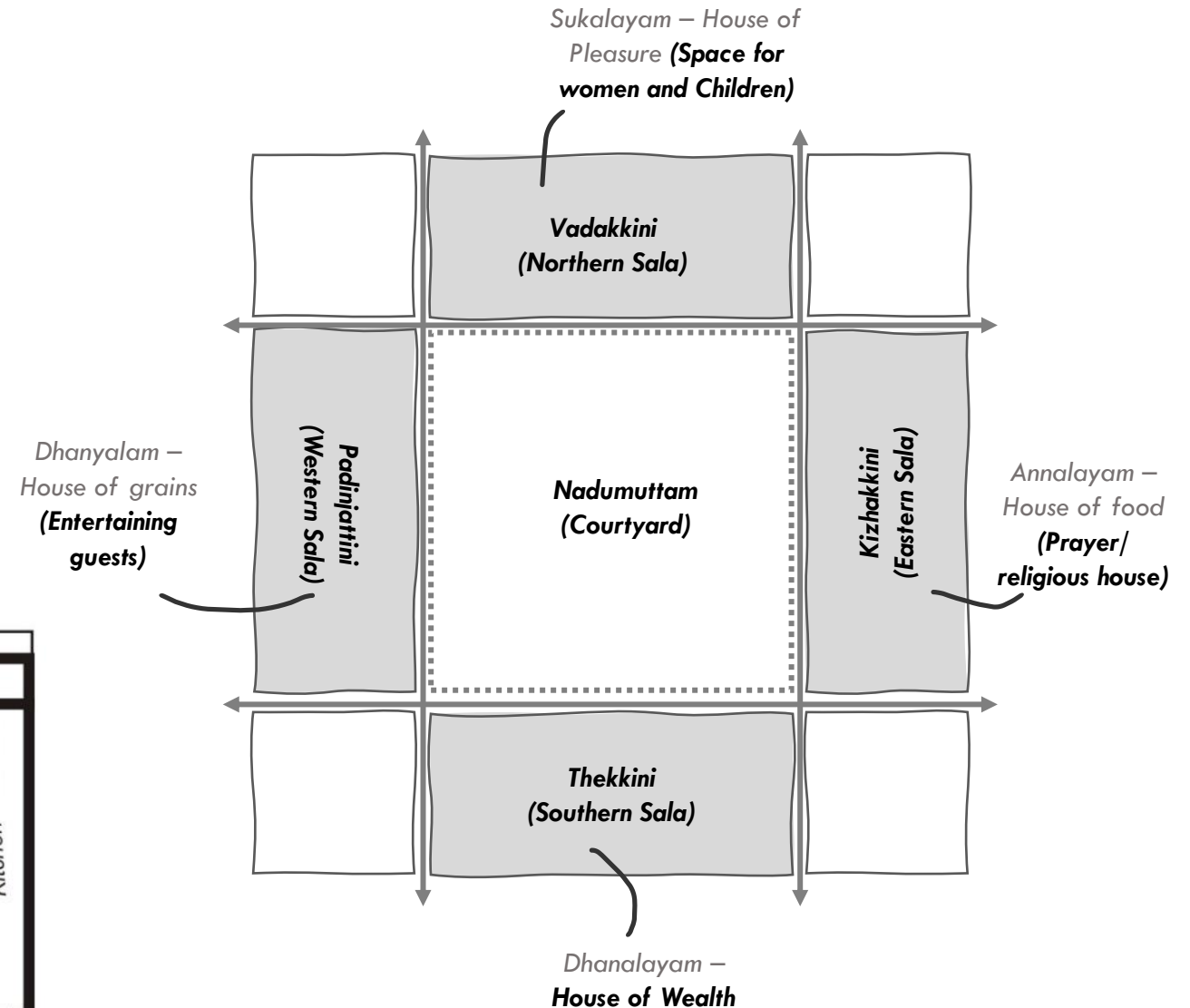
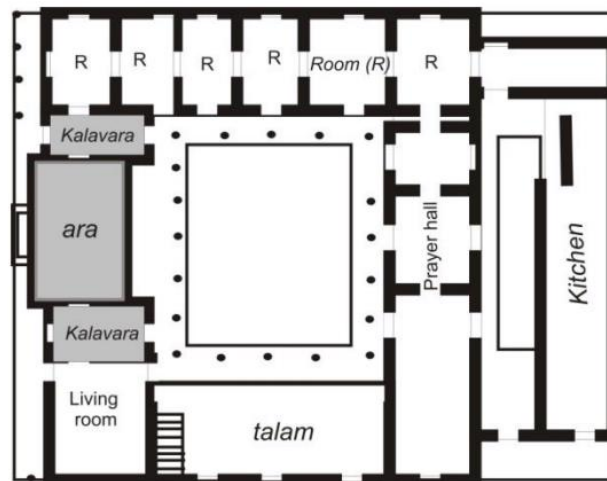
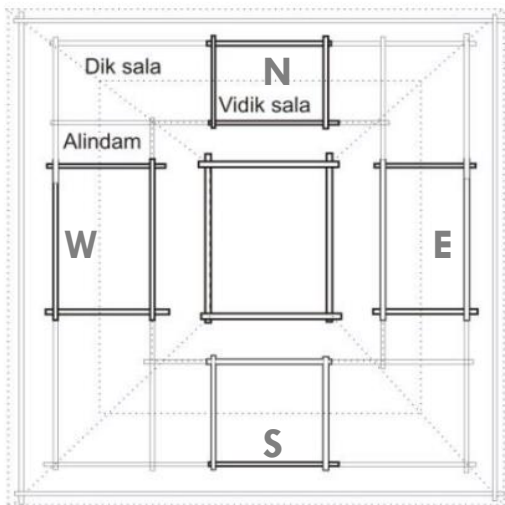
Structural elements

- **Kazhukol** (Rafters) resting on an **Uttaram** (Wall Plate)
- Pairs of **Kazhukol** meet on **Montayam** (Ridge) to make a hipped roof
- Gothic architecture style – Wooden Struss



3.3: Nalukettu - Traditional Courtyard Style

- **Nalu** – Four, **Kettu** – Hall
- Four encircling halls
- **Vidik Sala** – rectangular hall
- **Dik Sala** – Intermediary structure
- Courtyard – drying rice, planting sacred plant (tulasi tara), children play area, sitting space



3.3: Nalukettu - Traditional Courtyard Style

- Materials of construction

Laterite:

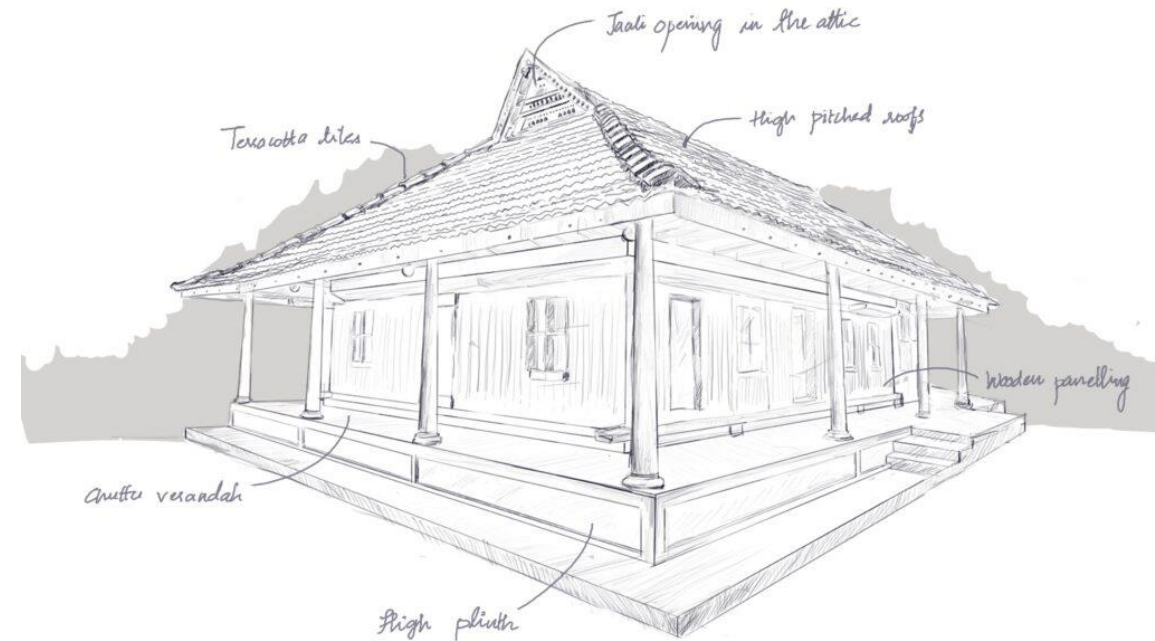
- Easily cut and used as building blocks
- Bonded with lime mortar
- Lime mortar strength is improved by addition of vegetable juices
- Exterior is plastered with lime mortar

Wood:

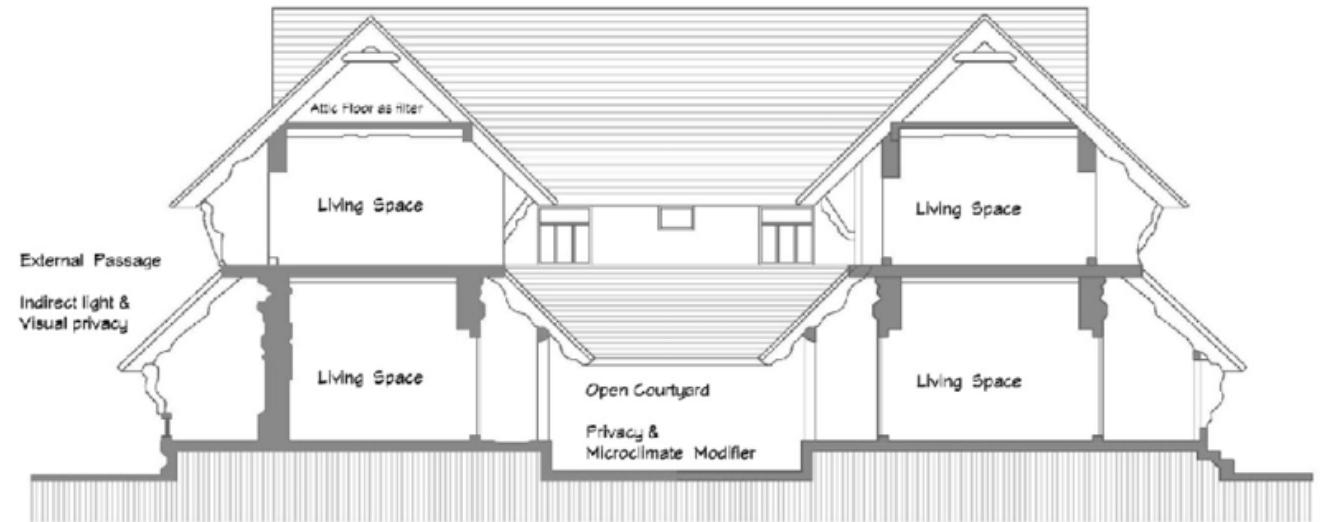
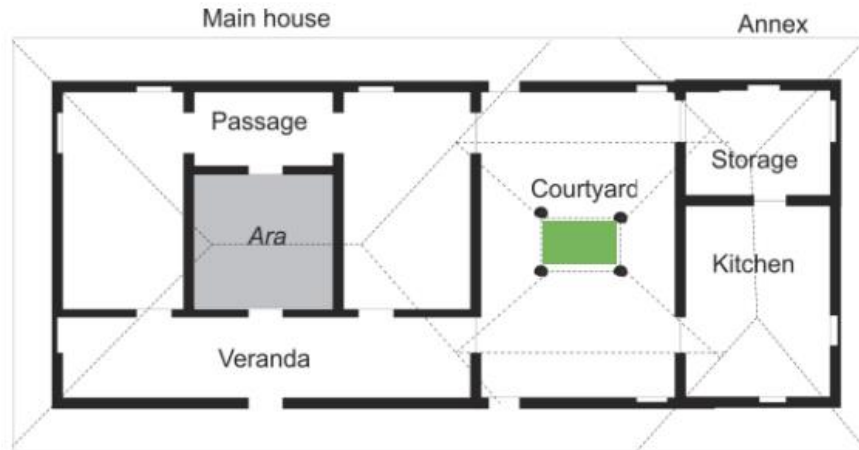
- Bamboo/ teak
- Used for columns, walls and roof frames

Mud:

- Walling, bricks, clay tiles
- Mud mortar is used as filler for timber floors
- Coconut leaves and palm leaves
- Thatching roofs and protecting walls



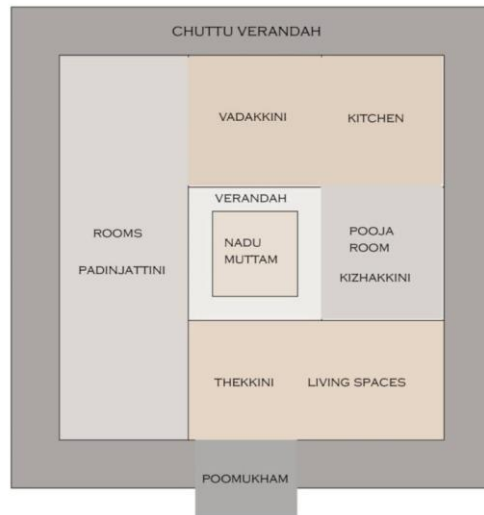
3.3: Nalukettu - Vernacular Courtyard Style



3.3: Nalukettu - Architectural Elements

Padipurra:

- Structure containing a door
- Forms a part of the outer compound wall
- Tiled roof
- Main entrance of the house
- Traditional lamp - lighting



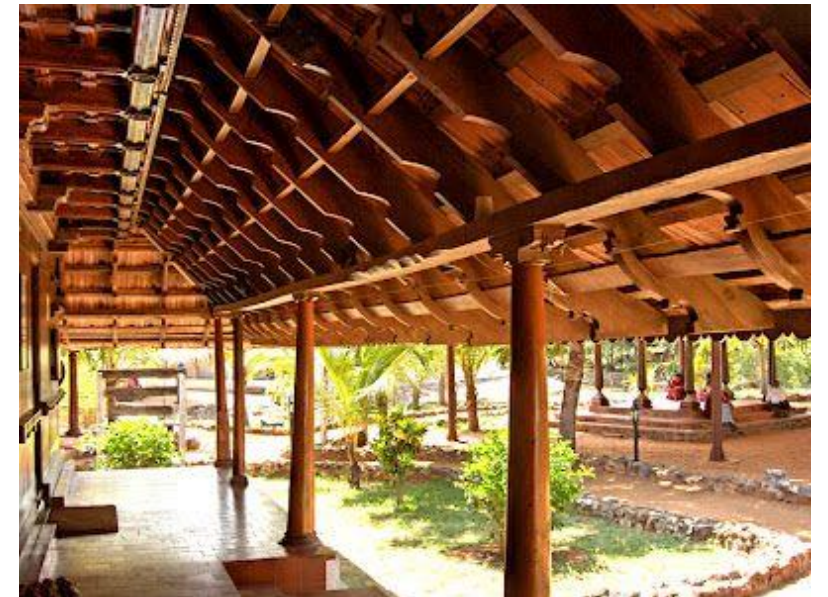
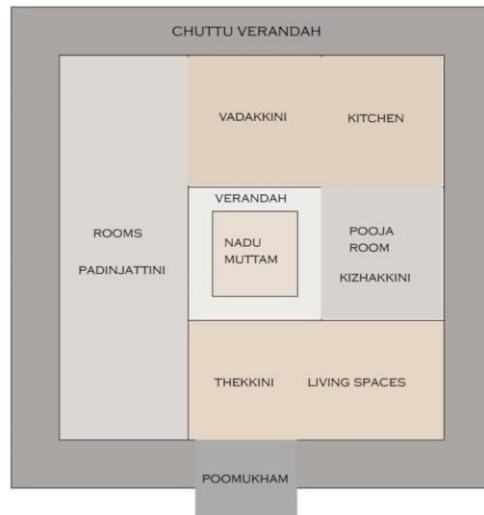
3.3: Nalukettu - Architectural Elements

Poomukham:

- Veranda
- The extended overhanging eaves protect the building from rain and sun
- Provide a sitting area - Functional space
- Earlier only used by the head of the family

Chuttu Verandah and Charupady (Railing)

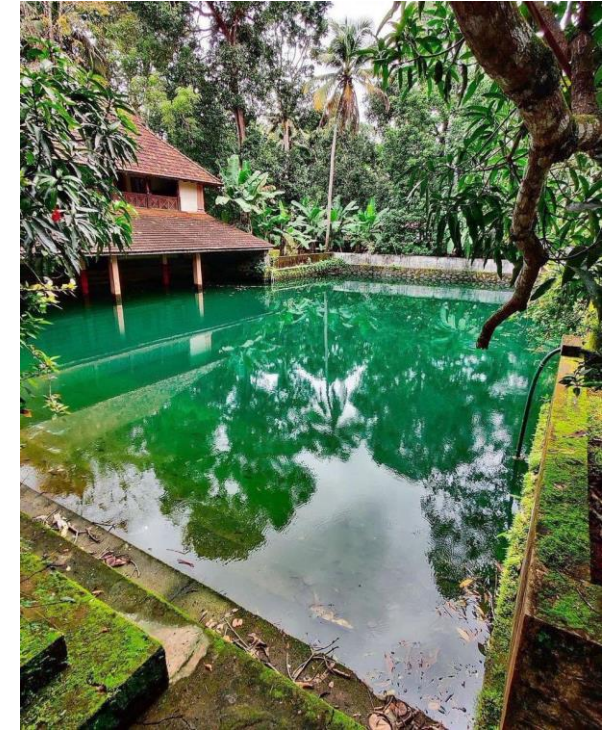
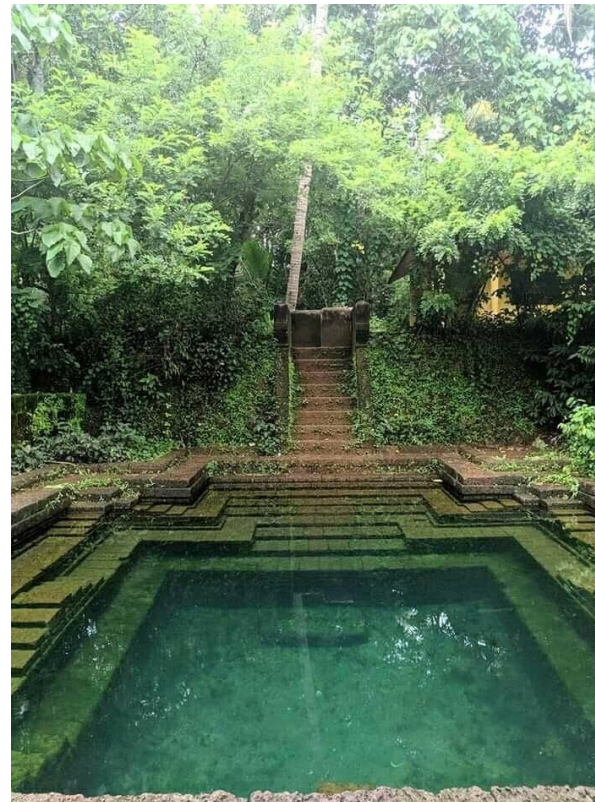
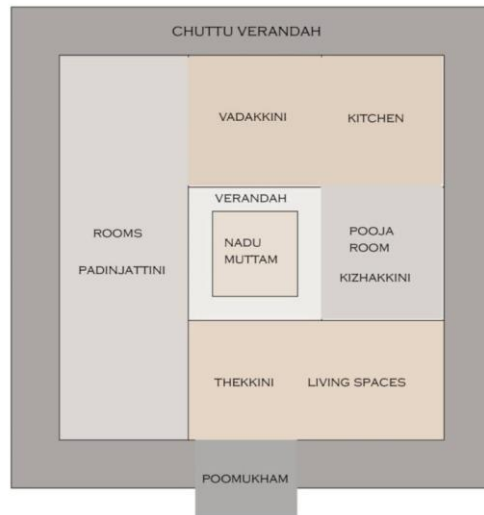
- Space along the edges of the house
- Covered with a sloped roof



3.3: Nalukettu - Architectural Elements

Ambal Kalam (Pond)

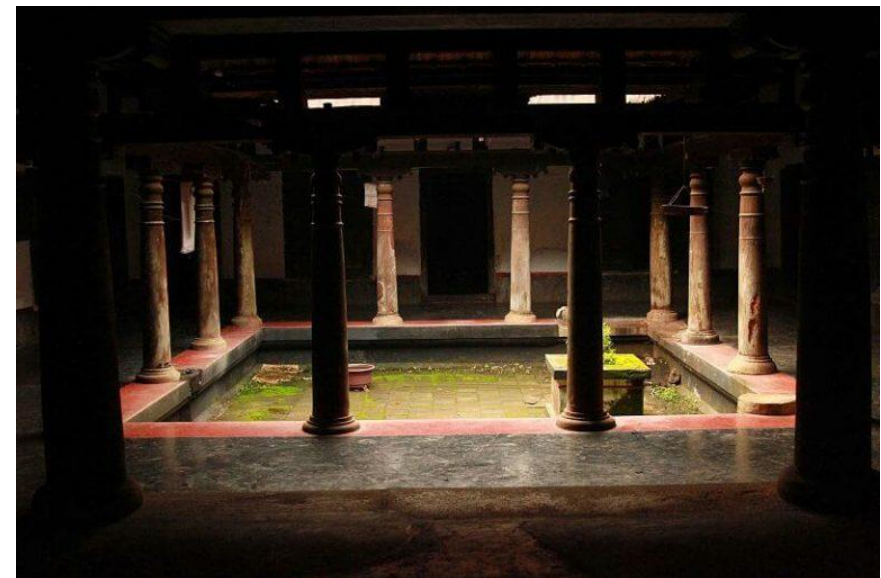
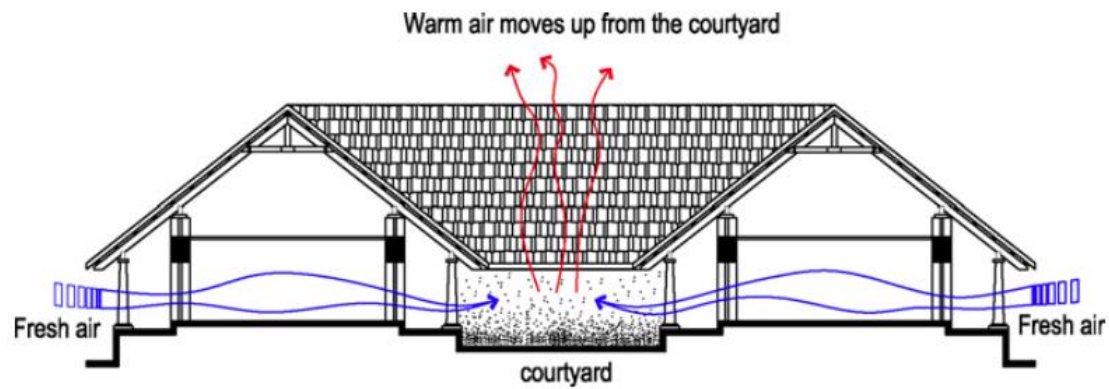
- Exists in two forms:
 - 1) At the end of the Chuttu Verandah – Lotus pond
 - 2) 2) Backside of the house
- Large enclosed pond where members of the family and visitors can bat



3.3: Nalukettu - Architectural Elements

Nadumuttam

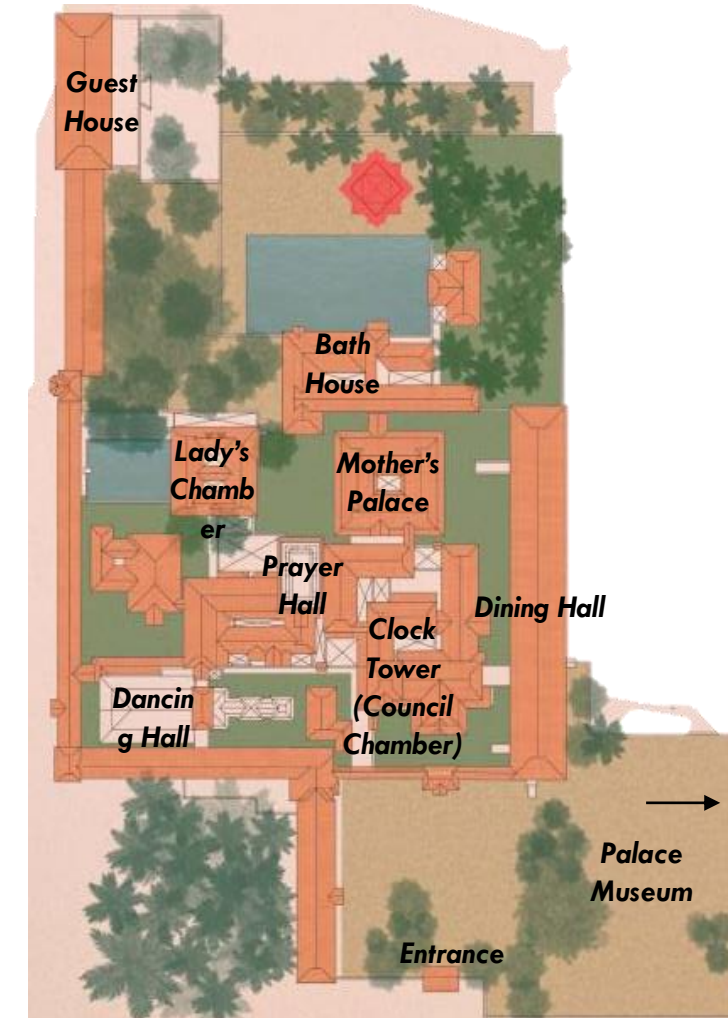
- Central Courtyard
- Enclosed – sunken or low level
- Open to sky
- Protects the rooms from direct sunlight and keeps them cool



1: Padmanabhapuram Palace

Building Volume | Zoning

- Composed of many buildings from different periods
- Mother's palace (Thai Kottaram) is the oldest building
- Mantrashala (Council Chamber) were added later

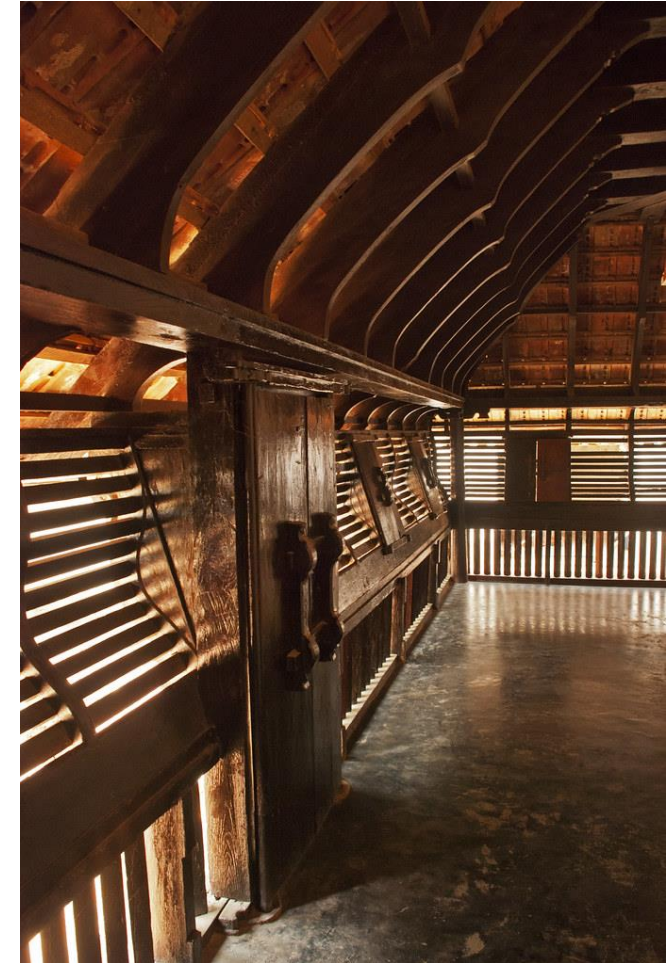




1: Padmanabhapuram Palace

Building Shell | Shadow & Ventilation

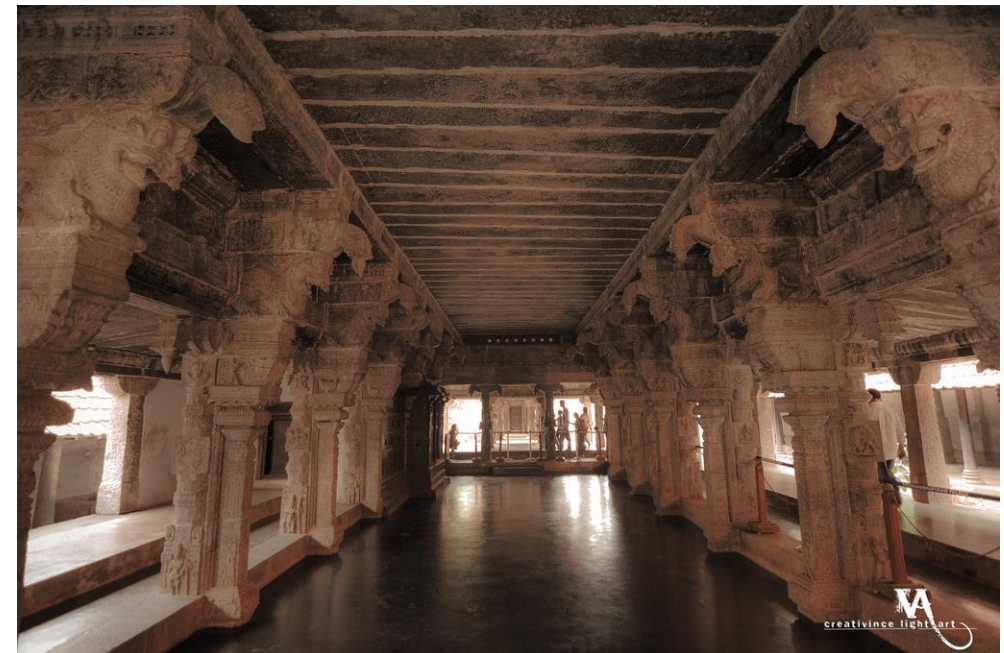
- Wooden screens supported by the roof ridges – *Jaali*
- Filter light inside and allow air flow
- Provide privacy
- Small windows – sliding shutters



1: Padmanabhapuram Palace

Material | Construction

- Wood, lime plaster and different bricks and stones
- Timber – construction of walls, roof frame, beams, pillars
- Walls – laterite, granite/ brick combination,
- Wall coating – lime plaster
- Floor – lime mixed with herbs



1: Padmanabhapuram Palace

Microclimate

- Wide hallways
- Many external and internal courtyards
- Two ponds



Thank you
