Climate-Sensitive Vernacular Architecture

“Vernacular architecture does not go through fashion cycles. It is nearly immutable, indeed, un-improvable, since it serves its function to perfection…”
—Bernard Rudofsky, Architecture w/o Architects, MOMA 1964

…vernacular [architecture] could best be studied from a specific point of view, raising specific questions about topics or themes, rather than chronologically, the way traditional architectural history is studied.
—Amos Rapoport

…so the theme here is climate-response

Hot Arid

Typified by:
• Very hot daytime
• Sunny sky
• Clear nights
• Large diurnal temperature swing

Architectural response: minimize/control building exposure to sun, wind, and light; use site scale shading, evaporative cooling, high mass, and migration
Narrow streets
Shared walls
Courtyards

Timbuktu
Cazoria, Spain

Timbuktu
Santa Fe
Navarra, Spain
Courtyard

Café
Place de Vosges, Paris

Africa
San Antonio
Najing
Phoenix

Wind Catchers
BedZED
Portcullis House
Jubilee Campus, UNottinham

Mashrabiyya
San Cristobal, Mexico
Luis Barragan
Alhambra

Figure 11. Window-mounted cooling unit in Muscat, Oman, Persian Gulf (Exum et al., 1979)

Ministry of Foreign Affairs
Riyadh, Saudi Arabia
Henning Larson
Seville, Spain

South Africa

Hot Humid

Typified by:
- 90-90 days
- Cloudy sky
- Warm nights
- Small diurnal temperature swing

Architectural response: maximize building exposure to wind, shade heavily, large windows for light and ventilation cooling, low mass buildings
Wide streets
No shared walls

Portable roof, Guinea
Dwellings, Panama

Woven House, Congo
Meeting House, Tahiti
Cold

Typified by:
• Extreme cold
• Bitter wind
• Mix of clear/cloudy days
• Small diurnal temperature swing

Architectural response: minimize exposure to elements, small windows, compact building form, high mass central hearth
Alpine House

Prehistoric huts
Gruyeres
13th century castle

St. Ursanne
Medieval town
Stein am Rhein
Medieval city
Temperate

Typified by:
• Change, annual/diurnal
• Elements of HA/HH/Cold
• Seasonal weather

Architectural response: dynamic forms that respond to change, use of solar geometry, migration

Mix of strategies
• Shared walls
• Courtyards
• Trees
• Open space

Japanese village
Tipi

Hogan

Old Shoin, Katsura Palace, Japan
Owens Valley
Piute migration patterns

Lindstrom House
Bainbridge Island
1979
Morgan & Lindstrom