

## C10. OPEN SESSION: VERNACULAR DWELLINGS

### **Sumu-Mayangna vernacular housing in Nicaragua. Evolution and sustainability**

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#### **Abstract**

The research focuses on the study of the influence of historical and social events on the Mayangna traditional dwelling. A bioclimatic analysis, as well as a comparison of the level of thermal comfort of four different dwelling models of each relevant stage of Mayangna history is performed.

The Mayangna understanding of nature was the basis for a housing system based on meeting their basic needs. They created a modular, socially and ecologically sustainable system based on their way of life and the "biribiri" system (taking care of each other).

In its evolution, housing has ceased to be a response to the analysis of the context to become an imitation of *mestizo* housing, constructions with industrial influences, from its furnishing to construction materials. After the Sandinista revolution (1979-1989), housing retained its form, but its materials were no longer the *suita* roof or bamboo walls. Now, especially in the towns closest to *mestizo* cities, most of them are built with wooden plank partitions and zinc roofing.

Mayangna life is currently the consequence of local political interests, western influences, globalization, and loss of traditions. However, climate change is currently their biggest problem. With the advance of agricultural exploitation, the Mayangnas are losing their territory and their resources, from the basics such as food to construction materials. With the extinction of their territories, an ethnic group with millenary knowledge, with a deep respect for nature and for the others, the Mayangna ethnic group may become extinct.

The research analyzes the four main historical periods in the evolution of this civilization: (a) their arrival in Nicaraguan territory (ca. 2000 b.c.), (b) the Spanish colonization and the impact of foreign cultures (from 15th century), (c) the Sandinista revolution (1979-1989), and finally (d) the present day with the influences of modern neoliberal models (1989 onward). The interrelation between their cosmogonic view, the environment, political-social events and the transformations of their homes was analyzed at each phase, creating a typological model for the period. A comparative study of the thermal behavior between these housing models, each one related to the aforementioned periods, is carried out. The models were developed on the basis of bibliographic descriptions and field surveys. The analysis considers aspects related to thermal behavior and humidity with the support of dedicated software. With the bioclimatic analysis of the housing models, it is possible to observe an important reduction in the level of thermal comfort of these constructions over time, with the worst results during the Sandinista revolution. Housing has ceased to be a response to the analysis of the context to be an imitation of *mestizo* housing, a type of construction with industrial influences, from the materials and construction systems to its furnishings. The utilization of modern industrialized materials not only leads to the erosion of cultural traditions but also directly and indirectly impacts the transformation of people's way of life.