PARTICIPATORY ARCHITECTURE

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ARC 500
Professor Anklesaria
Khalili adapted a NASA competition entry to design a system for the construction of temporary, earth single-family residential units for refugees from the Persian Gulf War. Sand-filled tubes are stacked to create a dome and are fastened with barbed wire and finished with earth. Refugees take part in the construction of the domes under the supervision of an architect.

The firm designed a modular system using shipping pallets to create temporary residences in disaster situations, where pallets are readily available due to the high amount of aid. The system can be implemented by the future occupants of the units and can be insulated with local materials such as rubble, straw or earth.
The Open City is conceived of as an inter-disciplinary learning environment that takes advantage of the local natural context to generate form. Students design and build the campus facilities and there is not a formal classroom environment in many cases. The school favors open discussion and embraces the poetic qualities of architecture.

This housing project was designed to shelter 100 families legally on the same site which previously held that many illegally. The design was such that a bare bones structure was to be created and then filled in by those who call it home however the see fit.
RECYCLED HOUSING
Scale: Single-family housing
Participation: Community members employ design suggestions according to available resources and need
Location: U.S./Mexico border
Architect: Teddy Cruz
Materials: Wood pallets, tin, recycled tires

Teddy Cruz developed a system by which shelters can be added to or totally comprised of recycled materials which are abundant due to the United States’ use of the U.S./Mexican border as a dumping ground for waste, specifically tires. The aggregation of these materials can serve as the basis for extended plots of land, in some ways similar to the treatment of landfill in the barrios of Caracas.

CASA FAMILIAR
Scale: Block containing residences, community spaces and small-scale economic enterprises
Participation: Community members facilitate the growth of each parcel through increased political engagement through a linked NGO. The NGO is responsible for the phased development of the lot.
Location: San Ysidro, CA
Architect: Teddy Cruz
Materials: Varied

Casa Familiar is a community-based NGO that strives to promote civic engagement and economic growth through the treatment of single parcels of land as pieces of infrastructural and economic work. The land is subdivided to facilitate a multitude of program and circulation to allow for the construction of tight-knit communities and economic enterprises.
Construction-grade straw bale blocks serve as the main structure and insulator in an adaptable system that is finally plastered with adobe. Intending specifically for use on Native American reservations, the system can be constructed by the community and in some instances, homes were designed and constructed without the aid of an architect.

The book outlines basic methods for sustainable design using local materials and labor, explaining labor processes and basic design principles. The book outlines general strategies for home construction, energy production, efficient energy use, community planning and building structure.
The design features three modular concrete frames to be deployed by the community in cases of empty lots or when buildings were in need of improvement. The modular units are left deliberately open for modification by the residents themselves.

Kere's design dismissed conventional concrete construction and favored natural mud brick to improve energy efficiency, respond to local context and avoid the waste associated with concrete production. To offset the potential dangers of the rainy season to mud brick construction, Kere covered the project in a large tin roof to cover the building from rain, provide shade and increase natural ventilation.

**INCREMENTAL HOUSING**
Scale: Urban residences
Location: Pune, India, 2008-2011
Architect: Urban Nouveau
Participation: Structural modules developed for phased deployment within the community when needed.

**PRIMARY SCHOOL**
Scale: Public building (school)
Participation: (Mostly) illiterate community members were present for design meetings to alter Kere’s initial design to conform to community needs and the entire community was present to voluntarily construct the school
Location: Gando, Burkina Faso, 2001
Architect: Diébédo Francis Kéré
Materials: Mud brick, tin
Thailand’s Baan Mankong Community Upgrading program is working to improve housing, land tenure security, and urban infrastructure for those in informal settlements. The program subsidizes infrastructure and environment upgrades, and works with the communities to improve their living conditions. They created three basic house types - detached (single), semi-detached (double), and row houses - and constructed them from recycled materials. This allowed for improved neighborhood layouts and connection to the canal. The project also brought about social change in the community, such as welfare homes, and welfare funds to improve the lives of the elderly and the area’s youth.

Sangali Inclusive Planning
Scale: Housing, urban development
Participation (amount): Design
Location: Sangali, India
Year: 2009-present
Architect: Shelter Associates, Baandhani Federation
Materials: Concrete

Shelter Associates collected data about Sangali, India in order to inform their own designs, as well as the government’s plans. By providing the government with vital information about the slums, such as location, caste, electricity connection, etc., they were able to understand the problem at hand. Shelter Associates then worked with the community and Baandhani, an informal federation of poor men and women, to create a neighborhood that would suit their specific needs. They incorporated active and passive open and public spaces, with flexible housing plans to create a transformable neighborhood.
Inhabitants of squatter settlements in Buenos Aires have created a cooperative in order to improve their neighborhood. 326 families designed and constructed their homes with the help of an architect. Now they build social housing around the world.

A group of women banded together to move their community away from the area’s pile of garbage that was a hazard to the community. They designed housing with an architect’s help and gained the knowledge to purchase materials and construct homes themselves. Together they were able to create a new “eco-village” called Miraculous Hills, and they are now working to create a large number of completely sustainable homes and settlements.
The project creates a vertical barrio in a sense by providing a structure and basic utilities for the future inhabitants to build within. As a basis for this project, Urban Think Tank looked at Torre David, an unfinished housing tower that has been illegally occupied and infilled since 1994. Inhabitants use the unfinished apartments as a framework for their own interventions.

Reurbanization of Diadema, one of the most dangerous cities in Brazil. "The community helped determine priorities for the annual budget, "distributing resources in a democratic way," notes Filippi [the former mayor]. The community also had a voice in reurbanization meetings with architects, engineers, and social workers from the Housing Secretariat, suggesting upgrades and approving projects on work, part of which was performed by community members themselves." Residents were involved in planning, design and construction. The project included healthcare facilities, roads, as well as improved housing.
This UN sponsored housing project in Lima, Peru was an experiment in participatory design. The architects were asked to create designs for low income housing that the inhabitants could add on to over time. They created not only housing, but an overall urban scheme for the neighborhood.

The design improves and upgrades an already existing informal settlement, as well as provides serviced sites for future development of the area. It includes the base for 6,500 homes that residents are encouraged to build upon as needed.
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IMPLEMENTATION IN CARACAS, VENEZUELA
PLUG-IN PIECES

KITCHEN MODULE
plumbing/electricity

STAIR MODULE
vertical circulation

BATHROOM MODULE
plumbing

LEARNING MODULE
computer

structure increase/decrease height based on topography