

## **sustainable housing development**

guanajuato (mexico) 2002

stedebouwkundig ontwerp voor de duurzame ontwikkeling van 1200 woningen.

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### *architecture without footprint*

The durable development of the environment as a prime quality of actual life and a potential living standard for future generations. Architecture will be developed in mutual consent with this environment, no longer affecting the forest development and green areas, in support of the scale of natural feature and existing physical conditions. This concept intends to enlarge the development of public and social space, the private territory being locked up within the solid architectural walls. Architecture without footprint. In this urban proposal the human tradition in handling with equilibrated green and public space, shall dominate over architectural impulses of coming generations!

The lifetime of a building depends largely on its flexibility, its capacity to adapt to changing needs and taste. The flexergy principle is used in concept of urban design, landscape, architecture in harmony with the local available traditional materials and knowledge of maintenance.

The goal is to create passive houses, buildings with a comfortable indoor climate in winter and summer, without a conventional cooling and heating system. The 'low tech' but 'avantgarde' technique makes that we can read the building in all its components. The major evolution in growing possibilities will be realized inside the cube. Out of respect for the extreme quality of the outer skin of each cube, we will avoid to change the envelope.

### *concept*

The durable development of the environment is a prime quality of actual life and remain a living standard on long term for future generations.

Architecture will be developed in mutual consent with this environment, no longer affecting the forest development and green areas, in support of the scale of natural feature and existing physical conditions.

This concept intends to enlarge the development of the public and social space, the private territory being locked up within the solid architectural walls. The 'equilibrium' between both, voids and solids is a priority in the proposal.

### *time*

The development of the voids is the longest 'time target', up to four hundred years. In this urban proposal the human tradition in handling with equilibrated green and public space, shall dominate over architectural impulses of coming generations.





#### *infrastructure*

The implementation of the infrastructure is nearly influencing the quality of the soil texture. The infrastructure is the first conditioner as support of natural quality. The structured harmony between the growing forest belts, the soil texture and traffic structure is a result of dual approach: rationality, technicity, functionality and organic base quality of the site. Both supporting each other...

The inside development of paths and hard surface, 'streets', giving access to the housing areas, has several connections on the Silao A Guanajuato and one connection in the north.

The infrastructure concept of the Libramiento A Valenciana will be the backbone of the social functions project, connecting public mobility to the inside habitants network. This green grid is also offering a secure border to pedestrians, as transition between the 'road limits' and the 'non limits' of the open green and forest belt area, related to the housing program. The public space will nearly be modulated in order not to disturb the actual natural 'rain - drain' situation during raining season.

#### *social functions*

The integration of the social functions is integrated on the rhythm of the forest grid. Within the limits along the Libramiento A Valenciana development, the forest belts will be strong landmarks. The implant of shops, public services and civic center will be connected to the site on sequence of these forest belts, finds his logic in the easy access of this public points in permanent visual contact while driving with car or bicycle.

#### *sequences*

The perspective dominating the area is perpendicular on the Libramiento A Valenciana. The views are wide opening downside in direction of the railway and the Rio de Guanajuato. Along this road the forest belts and building implants alternate as dominos on stilts, offering small rhythmic perspectives, cinematic sequences, downside the area, in direction of the Rio.

#### *sustainability*

The flexergy principle is used in concept of urban design, landscape, architecture in harmony with the local available traditional materials and knowledge of maintenance.

In order to avoid short or long term deterioration, the building technology supports the concept of independent growth, in speed and time development, between construction and deconstruction of houses on one side and long term conditioner of urban design on the other side.

### economics

Due to largely available building material in the region, there is a technology related to these materials. This available traditional patterns of industry are the basic of the sustainable concept about building.

The infrastructure concept of the Libramiento A Valenciana, the backbone of the mobility layer, is a stone and concrete project, made to survive during at least four hundred years, in accordance with the rain and drain ruling. The architectural basic structure is made of wood or concrete. The available wood, a natural wealth, makes sure that import of wood is not necessary to obtain the basic material, start of the building process. The interior and the skin of the architecture is wood or plywood related. At the base there is the wood knowledge at level of production, engineering, entrepreneur.

The use of this local knowledge and available basic material is the best guarantee of a well controlled price process, even in the later necessary maintenance of buildings. Even by implant of stages the process will not be economical affected by external changes in international market trading or political ruling, because the project is not dependent of this external partners.

### system

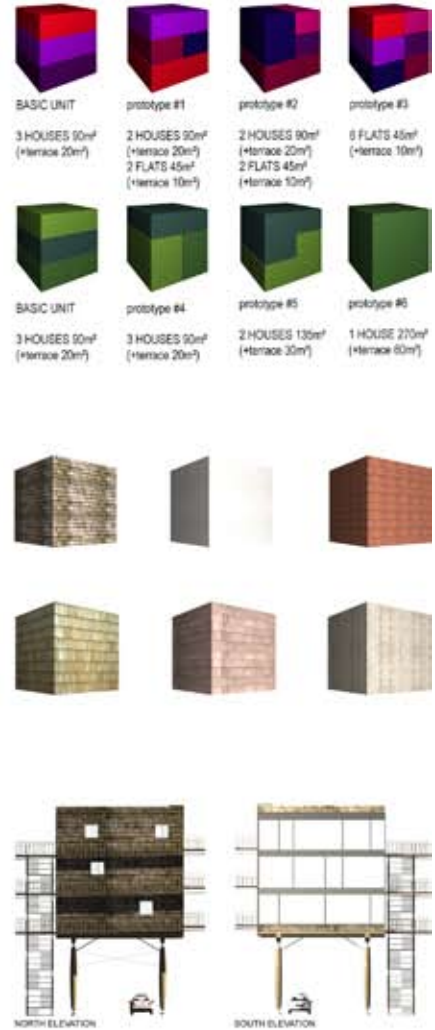
As building system the project should be a target for local development in housing technology, from university level to the level

of daily by inhabitants. The 'low tech' but 'avant-garde' technique makes that we can read the building in all components. The easy reading while realizing the project is a very important factor in price controlled process. Within the cube concept, optimized programs can be expected, so far that evolution in typology could be an answer on demand of inhabitants.

The system of cubes makes clear that knowledge about the cube will be installed in local industry, step by step or cube by cube. This system of repetition and the inherent modulation will afford the price control and will influence the optimization of the system in domains of study, prefabrication, transport, tolerances, price, time sharing, etc... making a short term planning as short as physically possible, with minimal disturb for the long term forest belt program.

### stages

The footprint of the building program is minimal, related to the vertical circulation and the stilts. The vertical infrastructure is a controlled external circulation. This vertical meeting points are the start of the cube implants, connected by horizontal access. Each housing cube contains three basic units, each hundred square meters of construction. Every cube can be build as an individual unit, what means that one building stage contains at least three or a plural of three housing units. A basic unit can be minimized and maximized.



The minimized version is the individual studio of 45 m<sup>2</sup>, the maximized is a 3 generation house of 270 m<sup>2</sup>.

### prototype

The major evolution in growing possibilities will be realized inside the cube. In respect of the extreme quality of the outer skin of each cube, we will avoid to 'touch' the outer skin. In contraire the project improves inside evolution because the inside space can be split up by walls. Stages can be connected by inside stairs or all separately connected to the outside gallery. The horizontal surface of the basic unit is free of vertical construction elements. The net inside square meters is variable along the use of the wall and skin technology in order to obtain different rooms, inside comfort and flexible mobility. The inside used materials are made of wood, plywood or derivatives of the wood and glue technology. The components used inside the individual space can be developed as prefabricated elements on a rigid modulation, but also free interior shape can offer more personal involvement and evolution than the obliged rulings of the standard housing type.

