

10,000-Unit Housing Project Bolivarian Republic of Venezuela

Project Outline

The 10,000-unit housing project in the Bolivarian Republic of Venezuela is one of the world's biggest residential housing development projects carried out within the framework of a single contract. The contract which involves engineering, procurement and construction of 10,000 housing units was signed between Kayson and the Bolivarian Republic of Venezuela and entered into effect in March 2006. The project will be built on four construction sites, including:



1- Maturin

The Maturin construction site encompasses an area of nearly 51 hectares and is situated in the La Puente area, South of Maturin city, Monagas province, and 512 km from the capital city of Caracas.



2- Acarigua

The Acarigua construction site, with a land area of 33 hectares, is situated in EL Pilar protected area, North of Acarigua to Parma road, and 332 km from capital city of Caracas.

3- San Carlos



The San Carlos construction site, with a land area of approximately 52 hectares, is situated Northwest of San Carlos city, Cojedes Province, and 268 km from capital city of Caracas.



4- Calabozo

The Calabozo Construction site, with a land area of about 73 hectares, is located Southwest of Calabozo city, 268 km from Capital city of Caracas.

Scope of Work

Kayson's scope of work involves architectural, civil & infrastructure works of the four sites; preliminary and advanced architectural, structural and utilities design of residential and ancillary buildings; construction of residential and ancillary buildings, infrastructures, landscaping, as well as supply and procurement of machinery and equipment, and all construction materials and products needed to execute the project on time and within budget.



Residential Buildings

Each township is comprised of 2500 two- and three-bedroom apartments, in four-story apartment blocks. Three-bedroom apartments will make up 67 percent, and two-bedroom apartments 33 percent of the total. The gross floor areas of three- and two-bedroom apartments are 85 and 70 square meters respectively. The total gross floor area of residential buildings in the four construction sites is about 950,000 square meters.



Ancillary Buildings

In compliance with contract provisions, Kayson is also responsible for preliminary design, advanced design, and execution of all ancillary buildings of the four townships. These buildings include nursery schools, doctor's office, clinics, play grounds, outdoor sports areas, parks, police stations, open stadiums, churches, libraries, cultural & neighborhood centers, with a total gross floor area of almost 65,000 square meters.

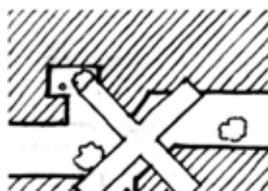
Infrastructures

Construction of all the infra structures needed by the four townships is also entrusted to Kayson. Infrastructure works include construction of access routes, parking facilities, surface water collection networks, landscaping, planting trees, lighting, etc. The main statistics are as follows:

- Streets: 300,000 square meters.
- Landscaping: 40,000 square meters.
- Waste and rain water collection networks, telephone wiring, water distribution networks, electrical cabling, and gas-piping network: 466,000 meters.

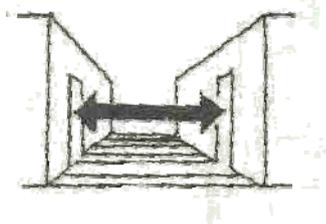
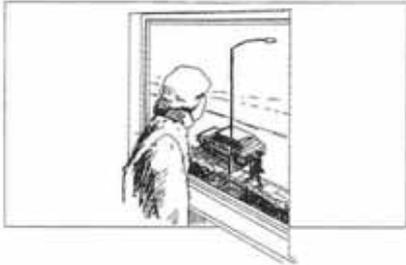
Notable architectural and urban design features

In order to provide a pleasant living environment for the residents, Kayson has incorporated all the relevant urban design criteria into its conceptual and detailed designs of the four townships. The following are just a few examples.



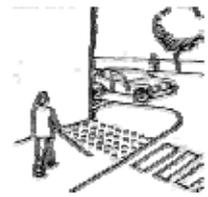
1- Designing to provide a desirable physical environment by:

- choosing the best types of apartment units possible;
- optimizing the number of apartment units in each block;
- examining and drawing suitable massing models;
- optimizing the space separating apartment blocks.



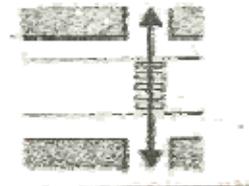
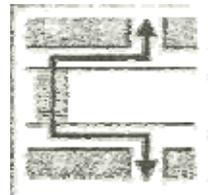
2- designing to achieve maximum security & safety:

- maximizing the visibility of shared/common spaces;
- providing suitable access to the main and secondary routes;
- providing adequate lighting at night and avoiding heavy shades during the day;
- controlling the volume and speed of traffic in intra-township routes,
- providing the best geometrical design possible to ensure maximum safety at intersections;
- providing adequate lighting at intersections during the night;
- examining ground inclinations, the details of underground canals, surface-water collection networks and other relevant factors to provide maximum safety and security.



3- designing to provide optimal access by:

- 1- examining routes shared by motorists & pedestrians;
 - 2- examining side walks (walks at the side of a route used by motor vehicles), and footways (paths used exclusively by pedestrians);
- designing parking spaces to provide easy access for residents;
 - examining public transportation routes and their accessibility.

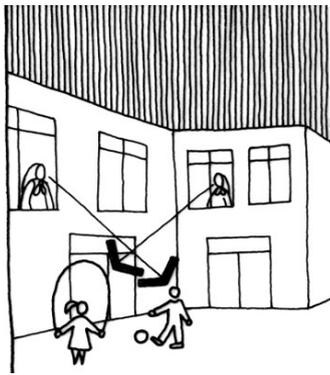
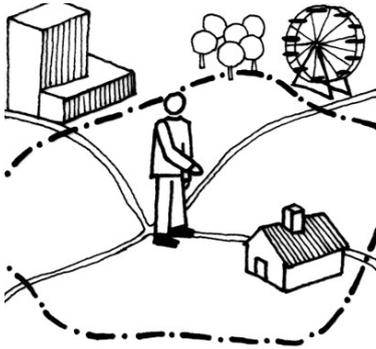


4- designing to ensure residents of desirable spaces to live, play and connect with by:

- providing for adequate ancillary facilities and services;
- designing pleasant open public spaces;
- designing semi-public spaces;
- designing play grounds for children;
- designing green spaces;
- landscaping.

5- designing to minimize the impacts of natural hazards (earthquake, flood, landslide, storm) by:

- Providing for a safe distance between buildings to ensure that they won't collapse on each other in the event of an earthquake;
- Making sure that the length of all apartment blocks is less than 40 meters to prevent building from suffering cracks in an earthquake;
- Minimizing additions such as balconies to the facades of the buildings that may collapse in the event of an earthquake;
- Siting sensitive buildings such as schools with a view to facilitate rescue operations;
- Creating several access routes to various buildings to avoid crowding;
- Siting sensitive buildings in areas where ground conditions are more favorable;
- Planting trees, shrubs and other greeneries to strengthen weak grounds;
- Avoiding massing models that may create wind tunnels;
- Providing adequate space in main routes to facilitate evacuation operations in an emergency.



Total quality Management System

In order to implement its industrialized mass-housing system (In-situ concrete method with a continuous formwork system) which is based on the integration of advanced equipment with highly effective managerial skills, Kayson has established a total quality management system and defined the project's quality policy whose aim is to monitor and control the sequence and execution of every project activity with exacting accuracy.

The project's total quality management system consists of the following sections:



Total Quality Management Division

The most important prerequisite to industrialized residential housing construction is to put in place an effective and all-inclusive total quality management system. To fulfill this goal, the project's TQM division has set up the following sections:

Total Quality Management



Quality Planning and Assurance Section

The main duty of this section is to oversee the performance of various constituents of the project's total quality management system, the performance of site manager. And provision of support services. This section operates under supervision & control the project manager.

Quality Control Section

This section is change with the task of defining and controlling all project activities via check lists containing detail instructions on how each task should be performed by various work crews. Upon completion, the check lists will be kept in the project's quality records and used to quality certificates for each building.

Laboratory Section

This section is responsible for carrying out the necessary soil sampling and testing and reporting the results to operating units. It also cooperates with the QC section in identifying and testing borrow pits such as sand and gravel.

Technical Office

The technical office's main duties include estimating, surveying, preparing subcontractor progress statements, furnishing data and information needed to prepare the project's overall progress statement, preparing shop drawings, proposing work procedures, providing advice and information on claim-related issues, as well as analyzing corrective measures and presenting new procedures.

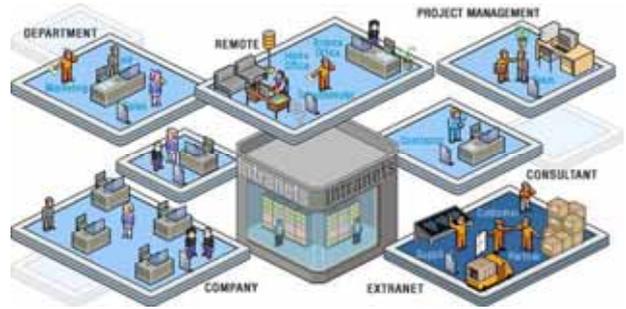


Project Planning and Control Section

The Project planning & Control section is charged with the task of either preparing the four construction sit's time schedule or detailing schedules presented by the Head Office; giving the necessary signals for the start of operations at each stage; controlling and reporting the project's progress via daily and monthly progress reports; preparing all the data and information the site management needs to manage the project in an efficient, timely, and cost-effective manner.

IT Section

The main duties of the IT Section include establishing effective lines of communication between construction sites and the Head Office by means of internet; setting up intranets in all construction sites in order to ensure that all project documents are properly classified and readily accessible.



Occupational Health & Safety and Environmental Protection

To fulfill the company's commitment to achieving and sustaining «zero accident performance» through continuous improvement practices, the project management team has set up a committee under the auspices of the Head Office HSE Department. This committee is responsible for implementing the directives on health, safety & environmental protection in all construction sites. The committee will also prepare daily and monthly accident reports, based on internationally-accepted standards. All site clinics operate under the supervision of the HSE Committee.



Human Resources and On-Job Training Section

The main task of this section is to select, train and develop the manpower the project and its four construction sites need to complete the project on time and within budget.



Organizational Learning

To promote organizational learning, all project records and documents are regularly examined to ensure that the project's continuous improvement processes are working effectively. The knowledge and experience thus gained will be used in similar projects in the future.

Customer Satisfaction

We try to clearly understand, be totally responsive to, and exceed our Client's and end-user's expectations. Accordingly, the 10,000-Unit Housing Project in the Bolivarian Republic of Venezuela has been designed and is being executed in total conformity with the end-user's needs and requirements. To this end, we have set up a proactive line of communication with our client and end-users to monitor their views and, if necessary, make changes in the project's design concepts to bring them into line with their viewpoints and expectations.

