

KAYSON



**The 10,000-unit Housing Project in
Bolivarian Republic of Venezuela**

**The World's Fastest and Most Cost-Effective
Reinforced Concrete Housing Scheme**

Project Overview

Basic Information

Client: Ministry of Housing, Bolivarian Republic of Venezuela

Initial Contract Period: 36 months (Main contract);

Including Contract Addendum: 46 months

Type of Contract: EPC

Location: Venezuela (Monagas, Guarico, Portuguesa and Cojedes Provinces)

Project specifications

- Construction of four residential townships in four provinces
- Construction of 10008 two and three-bedroom apartments
- Construction of nearly 1,000,000 square meters of residential buildings
- Construction of over 70,000 square meters of auxiliary buildings, including:
 - Educational & cultural facilities
 - Health & medical clinics
 - Sports and recreational facilities
- Over 1,000,000 square meters of landscaping
- 400,000 square meters of street
- 200,000 square meters of parking facilities
- Over 460,000 long meters of utilities networks

Speed of Construction

- Building the reinforced concrete structure of one housing unit per hour.
- Setting a record by building the reinforced concrete structure of over 600 housing units per month.

Quality

- Longer useful life and more durable quality than structures built via conventional methods.
- Resistant to natural hazards, including severe earthquakes, in accordance with Venezuelan standards and applicable international building codes.



Designing for safety and improving the quality of life

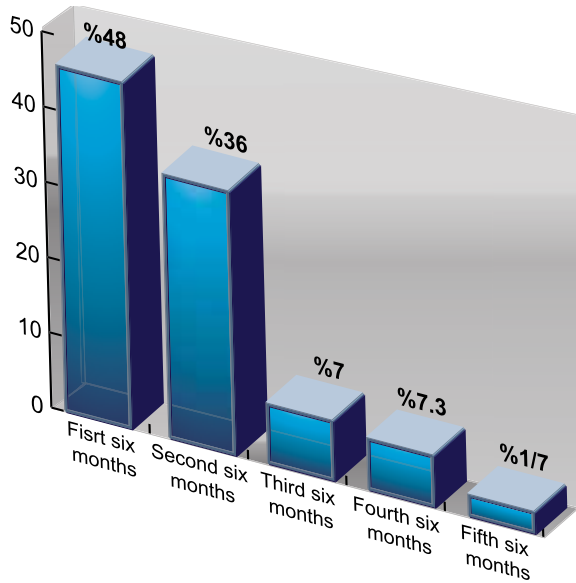
Main objectives of architectural design

- To provide a pleasant living environment for residents
- To ensure maximum safety and security
- To provide easy access to facilities inside and outside of townships
- To ensure economic, social & environmental sustainability



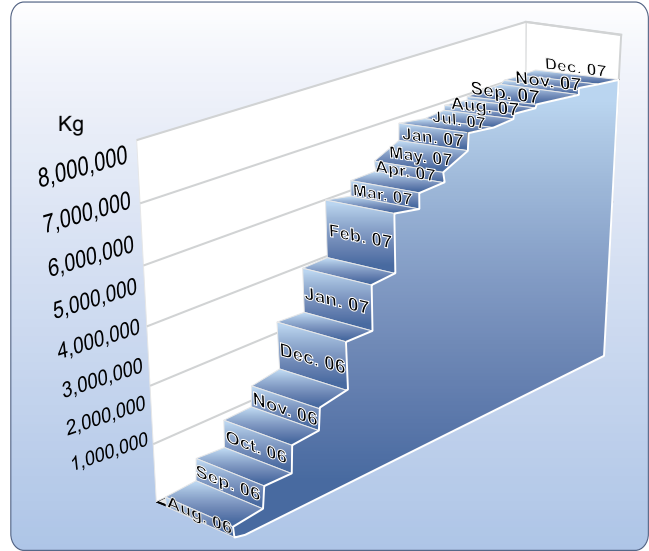
Procurement

Trend of merchandize shipment to Venezuela



- As the above graph shows, nearly half of the project's merchandize requirements were procured and shipped to Venezuela during the first six months of the project.

Machinery and equipment shipment trend

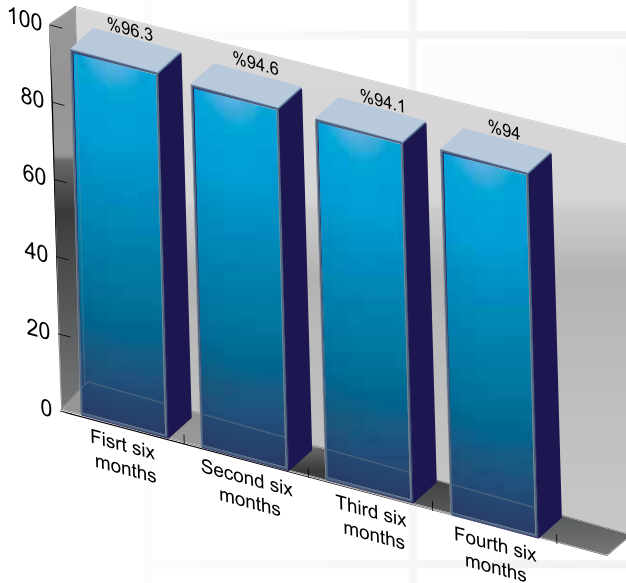


- The 10,000-unit housing project in the Bolivarian Republic of Venezuela is equipped with over 450 pieces of machinery and equipment procured from Iran and other countries.
- Over 70% of the project's machinery and equipment requirements was provided within the first six months of the project.



Machinery & Equipment

**Machinery and equipment availability rate
(Aug 2007-Jul 2009)**



- As the above graph shows, Kayson's machinery & Equipment Department, utilizing the most advanced predictive and preventive maintenance management systems, has enabled the project to consistently keep the availability rate of its machinery and equipment at or above 94%.

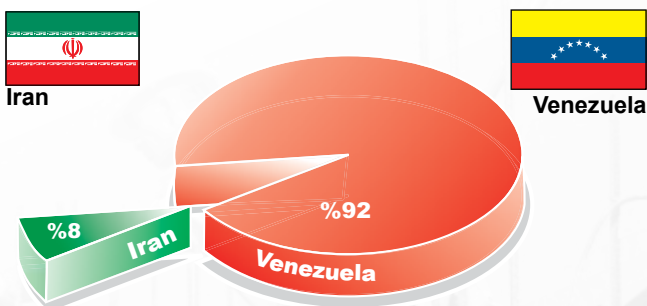


Organization and Human Resource Management

- Within a short period of time, nearly 500 Iranian engineers, technicians and skilled workers, many of whom had undergone extensive training in a similar housing project in Iran (Parand New City 552-unit Housing Complex), were mobilized and sent to Venezuela.
- Through consutive interaction with local labor unions, the project's management team was able to train and successfully manage nearly 6000 Venezuelans, turning them into an efficient and completely integrated workforce.
- Shortly after the contract was concluded, a technical committee composed of experienced engineers in various disciplines, including architecture and urban development; civil, structural, mechanical and electrical engineering; as well as experts representing the project's execution team was set up to help ensure that all technical requirements and specifications were thoroughly complied with. The committee has examined and approved over 2000 sheets of drawing and sent them to construction sites to be executed.
- In less than three months, project management offices were set up at Kayson's Headquarters in Tehran and in Caracas, the capital of Venezuela.
- Although Kayson's price per square meter of usable floor space was less than all other foreign contractors working in Venezuela, priority was accorded to employing local workers. As a result, Venezuelans made up over 90% of the project's total workforce.



Breakdown of Iranian versus Venezuelan workforce



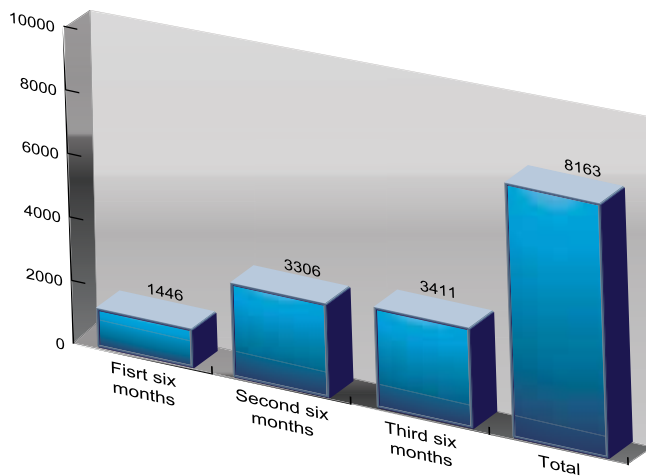
Speed and Quality

- Within a short period of time, the project achieved its goal of building the reinforced concrete structure of one housing unit per hour, over 600 units per month.
- In Kayson's mass housing system, quality is always the top priority. Every step of the construction process is controlled by means of nearly 500 quality control forms and the next step can only begin after the QA and QC personnel issues the necessary permit. The QA and QC personnel are authorized to stop immediately any work that fails to meet the system's quality standards.
- In Kayson's housing system most service runs are preinstalled before concrete is poured.
- Direct finishes and durable walls minimize decoration, repair and refurbishment costs. Wall papers can be directly applied or a skim coat may be used to provide a perfect plastered finish.
- Kayson's housing system is extremely user-friendly, that is the nature of the system is to create a rhythm for the worker. By taking advantage of a 24-hour cycle, the same steps in construction are repeated over and over again. If the site staff is inexperienced with the system, on-job training quickly brings them up to speed. The result is a workforce that can work effectively together as a highly productive team.



Speed of Construction

Completion trend of reinforced concrete structure of residential units (January 2007 - June 2008)



- As shown by the above graph, the reinforced concrete structure of over 81% of residential buildings, comprising 8163 units, were completed within 18 months.
- In Kayson's housing system, completion of reinforced concrete structures means that work on residential buildings is nearly 70% complete.





Better Value at Lower Cost

Competitive advantage in the marketplace is ultimately derived from:
1- providing better customer value for equivalent cost 2- delivering equivalent customer value for a lower cost. Rarely a company achieves both by delivering better value at a lower cost. Kayson's housing system offers its customers such a rare competitive advantage. The cost of housing units built by Kayson in Venezuela, was at least 8 percent lower than any other mass-housing system in existence.



Design and Finishing Flexibility

Although Kayson's housing system is only utilizable in large-scale construction, it gives us the freedom to build a variegated assortment of architectural designs and facades. The system's excellent structural integrity provides opportunities to use non-load bearing internal partitions that can be moved to provide alternative layouts. Limited only by imagination, the breath of colors that can be applied directly to concrete facades are incredible.



Social Responsibility

“Kayson, not as one of Iran’s leading general contractors, but as representative of Iranian people, is determined to leave behind a lasting and memorable image of the Iranian engineering community in Latin America. Part of this image is created by the quality of our technical and engineering performance. Another part, which is equally important, is our responsibility to the Venezuelan people, to do all in our power to improve the quality of life of local residents.”

Kayson Chairman & President

Examples of Kayson’s social activities in Venezuela

- Building and renovating sport fields.
- Building and renovating bridges, roads, schools, medical clinics, cultural centers, etc.
- Contributing to charitable organizations.
- Technology transfer to the Venezuelan engineering community.
- Extensive efforts to protect the environment and raise public health standards.
- Promoting all-around cooperation with professional organizations, and offering a variety of engineering and construction services.



Major Achievements

In brief

Moral and national commitment to the aspirations of the Venezuelan people was the main principle that guided all our work in this project. What Kayson hopes to leave behind in Venezuela is mutual friendship and respect and above all the social and cultural benefits of the 10,000 housing units we have built for the Venezuelan people.

The project had numerous impacts on the Venezuelan economy and people, the most important of which can be summarized as follows:

- Providing safe and durable homes for 50,000 people within three years.
- Training and providing job skills and jobs to 6000 local workers. With the income they generated, they benefited their families, their communities and the Venezuelan society in general.
- Transferred Kayson's industrialized mass housing technology to the Venezuelan engineering community.
- Indirectly creating jobs for 12,000 workers as well as activating nearly 300 local manufacturing and industrial units.
- Implementing a massive "social responsibility" program which included construction and rehabilitation of educational, cultural, sports, health clinics and treatment centers; giving aid to charitable institutions, etc.



Project Photos



Maturin



Maturin



Maturin



Acarigua



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Project Photos



Acarigua



San Carlos



San Carlos



Calaboso



Acarigua



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