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**PREFABRICATED HOUSING  
In the Philippines**

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# S U M M A R Y

## **A. CURRENT SITUATION**

The need for 3.4 million new houses in the Philippines for the period 1999-2004 offers substantial opportunities for prefabricated building component suppliers. Presently, the Philippine market for prefabricated building components is small but slowly growing. About 5 percent of the Philippines' housing units are made from these components mainly because Filipinos are used to conventional materials, e.g., concrete hollow blocks, galvanized sheets, plywood etc. To increase demand for these components, there is a need to educate the market.

The demand for prefabricated building components will remain soft until mid-2000 since it will take some time before the real estate sector recovers from the Asian financial crisis. Further, the low-cost housing sector has yet to resolve major issues such as a large number of outstanding mortgage defaults and the absence of a viable and sustainable system for low-cost housing finance. Nonetheless, industry sources forecast that the demand for prefabricated building components will grow by at least 10 percent annually until the end of this year.

## **B. PROSPECTS FOR PREFAB HOUSING**

Best prospects for foreign companies are prefabricated building components for low-cost housing units. A low-cost 25-30 square meter housing unit in the Philippines using conventional materials costs about Pesos 3,000-4,200 (US \$79-111) per square meter. Foreign companies should match or beat this price range to be competitive in the low-cost housing market.

These companies should offer prefabricated components that are resistant to humidity, fungus growth and mildew, durable, flexible and do not need heavy equipment to construct. Wood-based components for the main structure are not acceptable.

A foreign company can participate in the Philippine market by:

- (1) appointing a local distributor or exporting directly to developers and contractors,
- (2) integrating the company's product with a local manufacturer's prefabricated building components,
- (3) entering into a licensing/technology transfer arrangement with a local company,
- (4) putting up a manufacturing facility in the Philippines, or

- (5) selling equipment used in manufacturing prefabricated building components. Because of the financing problem, local companies prefer foreign companies that can offer financing or infuse capital.

About five percent (5%) of the Philippine market uses prefabricated building components. Most houses in the country are still made of conventional materials and systems, e.g., concrete hollow blocks for the basic structure, galvanized steel for roofing, plywood for partitions, etc.

Prefabricated building component suppliers estimate at least 10 percent growth until 2002 since they have started to gain inroads in the Philippine market. They look forward to the recovery of the real estate sector from the Asian financial crisis in mid-2000. Further, they noted that increased housing is one of the present administration's major projects and a pump-primer for the economy.

The government hopes to address 35 percent of the estimated 3.4 million new houses required by the year 2004. In 1999, the National Housing Authority (NHA), the housing production arm of the government, started looking for housing technologies for its low-income housing units and medium-rise housing projects. NHA released the terms of reference (TOR) for two housing projects, namely: the prototyping of housing units and the development of medium-rise housing projects. The former involves the construction of low-cost and affordable housing models. Under that TOR, the model house should be 4 meters x 5 meters with a floor area of 25-30 square meters and costing Pesos 3,000-4,500 (US \$90-119) per square meter. The proponent should shoulder the cost of constructing at least one housing unit/model on sites provided by the NHA.

The NHA also began looking for technology-based proposals for the development of medium-rise housing (MRH) projects. A proposal should include the provision of land (optional), planning and design, financing, land development and construction of medium-rise buildings for low-cost housing, and/or the disposition/sale of housing units to NHA beneficiaries. The minimum area per site was one hectare and each housing unit should have a net livable area ranging from 24 to 30 square meters. The selling price per housing unit should be between Pesos 180,000-300,000 (US \$5,000-8,000).

### **C. MAJOR PROBLEMS ENCOUNTERED**

The major problem faced by prefabricated building component suppliers is the Filipinos' general lack of appreciation for and understanding of these components. There is a need therefore to educate the market. Until mid-2000, suppliers will also have to reckon with a depressed housing market because of the Asian financial crisis. The high- and middle-income housing markets were

greatly affected by soaring interest rates. The situation of the low-cost housing sector, on the other hand, was aggravated by the government's overdue payment of developers' mortgage take-outs. This led the latter to slow down or stop housing projects in the latter part of the 1990s.

Under the government home lending program, low-cost housing developers originate home mortgages for refinancing. Upon approval of the home buyer's credentials and the house quality, the government reimburses the developer. Loan amortizations are remitted monthly by home buyers either through salary deduction by their employers, or directly to the government lending agencies. Chronic disruptions in mortgage processing and delivery, inefficient collection and bad debts were noted to have, in the past, compromised the financial situation of the program.

The government, housing associations and other private sector representatives are now trying to solve the housing sector's problems. For instance, the government is discussing the possibility of including housing projects in the financing package for the Philippines of international funding agencies such as the World Bank. Developers are providing in-house financing and other incentives, e.g., discounts for cash payments, reduced down payment, free-interest for the first year, fixed interest rate at 10 percent, etc.

## **D. HOUSING NEEDS**

The Philippine government categorized the 3.4 million housing units required for the period 1999-2004 as follows:

Category	Projected Housing Need
Backlog	
Doubled-up 1/	454,176
Replacement 2/	662,960
Homeless 3/	9,067
New Households 4/	2,223,739
Substandard 5/	12,407

  

- 1/ Units for households sharing one house with other households
- 2/ Units to replace houses occupied by households located in danger areas or those living on land needed by government for major infrastructure projects.
- 3/ Units for those who live and sleep in public places.
- 4/ Units for new households formed.
- 5/ Units needed due to substandard quality of the current unit, e.g., living quarters not intended for human habitation.

## **E. FINANCIAL REQUIREMENTS**

The government's National Shelter Program for 1999-2004 aims to assist 781,212 households. Sixty five percent (65%) of these households will benefit from the Socialized housing packages and 29 percent from the economic housing packages. The remaining households will be the beneficiaries of housing packages of over Pesos 375,000 (US \$10,000). The housing requirement will be met through the financial resources of the national government's shelter agencies, increased participation of private financial institutions in housing investments, private sector production of employee housing and local government initiatives including public rental and other resettlement and new town development activities outside the National Capital Region.

The total investment requirement for the Program was estimated at Pesos 202.3 billion (US \$5.3 billion), of which Pesos 200.5 billion (US \$5.3 billion) will be needed for housing production. The public sector's share in housing production is projected at Pesos 46.4 billion (US \$1.2 billion) and the private sector's share is estimated at Pesos 154.1 billion (US \$4.1 billion). Since about 80 percent of the investment requirement is projected to come from the private sector, the success of the Program will depend on the effectiveness of the government entering private sector participation on its programs.

Under the Program, the Philippine government will undertake four programs/projects, three of which involve homebuilding. The program/projects are:

- (1) Resettlement Program - This involves site development and not homebuilding. The NHA develops sites for families displaced from areas earmarked for government infrastructure projects or those occupying danger areas such as waterways, railroad tracks, etc.
- (2) Community Mortgage Program - This is a financing scheme which enables slum dwellers and residents of blighted areas, or areas for priority development, to own the lot they occupy.
- (3) Direct Housing Provision - The target beneficiaries are directly provided financial assistance. The assistance can be used for the construction of a new dwelling unit, purchase of a lot, etc.
- (4) Indirect Housing Provision - Private developers and landowners who need funds are provided development loans.

## **F. ACCREDITATION OF INNOVATIVE TECHNOLOGY**

There are a number of prefabricated building components available in the Philippines, both local and foreign products/technologies. The

Accreditation of Innovative Technologies for Housing (AITECH) Inter-Agency Committee, a government body chaired by the HUDCC, accredits technologies for low-cost housing. The AITECH's accreditation certificate serves as an endorsement of the technology for low-cost housing projects' usage. It also attests to the technology's mortgage acceptance by government financing agencies. The accreditation process takes about three weeks to two months.

As of March 1999, there were 63 technologies in AITECH's list but 46 technologies need to renew their AITECH accreditation license. These prefabricated building components can be used as walls, slabs, stairs, roofings, partitions, fences, drop ceilings, floorings, kitchen tops, counter cabinets, etc.

Prefabricated building components are either:

- (1) developed by Filipinos and manufactured locally;
- (2) manufactured locally using foreign technology or equipment; or
- (3) imported.

Some technologies/products and their sources and descriptions duly accredited by AITECH are as follows:

- (1) Philippines - The wall panel, a solid concrete reinforced with standard bars, is placed between pre-cast reinforced concrete (RC) columns and structural tie beam.
  - Woodwool cement bonded board are fastened together to form wall panels. A concrete topping is glued to the woodwool cement bonded board to form the roofing components which are mounted on steel channels.
  - Wall panels and slab are cast horizontally. The endwall panel and the intermediate panel reinforcement are fully welded to hold each panel vertically. All components such as piping for electrical and water, door openings etc. are incorporated on the wall panels.
- (2) Australia - The following are used for wall and roof panels: (1) stressed skin panels of stress graded, treated plywood and (2) fiber cement board made from cellulose fiber, Portland cement and refined sand).
- (3) Canada - Various interlocking hollow elements made from polyvinyl chloride-based composite material are assembled to form walls (exterior and interior) and the roof. Individual elements are filled with concrete.
- (4) France - Light gauge steel section channels and pre-cast concrete are used for walls. Light gauge steel is also used for roof framing. The roof steel frame and wall panel frames are interconnected by bolting the joints together to form one rigid component.
- (5) Germany - The concrete panel is made from a frothing agent.
- (6) Italy - Galvanized steel wires are welded to form a mesh covering the polystyrene core and then plastered by concrete on both faces. The panels can be used as slab walls and roofing.

The complete and updated list of AITECH-accredited technologies is available at the NHA which has taken over from HUDCC the secretariat function of AITECH since the year 2000.

## **G. ADVANTAGES OF ACCREDITED TECHNOLOGIES**

Among the advantages claimed by suppliers of AITECH-accredited technologies are as follows:

- (1) Reduction in construction cost by 15-30 percent compared to conventional materials/systems.
- (2) Not labor-intensive and less construction time. One company representative stated that if its prefabricated components are used, only three to four people are needed to construct a 30 square meter house in 2-3 weeks are used.
- (3) Durable and can withstand earthquakes and typhoons.
- (4) No maintenance and no painting required.
- (5) No heavy machinery required.
- (6) Very flexible.

## **H. MAJOR CONSIDERATIONS OF HOMEOWNERS**

Having a house to call one's own is the dream of every Filipino family. Once a Filipino family owns a house, it seldom leaves it for a new unit even if the household grows or its income increases so that it can afford to live in a better neighborhood. Most Filipino families stay in the same house and remodel or expand the dwelling unit, either vertically or horizontally.

Most potential homeowners knock on the walls to check if the walls are made of solid materials. They equate a solid sound to a structurally durable house. It is still difficult for most people to accept a product that does not have a solid sound even it claims to be three times the strength of concrete hollow blocks. Thus, most developers and contractors build houses using concrete hollow blocks as the main structure. Those that use prefabricated building panels prefer those that are solid and filled with concrete.

About 85 percent of low-cost housing production is financed through the government's programs. The balance is financed through loans from commercial/thrift banks and housing developers.

Major considerations of homeowners in purchasing a house or building material for their house are cost, structural soundness or durability, aesthetic quality and flexibility. Potential middle- and high-income homeowners are more

discriminating about the building materials of their house. Potential low-income homeowners are more concerned about affordability.

Developers and contractors prefer building components that will lessen construction cost, time, and use of manpower, especially skilled manpower, without sacrificing structural soundness and durability.

## **I. ACCREDITATION PROCESS**

The AITECH Committee reviews and approves applications for accreditation of innovative housing technologies. The accreditation certificate serves as an endorsement of the technology for low-cost housing projects usage. It also attests to the technology's mortgage acceptance by government financing agencies. There are more than 50 technologies accredited by AITECH, including sandwich and concrete pre-cast panels, steel frames and metal claddings.

Companies with innovative housing technologies interested in the Philippine market should submit the following to the AITECH Committee:

- (1) building technology proposal or application for accreditation,
- (2) technology brochures,
- (3) sample materials and test results (if possible),
- (4) copies of title of patent (optional),
- (5) 20" x 30" white/blueprint copies of building plans signed and sealed by a local architect,
- (6) architectural plans,
- (7) structural plans, e.g., foundation, floor framing and roof framing plans,
- (8) plumbing layouts and septic vault detail plans/sections,
- (9) electrical plans,
- (10) building specifications signed and sealed by a local engineer,
- (11) bill of materials, cost estimates (direct cost) and selling cost per unit signed and sealed by a local engineer, and
- (12) structural design analyses and computations in metric system signed and sealed by a local engineer.

## **J. TECHNOLOGY COMPONENTS**

The AITECH Committee bases its evaluation and accreditation of innovative housing technologies on the following:

- (1) Structural evaluation/validation of submitted structural designs (based on design load and allowable applied stresses);
- (2) Cost effectiveness based on the resulting construction costs (current cost estimates of housing construction, inclusive of markup) as compared

with housing units built with conventional building technologies. Use of special equipment and costs of shipment of materials should also be incorporated in cost estimates;

- (3) Compliance to housing standards based on the following Philippine laws: Batas Pambansa 220 or the Social Housing Act, Presidential Decree No. 957 or the Subdivision and Condominium Buyers Protection Decree and Presidential Decree No. 1096 or the National Building Code; and
- (4) Appraisal/validation of housing units using the technology for mortgage acceptance by funding institutions.

The accreditation process takes about three weeks to two months.

**Prepared by:**

**RONALD G. FONTAMILLAS**

Director

Housing and Urban Development Coordinating Council

Makati City, Philippines