

NEW BAMBOO HOUSING DESIGN FOR THE MIDDLE CLASS IN THE PHILIPPINES

Since 2018 the [Kawayan Collective](#), a social bamboo enterprise based in the Philippines, has been working to elevate treated bamboo as a sustainable, durable, beautiful building material affordable and accessible to all.

An article published by [INBAR](#), the International Bamboo and Rattan Organization, emphasizes the relevance of their contribution for designing and building bamboo houses that are appealing to the middle class in the Philippines.



In fact, in 2021 the Kawayan Collective designed and built an innovative prototype of bamboo house of 130-square-meters, with two bedrooms. At least 80% of the house is made of treated bamboo, primary structural support for the roofs and walls as well as the interior finishes and exterior docking. The house uses whole poles to frame the walls and to provide roof structure. In addition, a large, insulated roof and screened windows allow for good airflow and minimize the need for air conditioning or daytime lighting. With a crew of 10 people this house can be built in just eight months and the cost is around 50,000 USD.

With this new house, the managers of the Kawayan Collective wanted to show that bamboo can no longer be confined as 'poor people's wood' or being used only in high-end tropical resorts. Rather it can be used to build beautiful homes, that are accessible to all and with a design beautifully crafted to celebrate the traditional forms of the Philippines's architecture.

Another relevant aspect of this new construction highlighted by INBAR is that Kawayan Collective was using a traditional building technique accredited under the name *cement-bamboo-frame* by the National Housing Authority of Philippines. This technique, known as *tabique pampango* or *bahareque*, was used in the Philippines and other countries in Latin America, during the Spanish colonial period. Bamboo, timber, and a plaster (a mixture of mortar, seashells, gravel, clay and other materials) were combined to form walls for many buildings of the time. Examples of bamboo buildings that deploy this technique have stood for over 200 years, withstanding large earthquakes, paving the way for bamboo being recognized in the [building code of countries in South America](#). They are resilient to natural disasters, have a significantly smaller embodied carbon, are more economical than other masonry alternatives and if properly designed, they can be very durable and fire-resistant.

In partnership with the [Base Bahay Foundation](#), the Kawayan Collective is now improving social housing in the Philippines with treated bamboo using the *tabique pampango* technique under the name cement-



bamboo-frame. The houses using this technique have withstood major typhoons with winds of 220 km/h, making them safer. The houses are also 20% cheaper than the concrete hollow block and steel equivalents.

[The founders of the Kawayan Collective](#), who have been working in the Philippines since 2012 with projects for the use of bamboo, in their website underline that the country's construction industry has been adding 220,000 homes per year, and still cannot meet demand. Currently 50% of homes are built with resource intensive concrete and imported steel. Yet while bamboo is an indigenous plant of the Philippines, its full potential as a long-lasting, renewable building material has not yet been tapped due to difficulties sourcing, treating and manufacturing the raw material.

To help solve this problem, in 2018 a partnership with the Base Bahay Foundation was formalized to start the Kawayan Collective social enterprise, based in Dauin (Negros Oriental), an area where bamboos thrive and there is a rich source of skilled workers. Since 2019, the *Kawayan Collective Bamboo Treatment Facility*, adopting a vision of zero-waste and with a crew of 25 skilled local workers, has been producing over 300 construction-grade bamboo poles each week, including bamboo panels and bamboo products like furniture and housewares.

The productive plant of the Kawayan Collective uses primarily *bambusa blumeana*, one of six endemic Philippine species of bamboo best-suited for construction, and practices a sustainable harvesting within 15km of the facility from wild stocks located on public and private land. In 2020, in addition to providing treated bamboo for the Base Bahay Foundation's social housing projects in the Philippines, the Kawayan Collective opened doors to other customers, products, and projects with the mission to make treated bamboo affordable and accessible to all.

The INBAR website highlights that the new types of houses help to create [sustainable cities and communities](#), not only for the house dwellers but also for the supplier of the bamboo: the farmers, cutters and processors who can build a livelihood from a previously undervalued local resource. These bamboo houses also contribute to the climate change mitigation while using the world's fastest-growing grass that captures carbon.

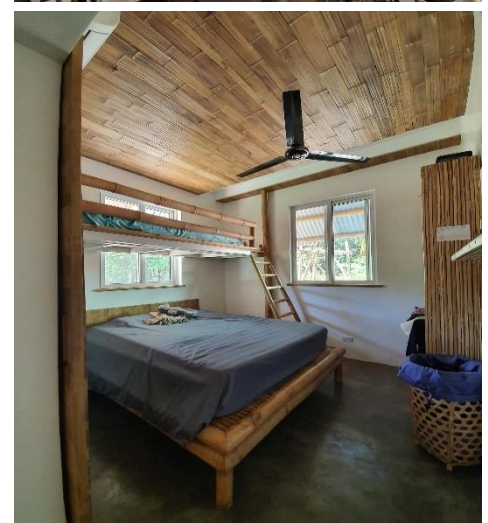
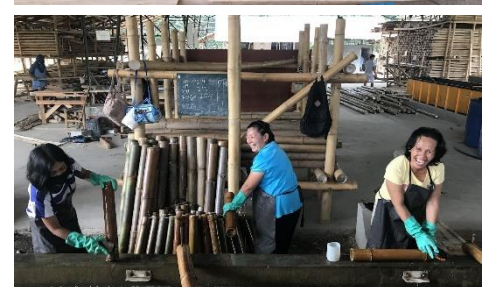
The INBAR article also emphasizes the great potential impact of recovering the traditional technique of *tabique pampango - bahareque* in the Philippines, promoting its use on the large-scale projects for social housing carried out by the Base Bahay Foundation but also in new buildings accessible to all families in the country following the new design elaborated by the Kawayan Collective.

The article invites to read the [Design Guide for Engineered Bahareque Housing](#) produced in 2016 by INBAR international experts. This report is intended as a guide for designing and constructing *engineered bahareque* housing in both developed and developing countries around the world. The Technical Reports and Publication sections of the INBAR website also present other manuals and guides useful to adopt these techniques that are resistant to wind, fire and earthquakes, while contributing to a better environmental sustainability.

To know more

[Kawayan Collective website](#)

[Kawayan Collective in Facebook](#)



[Article in INBAR website](#)

[Kawayan Collective - Poles - Google](#)

[Kawayan Collective in google.com](#)

[Base Bahay Foundation website](#)

[Design Guide for Engineered Bahareque Housing](#)

[Bahareque in BRU - INBAR](#)

[Manual Norma Andina de bahareque encementado in INBAR website](#)

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