

Bamboo modular housing project wins RICS Cities for our Future competition

Manila's Earl Patrick Forlales has won the Royal Institution of Chartered Surveyors (RICS) Cities for our Future competition with an idea that will help solve the city's slum housing crisis. Cubo, which is a project to build new, low-cost and environmentally friendly housing units, will now receive the £50,000 prize money to start work next year. As bamboo prefers a tropical climate, this concept can easily be applied in parts of Africa.



Says TC Chetty, RICS country manager for South Africa: “The competition entries, from all over the world, were narrowed down to 12 shortlisted entries, including the Africa regional winner, who came up with an inventive way to retrofit existing buildings in African cities with 3D printed porous insulation panels to improve liveability and reduce energy consumption for cooling and ventilation. The finalists were then assigned individual RICS mentors who were experts in the specific fields that the ideas addressed, to develop their ideas. These entries were then judged by a panel of six leading global experts based on the following five criteria; relevance, impact, feasibility, scalability and originality.

“Manila is one of the fastest growing megacities in East Asia, with a population of 12-million people. The city will soon be at breaking point, with an additional 2.5-million workers moving to the city in the next three years to work on the government’s infrastructure programme. These workers will join the four million Manilans – a third of the city’s current population – who live in abject slums.”



To combat this epidemic of substandard living, Forlales has designed a new type of modular housing that will be used to house the incoming worker population in the short term, before being applied to the rest of the city's slum community.

The housing is both affordable (at just £60 per square metre) and fast to build (four hours per unit). Forlales chose to use bamboo for Cubo's construction, inspired by his grandparent's rural bamboo house and its abundance in the region. It is also environmentally friendly, with waste used as a resource - converted into, amongst other things, biochar (a charcoal-like substance produced from plant matter and which has a range of uses). The material is both treated and laminated, meaning that its lifecycle is 10 times as long as normal bamboo.



The key benefits of Cubo are:

- **Quick and affordable:** Because of the simple modular design and cheap materials, Cubo houses can be manufactured in a week, constructed in only four hours and at a cost of only £60 per square metre.
- **Innovative design:** Clever elements include a tilted roof that captures rainwater and reduces heat gain, and elevated stilts that prevent floodwaters from entering the home.
- **A sustainable material:** Bamboo is an ideal material because it releases 35% more oxygen than trees and can be grown on poor quality land and harvested annually without leading to soil degradation.
- **More than just a housing project:** Forlales has designed a business plan that will provide local people with not just housing, but new skills, jobs and community space. He also proposes raising money for the project by selling waste plastic to factories.
- **A scalable solution:** The solution can be applied to any city where bamboo can be grown, including most of

Southeast Asia and parts of Africa and Latin America.



Forlales will now work with RICS experts and industry professionals to begin work on the project next year, utilising RICS standards and best practice to ensure that it is delivered quickly to help change the lives of the population of Manila. He has already identified a suitable plot of land to begin construction, with the hope that it will be used in other cities facing similar crises.

Says Forlales: “This is a huge step forward to helping the people of Manila. The state of housing in the city is at crisis point, and will undoubtedly get worse with this new influx of workers.



Earl Patrick Forlales

“Cubo started as nothing more than an idea, conceived while spending time at my grandparent’s house – so it is incredible to think that it now will become a reality. I would like to thank RICS for the opportunity to develop the idea, and look forward to working with them to put this money to good use in Manila, and then hopefully elsewhere around the world.”

The competition, run by RICS and supported by the United Kingdom National Commission for UNESCO and the Association of Commonwealth Universities, received over 1,200 entries since its launch in January this year.

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