



UIA2021RIO

27th World Congress of Architects

Project Name: This O House
Authors: Zui Ng
Country: United States

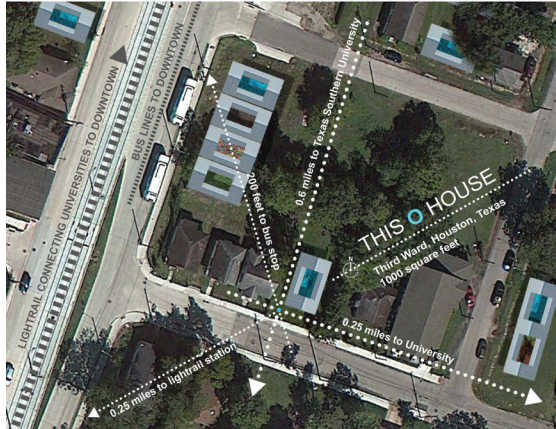
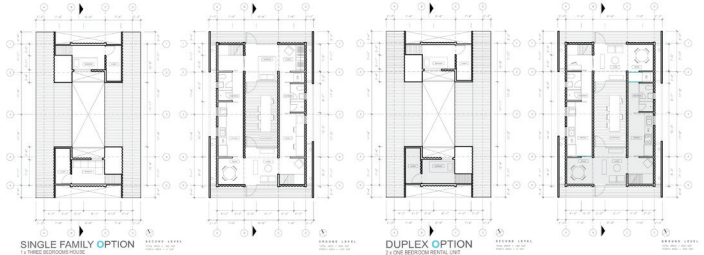


Photo journalist Natacha Pisarenko published an image of La Cava neighborhood that demonstrating stark contrast at the border of slum and gated neighborhood in San Isidro, Buenos Aires. Besides size of houses and backyard lawn, private pool becomes another vivid element in that image showcasing the gap of wealth. This image reflects the reality that human are born with equal ability to enjoy basic natural elements such as light, air, water and earth, but the ability to harvest and store them is not equally gifted. Architecture as a vessel of light, air, water and earth has helped amplified this inequality. This O house is a housing prototype that aims to challenge this reality by giving equal opportunity for low cost housing to access basic natural elements and to empower its residents to harvest them. First of all, the design utilizes stem wall foundation system to form a pool that could be used for recreational or rain harvesting. The central open air pool also invites natural light and air into the house. The pool can also be covered with deck to provide courtyard space to accommodate food garden or as play area. Its roof is equipped with solar panel to harvest solar energy. In addition, This O house empowers home owner with adaptive floor plan allowing them to easily convert the house into a duplex for rental. This gives them the ability to sustain their home ownership and potentially generate wealth.



SUSTAINABILITY - ECOLOGY
 Void Space for Passive Ventilation
 Inspired by Dog-Trot houses, a vernacular housing typology, this O House takes advantage of the void spaces created between the shipping containers to allow for passive ventilation. The elongated shape of the shipping containers are especially efficient when openings are created to enable cross ventilation through the shorter side.

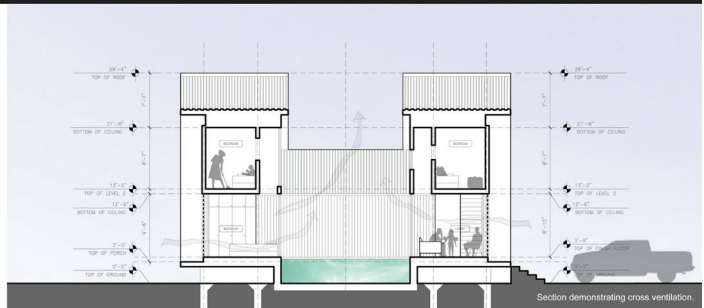
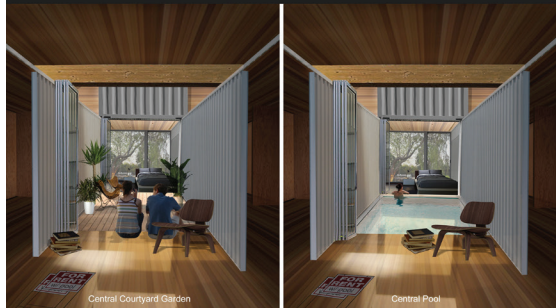
SUSTAINABILITY - ECOLOGY
 Rental Walls to Contain Rain
 Shipping containers are best supported by continuous stem wall foundation instead of point support like piers. The continuous foundation walls in this O House are arranged to form a central pool to make possible for rain storage. Decking could also be added above the pool to form a courtyard space for social activities.

SUSTAINABILITY - ECONOMY
 Rental Unit Generates Income
 Flexibility and adaptability of interior space is key to this design. Closing doors at the shared laundry room, the 3.5 bedrooms and 2.5 baths single family home could become a duplex for rental or accommodate multi-generational family arrangement. This same setting could also be used as office space. The rental option helps generate income to offset the cost of mortgage. This encourages a more sustainable way of homeownership.

SUSTAINABILITY - ECONOMY
 Do It Yourself Possibility
 A sustainable way of homeownership involves minimizing the initial building cost. Larger mortgage premium burdens homeowner with bigger interest. This design uses readily made shipping containers to provide base frame. Once the base frame is in place, do-it-yourself framing approach becomes more feasible. Homeowner can frame the interior and roof without involving heavy equipments or man power. The steel equity could help reduce building cost.

SUSTAINABILITY - COMMUNITY
 Courtyard as Social Playground
 The central courtyard serves as a micro community within the O House. Following the function of the house, this semi enclosed courtyard becomes a blank canvas for imagination. Home owner could use it as rain storage with vegetable garden above, sculpture garden, swimming pool, seating area, outdoor kitchen or just fill it up with plastic balls for their kids. This light filled, open air central space provides not only delightful space but a secure social place for its residents.

SUSTAINABILITY - COMMUNITY
 Building Envelope to Sustain Identity
 The building skin envelops the shipping containers provides a myriad of facade possibilities to adapt this design to different urban contexts and a variety of solar wind orientations. Possibilities include wood siding painted to blend with the neighboring houses, graffiti wall that reflects the identity of the neighborhood, lowered wood vertical or horizontal (depending on orientation) to allow for privacy while blocking direct sun and providing privacy, solar panel screen to harvest solar energy, or view covered screens reminiscent of Houston lakes of greenery.



All the worlds. Just one world
 Architecture 21

