

POLYGON NESTING

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Valenzuela city is one of the disaster-prone area, mainly suffering from flood and typhoon damages. Our goal is to design physical environment that supports local community to stay in their living houses during disaster periods. Not only physical protection that is needed by the residents, but also adaptation capability and economic strength to support daily life.

A host to one of the barangays, Balangkas, Valenzuela city is a potential pilot project for resilient community towards recurring disasters. Its large area and underdeveloped stage provides opportunity for design intervention to build a resilient society. Moreover, its high rate of unemployment will benefit from forthcoming economic chances that will be opened as a result of the development. Land rate will increase due to its inactive land development.

Balangkas is situated in the center of project site area, enabling it to reach to every other site included in the project. Its current high-density living environment is subject to change under housing development project. The housing project is adaptable to be built in various site.

Our first approach towards the situation is by taking into account the three stages of disaster risk management: mitigation, response and reconstruction. These three stages shows many sides, diverse point of views and unified goals even with both steady and progressive approach. In order to build a resilient community, we need a diverse perspective to achieve the resilient goals. Through these polygon, we should also provide nesting for local residents during disaster. These spaces include living space, shelter, protection, reproduction, growing place, social and economy resilience and sustainability.

COMMUNITY CENTER AND BOAT STATION

In relation to the main concept that emphasizes on three stages in disaster risk management, final design of the community center also pays attention on how to enforce resiliency in daily life of Valenzuela City residences. This community center plays a big role in the life of local residents. Its existence supports three stages in disaster risk management: mitigation, response and reconstruction. We use various approaches to

Disaster prevention is applied in building's utility and envelope system that works in sync with disaster prevention theories. A theory in flood mitigation states three ways to prevent flood, one of which is to halt water runoff to fill in riverbanks. In account of that, the community center hosted a rainwater harvesting treatment system. Said water aims for building self-sufficiency and being used for flushing and sprinkling. First, raindrops will be caught by steeply-angled roof towards vertical pipeline leading to first collecting pond. In this pond water will also be filtered using depth filtering treatment. After that, there is another pipeline leading towards ground

water tank. Water will be stored in ground water tank and roof water tank, benefiting from electric water pump to transfer water to the roof tank.

The building's secondary skin is designed to avert high-speed wind and stop it from breaking structural elements of the building. Laminated bamboo is chosen as the material as there is a local laminated bamboo factory near the site, thus reducing transportation cost and ensuring construction capability.

In addition to that, architectural programming is a mean to afford residents' needs during different stages of disaster-prone areas. In normal condition, urban farming and farmers' market dominate usage rate of the building. Open ground floor plan provides platform for local producers towards direct trading that can also increase economic growth within the area. Besides that, a library and multi-purpose hall is situated right on top of the market. Balangkas currently has no proper library and general education facility, thus the need to comprise such facilities. However, during flooding period, some of existing spaces are managed to be used as emergency station. Food storage is turned into public kitchen, where auditorium is used as sleeping quarter and sport facility as nursery area.

Considering a paramount under-developed potential of water transportation, a boat station is located near the community center to support undergoing activities within the building. Not only a harbor, this station also functions as a semi multi-purpose hall for small events and gathering. Its upper floor level has the supporting facilities needed to substitute its ground floor functions during flooding. Passengers can reach the station by elevated walkway that also swindles through residential areas.

The preventive measure taken for this building to endure flood includes elevated floor levelling and alternative support function that is located in both floors. A floating pier made out of bamboo eases passenger to embark into the boat as the pier will adapt to current water surface level.

HOUSING

The polygon nesting house is designed from a simple concept to give back the original function of house to protect and become the safest place during the disaster. The architectural aspects of this house follows the three steps of resilience phases. The notion of the nesting-home has informed our design from the beginning with a focus on spaces, stacked-house, elevated floor, bunker and community maintenance will reduce the damage of the loss caused by storm and flood. We chose the concept of shared housing. Besides the state of current housing condition, a strong housing community will also strengthen public involvement during disaster.