Research Summary: The Philippines Windship Project

Background information and descriptive research:

- Typhoon Haiyan/ Super Typhoon Yolanda was one of the strongest tropical cyclones ever recorded.
- Typhoon Haiyan hit the Philippines' East side (especially the islands of Samar and Leyte) on 08 November 2013.
- The typhoon killed 6,300 people and affected 11 million people, with 6 million people displaced from their homes (NDRRMC).

Basic Research Community: Barangay Batug, Dulag Municipality, Leyte Island, Philippines

- Typhoon Haiyan made landfall just south of Dulag. Barangay Batug is located 3,5km from the coast.
- Population pre-typhoon: 134 homes with population of 500.
- Main activity: coconut oil and sugar. 80% of the areas' coconut trees were killed with typhoon.
- Source of food: Vegetables and rice grown locally, chicken and goat from the community or neighboring communities.
- Source of water: Local wells, sometimes not safe to drink.
- Local building methods and materials: Basic bamboo and coconut lumber structures with corrugated iron roofs.

Community Needs:

- Typhoon and storm resistant school and shelter.
- Reliable power and water source for cases of natural disaster.
- Low-cost typhoon resistant housing.

Applied research and project implementation/solutions:

Biotecture Planet Earth's hypothesis: The community of Batug's safety and peace of mind can be fundamentally increased by building a storm-proof self-sustainable building. Biotecture Planet Earth partnered with Earthship Biotecture in two phases (February 2014 and February 2015) to send an international crew of volunteers with the following objectives that have been met and completed:

- To construct a storm-proof self-sustainable building that
  - will provide safety and shelter for the community during typhoon season.
  - can be used as a school on a daily basis.
  - collects and stores rainwater that can be used in emergency situations.
  - features its own independent (solar) power system to provide light and communication.
  - provides showers and toilets.
  - treats its own sewage in a contained and non-contaminating way.
  - produces food.
  - is cool inside even when the temperatures are extremely high.
- To construct a low-cost self-sustainable home for one of the community members with the community members that can easily be replicated to provide cheap and safe housing for everyone.
- To provide knowledge transfer to 20 members of the local community to apply these building methods to their own construction methods.
- To create an example for other communities to follow.

Findings and post-project:

- The result of the project, the WINDSHIP, now gives safe shelter to the inhabitants of Barangay Batug. In December 2014, Typhoon Hagupit/ Ruby affected the same area. First hand reports said that the 80 people sheltered inside the Windship during the storm could not even hear the 260km/hour winds.
- An important increase of a community's quality of life and peace of mind can be achieved by implementing this project and constructing a self-sustainable building.
- The low-cost self-sustainable home (Earthship Hut) still functions as a community member's home (February 2016) and has since been replicated in Fiji (where it withstood being hit directly by Cyclone Winston), New Zealand and Vanuatu.
- The building of a self-sustainable construction, integrating recycled materials, raises the awareness of the importance of recycling and caring for the environment in a community, thus having a collateral effect of the community of Batug now recycling and re-using containers and packaging instead of burning most rubbish.