Graduates from the MSc (ISD) Programme won Honourable Mention Multidisciplinary at the University Competition World Sustainable Building (WSB) Congress, 2014

An entry by graduates from the Master of Science (Integrated Sustainable Design) (MSc (ISD)) programme has won an honourable mention at the international contest of universities: Powering Transformation, 2014 World Sustainable Building (WSB) Congress, which will be held in October 2014 in Barcelona, Spain. The graduates from the Class of 2014 are Giovanni Cossu, Amirullah Zulkifli, Iwan Hartono, Disa Saputra and Andry Halim. The submission was the outcome of their studio assignment which was completed during the Aug-Nov semester in Academic Year 2013/14.

The project was jointly supervised by Dr Nirmal Tulsidas Kishnani (Department of Architecture), Associate Professor Sekhar Kondepudi (Department of Building) and Associate Professor Nalanie Mithraratne (Department of Architecture).

Only 8 projects out of the 48 entries were awarded prizes/honourable mentions. The NUS entry is the only entry from Asia to make it to the top 8. It won an Honorable mention for its multidisciplinary approach.

Jury’s Comments:

"Very interesting the analysis, developed by a multidisciplinary team, that considers the resilience and resolve water issues, risks and potential in detail. Methodology for integrating different scales map of flood risk is valued, as well. It is considered a very innovative architectural expression and is granted an honourable mention for Multidisciplinary"
NEW REGENERATIVE MODEL OF CITY DEVELOPMENT

Our design for adaptation is to create inbuilt capability for change where a building is said to be resilient or future-proof.

This approach started investigating Jakarta on resources, climate change vulnerabilities and real estate activity. We defined a framework for decision making (Water Mark_Adaptation tool) that describes the impact on a specific outcome (water issue) and designed an integrated adaptive building with landscape.

Our project started with the question: what are the limits of sustainability and how can we rethink system boundaries on building, landscape, neighbourhood and city scale? The city study highlighted a strong need of repairing social and environmental networks for the city of Jakarta (social disparity and extreme weather events such as floods, sea level rise, land subsidence and sea water intrusion).

As new development we wanted our design to become a new model of city development with three main goals: efficacy (longterm effectiveness), replicability (broad based application) and wellness (connection with community and nature).

BUILDING DETAILS

GFA 20000 sq m
GV 115000 cu m
Construction costs 1200000 USD
Site area 5000 sq m
Footprint area 2000 sq m
Building height 57.5 m
Building depth 36.5 m

100% water sufficient, 150% green replacement area, 70% landscape area on ground, 80% natural daylight (office), 100% natural ventilated (residential), 1600 users (office), 550 user (residential).

Prefabricated partition panel (including glass panel), prefabricated steel beam and column, steel raised floor system, modular integrated RC planter box.
WATER SENSITIVE DESIGN ON THREE SCALES OF IMPACT: CITY, SITE, BUILDING

ADAPTATION TOOL is defined here as a framework for decision-making that describes the impact of a decision on a specific outcome. Water Marks takes three different forms:

1. Risk Analysis on site to avoid placing new development in extreme risk areas.
2. Design to minimize the potential consequences of a flood on occupants and properties.
3. Performance to understand water requirements and use risk as a trigger.

SITE ANALYSIS _ RISK ON SITE, GREENERY AND ECOLOGY

THE RISK ASSESSMENT MAP

URBAN FABRIC AND FLOOD DIAGRAM

WHAT ARE THE LANDSCAPE FEATURES WITHIN OUR DESIGN?

ENVIRONMENTAL ANALYSIS

GREENERY AND ECOLOGY

LANDSCAPE WATER TREATMENT ELEMENTS

TREATMENT ELEMENTS (or AEC Water Desain) can be applied to urban microareas developed to res in green, which will be the first love of environment humanity and urban water while maintaining an aesthetic arrangement.

BIODIVERSITY FRAMES ARE NATURED LAND SPACES DESIGNING ESSENTIAL AND PATH DIVERSIFIED NATURAL. THE FRAMES ARE ATTACHED THROUGH AERIAL PLANTS (MOSS, DROPS, AND SHAPED NATURAL PLANTS) WITHIN A RAINWATER COLLECTION SYSTEM.

SEGREGATION FRAMES ARE PRODUCED WITH A WATER REUSE SYSTEM LOCATED WITHIN THE ORGANIZED NATURAL TEEM. THEY ARE FURTHER PROTECTED WITH SECTORS (BEDS) AND THERMAL PANELS EXTENDED EXPRESSIVE TO PREDICTIVE MINISTERS.