In our modern highly urbanised concrete jungle, it may take some effort to go back to nature. While the Singapore government has taken active steps to ensure that greenery can be readily accessed through parks and park connectors, these are still built in the general vicinity of built-up areas.

The Ground-Up Initiative, or GUI, is a non-profit organisation dedicated to cultivating holistic solutions for a happier, liveable and sustainable future for modern society. With a suite of programmes for families, schools and young adults, GUI activities take one back to the simpler times when crops were harvested from backyard gardens and new furniture were created with your own two hands.

GUI runs its activities on a 2.6 hectare plot of land off Sembawang road, aptly named Kampung Kampus. Within this complex, collaborative spaces and activity zones are interspersed with lush greenery and verdant foliage, harmoniously blending nature with man-made elements. In the middle of the Kampus stands the GUI Heart-Quarters, a literal heart from which all GUI activities flow.
From the Ground Up

Responsible for coordinating and administering all of GUI’s activities, the HeartQuarters is an important building. It serves as the central planning node for GUI’s personnel and is also a nexus for community engagement. With the organisation’s onus on environmental sustainability and conservation, an ordinary office building would not adequately convey this sentiment. Therefore, a special type of building was needed as the GUI’s HeartQuarters.

With assistance from the Singapore Green Building Council (SGBC) and its member companies, the GUI now has a green building certified to the BCA Green Mark Platinum standard as their Heart Quarters. More than just a Green Mark building, the HeartQuarters is also a net zero energy building, meaning that it generates more than enough energy for its use on-site through renewable means rather than from tapping into the power grid. This is the perfect building to house the heart of GUI, strongly aligned with their values, goals and objectives.

Rising from the footprint of the previous building, the GUI HeartQuarters features simple geometry and works neatly with the elements. Designed as a net zero energy building with a low-carbon footprint right from the design phase, the building makes use of passive design strategies to maintain comfort within the building. Natural daylight and ventilation is maximised while the generous ceiling allowance lets heat and humidity escape.
From the Ground Up

Working with SGBC certified environmental sustainability design consultant Building System & Diagnostic Pte Ltd, the GI HeartQuarters is fitted out with certified green building solutions from the Singapore Green Building Product (SGBP) certification scheme to truly create a sustainable, healthy facility. For example, all of the HeartQuarters’ light fixtures and fittings are of energy efficient LEDs, achieving a lighting power consumption improvement of more than 70 percent.

A host of green building materials went into the construction of the HeartQuarters. A selection of hollow core Joe Green Concrete Panels (SGBP ✔ ✔ ✔) from JOE Green Pte Ltd went into the walls of the structure. As a sustainable green concrete panel produced with at least 30-50 percent recycled concrete aggregate, the products offer better buildability and quality while minimising wastage. For the internal and external walls of the building, Easy Plaster ECO (SGBP ✔ ✔ ✔) supplied by Emix Industry (S) Pte Ltd was used. A specially formulated premixed thin plaster, Easy Plaster ECO makes use of recycled materials in its manufacture.

Cement for the raft foundation made use of Phoenix Portland-composite cement (SGBP ✔ ✔ ✔) supplied by Lafarge Cement Sdn. Bhd. As a general purpose blend, the cement provides improved surface finish with reduced bleeding while ensuring that hazardous
emissions are kept to a minimum. Waterproofing in the washrooms are applied with Quicseal 104 (SGBP ⭐⭐⭐) provided by Quicseal Construction Chemicals Pte Ltd. These non-toxic liquid-applied waterproof products are easy to mix and apply, quickly granting excellent waterproofing qualities. Even the termicidal used in the HeartQuarters is environmentally friendly: Premise 200 SC (SGBP ⭐⭐⭐) supplied by Bayer (South East Asia Pte Ltd) is a non-repellent anti-termite solution that provides maximum estate protection with minimal environment impact.

**Dulux Professional Weathershield and Diamond Care paint products (both SGBP ⭐⭐⭐⭐) provided by Akzo Nobel Paints (Singapore) Pte Ltd were extensively used in the project. Certified to the highest-possible rating under the SGBP, these paints have virtually no VOCs and help protect buildings from all weather conditions, along with strong resistance to mould, direct and stains.**

To help the HeartQuarters maintain comfortable temperatures for its occupants, Sunergy low-emissivity (Low-E) glass supplied by AGC Asia Pacific Pte Ltd is used throughout the complex. Low-E glass helps to minimise the amount of ultraviolet and infrared light from penetrating the material while still allowing visible light to pass through. This reduces the urban heat island effect while still providing enough illumination to occupants within the building.

**Haiku I Series Ceiling fans (SGBP ⭐⭐⭐) supplied by Big Ass Fans Singapore Pte Ltd were used within the HeartQuarters, providing occupants with optimal airflow and low noise. Combining form with function, these sleek looking fans operate more efficiently than conventional ones, with different preset speeds for maximum occupant comfort.**

For air-conditioning, the HeartQuarters makes use of energy efficient unitary air-conditioners with variable refrigerant flow technology provided by
Mitsubishi Electric Asia Pte Ltd. With an inverter driven compressor, the amount of refrigerant can be regulated according to the load on the indoor units by the compressor in the outdoor unit, resulting in greater system efficiency.

Towards its zero energy objectives, the roof of the HeartQuarters houses a solar panel array provided by Narada Asia Pacific Pte Ltd. Working in conjunction with all of the HeartQuarters’ energy efficient features and appliances, the solar panels are able to generate about 12,409 kWh of energy annually, against an annual total building energy consumption of 11,926 kWh. The building is also expected to reap about 8,500 kWh in energy savings per year, translating to about 42 percent energy savings against the benchmark.

With great assistance from the green building industry, the GUl now has an expressive building that mirrors their philosophy and focus, one that was built with a collaborative, ground-up effort.

Building Owner: Ground-Up Initiative (GUl)
Architect: APDS Architects LLP
M&E Engineer: ICON Engineers LLP
Structural Engineer: JS Tan Consultants Pte Ltd
ESD Consultant: Building System & Diagnostic Pte Ltd
Main Contractor: Builders 265 Pte Ltd