Arcasia Committee on Green & Sustainable Architecture
Country- Hong Kong

Project- InnoCell

Hong Kong Science Park

Architect- Leigh & Orange Limited
Arcasia Committee on Green & Sustainable Architecture
GREEN AsiARCH- 04 at Ulaanbaatar Mongolia

InnoCell
HONG KONG SCIENCE PARK
INSPIRE AND RECREATE
CO-WORK & CO-LIVE 24/7

Project Facts

Country / Hong Kong S.A.R., China
Name of the Project / InnoCell, Hong Kong Science Park
Function / Residential institution with smart living and co-creation space
Location / 1 Cheung San Road, Tai Po, New Territories, Hong Kong S.A.R.
Gross Floor Area / 15,300sqm
Site Area / About 3,000sqm
Year of Completion / 2020
List of Project Teams:
Lead Architectural Consultant / Leigh & Orange Limited
Client / Hong Kong Science and Technology Parks Corporation
M & E Consultant / One Arup & Partners (HK) Limited
Civil, Geotechnical & Structural Engineer / WSP (HK) Limited
Quantity Surveyor / Cumle & Brown Limited
Main Contractor / Hip Hing Engineering Company Limited
Environmental, Acoustic & Sustainability / Allied Environmental Consultant Limited
Facilities Management / Jones Lang LaSalle

Country: Hong Kong
Project - InnoCell
Hong Kong Science Park

Leigh & Orange
Arcasia Committee on Green & Sustainable Architecture
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Quality
- Environmental Quality and Wellbeing
- Site, Neighborhood, Landscape and Ecology

Resources

Sustainability

Innovation

Awards and Achievement
2022 Structural Excellence Award - Grand Award (Hong Kong Residential category)
2020-21 World Architecture Festival (WAF) Award - Highly Commended (Experimental - Future Projects)
2021 Green Building Award - Grand Award (Completed Projects - Residential)
2021 Green Building Award - Special Citation on UN Sustainable Development Goals
2021 MPRI Asia Awards – Gold Award (Best Residential Development)
2021 FHA Asian Awards of Excellence
2021 Asia Pacific Awards of Excellence in Facility Management Strategy - Winner
2021 WNN Awards - Finalist (Studios, co-working spaces and home office category)
2021 WAF Awards - Silver Award (Residential category)
2021 CIIC Construction Digitisation Award – Silver Award (Project Category)
2021RICS Awards Hong Kong – Sustainability Award
2021 BEAM Plus MB [v1.2] Platinum
2020 HKIBA Awards – Gold Award (Private Development Projects Category)
2020 Autodesk Hong Kong BIM Awards – Award Winner
2020 BIM Achievement - BIM Project Winner
2020 International Property Awards (Asia Pacific) – Award Winner (Residential High Rise Architecture)
2020 Rethinking The Future Awards - Second Award - Housing – over 5 floors (Concept)

Description
InnoCell is a 17-storey building with 382 fully furnished residential units of affordable accommodation designed for I&T talents and incubating workers in Hong Kong Science Park. Our mission is to create an accommodation where one-swap 24/7 facilities and residents' networks are available to build a harmonious neighbourhood.
InnoCell adopted Modular Integrated Construction (MIC) as an innovative construction method to challenge conventional construction methods and tackle the I&T's housing challenges due to its significant advantage of affordable housing, high construction costs, and ageing construction workforce. The application of MIC is a successful experiment in response to Sustainable Development Goals from all social, environmental, and economic perspectives.

Design Concept
InnoCell is the epitome of innovation in design for living style and the MIC construction method. The visionary design of InnoCell is to create a self-sufficient community where residents will enjoy living in their modular units whilst being closely connected with other residents to participate in a diversified "Coworking & Co-Living" lifestyle 2/67
InnoCell's design incorporates thorough considerations of the surrounding environments, which employ a natural color palette and environmentally friendly materials to create an airy and relaxed ambiance. The inspiration of the "hands on concept" to centralise communal space ensures energy efficiency and maximises the sea and mountain views available to residents.

Country: Hongkong
Project- InnoCell
Hong Kong Science Park
Arcasia Committee on Green & Sustainable Architecture

GREEN AsIARCH- 04 at Ulaanbaatar Mongolia

Quality
- Environmental Quality and Wellbeing
- Site, Neighborhood, Landscape and Ecology

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<thead>
<tr>
<th>Resources</th>
<th>Sustainability</th>
<th>Innovation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Casual Meeting Space</td>
<td>Library</td>
<td>Outdoor Lounge &amp; Urban Farm</td>
</tr>
<tr>
<td>Open Lecture</td>
<td>Bath Room</td>
<td>Semi-outdoor Deck</td>
</tr>
<tr>
<td>Lobby</td>
<td>Gym</td>
<td>Common Kitchen</td>
</tr>
</tbody>
</table>

The Vision
- The vision of the InnoCell design was to create a self-sufficient community where the residents could enjoy living in their modular units whilst also being closely connected with the other residents allowing participation in a diversified “Co-working & Co-living” community based lifestyle. This is a new take on an old theme, co-living invites occupants to be part of something bigger by living in a more connected way with the people around them forming a collective community belt [UN SDG 9 - Industry, Innovation and Infrastructure]. In order to encourage the residents to step out from the traditional habitation units, the communal areas are designed within the central core of the building. The units then create a triangular form, which reflects the “Win-win Concept” enhancing efficiency and environmental benefits. Through the sharing of co-living facilities, InnoCell not only responds to the necessity of affordable living conditions for future generations but also addresses their needs for a more diversified social and cultural experience [UN SDG 11 - Sustainable Cities and Communities]. This is achieved by promoting a greater focus on community that has been traditionally a strong foundation pillar of our social fabric.

Live and Share Living Community

InnoCell enables a vibrant community to evolve which demonstrates modern concepts of smart living and co-creation by utilising creatively designed shared working spaces and ancillary facilities including a gym, games room, bar, music room, library, function rooms, kitchen, lecture hall and small discussion room to bring people together. When combined, these create a fulfilling, healthy and sustainable lifestyle [UN SDG 3 - Good Health and Wellbeing]. Every level of the building has shared living spaces to cater to different needs, as well as to foster and inspire a “Live and Share” community. The green and open communal spaces are incorporated specifically for the wellness and enjoyment of the residents, facilitating an environmentally conscious healthy lifestyle and fostering social cohesion. Moreover, shared living spaces facilitate social interactions and assist in decreasing the risks of mental illness caused by social isolation. To minimise the risk of COVID-19 spreading in Hong Kong, the self-sufficient community formed within the InnoCell allowed occupants to stay inside the building 24/7 in comfort. The various facilities address the needs for a better “Work-life balance”, diversified social and cultural experience around their day-to-day living.

Country: Hong Kong
Project: InnoCell
Hong Kong Science Park
Arcasia Committee on Green & Sustainable Architecture
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Design Response

Quality
- Quality of Environment and Housing
- Site, Neighborhood, Landscape and Ecology

Resources

Sustainability

Innovation

SOIL SPACE
SITE = 2000m²

1/ POPULATE
Mixing + Mohrness

2/ ORIENTATE
View + Connection

3/ AUGMENT
Community + Sustainability

4/ ELEVATE
Public Access + Greenery

Visual Amenity – Mountain View
Visual Amenity – Seawave

Micro-climate
The provision of an empty bay on the East allows the annual prevailing wind from the East to penetrate and reach the site quickly, reducing the heat island effects.

Daylighting
The 16 floors project interior lighting has been provided in order to diminish the light pollution to the surrounding developments. The level of interior lighting is approximately 200 lux, and natural lighting was ensured by the use of the bronze glass with a 10% solar factor.

Accessibility
The accessibility to the entrance door was comprehensive, examined during the design stage. The ratio of VC+1 is 1:2 for the main elevation and 1:1 for other elevations.

Sustainable Lighting
The percentage of natural light was approximately 50% with an average daylight factor of 12%.

Natural Lighting
The percentage of natural light was approximately 50% with an average daylight factor of 12%.

Country: Hong Kong
Project: InnoCell
Hong Kong Science Park
An innovative construction approach - Modular Integrated Construction (MiC), has been adopted to address conventional construction methods and to tackle the current housing challenges faced in Hong Kong. There is an evident shortage of housing in Hong Kong which is often paired with an aging workforce. High construction costs, and a scarcity of affordable housing means new innovations have to be explored. We believe the benefits of applying the MiC method will assist in tackling the challenges we face in Hong Kong by shortening construction time, mitigating the local labour shortage, reducing on-site pollution, enhancing site safety and ultimately improving the overall quality of the completed construction project.

All MiC modules were prefabricated in a factory in Jiangmen, Guangdong, mainland China. This steel-framed modular building system, which integrated structural components, building services, water and electricity, heating, ventilation and air conditioning (HVAC) systems, interior decoration and smart systems, transferred more than 90% of the workload of traditional buildings (i.e. nearly 100% of structural works, 60% of finishing works and 90% of B. S. works) to the factory environment. The steel modules are also durable and fire resistant.

In comparison with similar projects using conventional construction, InnoCell has reduced the unit costs of building works by 7%. The construction duration of InnoCell with MiC (construction completion within 22 months) compared with the conventional scenario (36 months), was shortened by approximately 14 months (UN SDG 12 – Responsible Consumption and Production). Based on the on-site labour input and estimation for the conventional scenario, the labour productivity rates for a typical floor were calculated as approximately 0.38 m²/hr-month for the InnoCell project and 0.47 m²/hr-month for the conventional scenario, i.e. increase of approximately 443% (UN SDG 8 – Decent Work and Economic Growth). Besides, there were 0 major defects and reworks were reported in the factory and on-site (UN SDG 9 – Industry, Innovation and Infrastructure). The adoption of MiC in InnoCell promotes not only buildability but also industrialisation.

Country: Hong Kong
Project: InnoCell
Hong Kong Science Park
Construction Digitalisation

3-D SCAN x BIM modeling x Noise Nuisance

To minimise the noise nuisance caused by module transportation, drones, 3D scanning and BIM animation were utilized to simulate the optimal swept path and transportation route with the minimum sound levels.

A BIM model in project design and construction stages was fully utilized, which improved building quality and facilitated coordination, allowing conflicts to be foreseen and resolved, avoiding wastage on site.

Quality

Resources
- Consumption & Conservation
- Waste Management & Pollution Control

Sustainability
- Building Amenities

Innovation

3-D Printing, AR and VR

Application of 3-D printing techniques allowed workers to have a better understanding of fixing details, which was important to the site installation quality, especially with the new construction method in Hong Kong. Besides, the visualization of working environment through virtual reality (VR) and augmented reality (AR) allowed workers to simulate the actual working environment beforehand, which effectively avoided abortive works, reduced material wastage and enhanced safety.

Online inspection

Unique QR codes for each module for tracking

Progress monitoring

Different e-platforms ("Novade" and "Aconex") were adopted for inspection and material submissions, instead of traditional paper submissions; which significantly reduced 378,000 pieces of paper by using the e-inspection form and QR code, i.e. 528 kg CO2e/24 ms. of trees.

Country: Hong Kong
Project: InnoCell
Hong Kong Science Park
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Completion and Operation

SMART HOME STRATEGIES

BMS Home Automation for Healthy And Green Living Environment
InnoCell adopts smart Living Technologies to enhance users' experience by providing:-
- Tenant Only InnoCell Living App
- Your Personal Google Butter
- Multi-language Chatbot
- High Speed Internet Network
- Home Automation System
- HVAC System
- 24-hours Security

SMART LIVING

As younger, tech-savvy generations look for a sense of community, they also seek a greater degree of flexibility, so they can choose where they work, play, or sleep. Digital technological advances have helped to drastically transform the way we work, with an increasing focus on flexibility and connectivity.

INNO APP

Intelligent Technology for Smart and Contemporary Living
InnoCell provides ease operational efficiency by providing:-
- Seamless self-check-in Kiosk
- Advanced Facial Recognition Access
- Keyless Mobile Door Access
- Secured Cashless Payments

Country: Hongkong
Project- InnoCell
Hong Kong Science Park
Country - Hong Kong

Project - On Tai Estate, Kwun Tong, Kowloon

Architect - Hong Kong Housing Authority (HKHA)
Chau Ku & Leung Architects and Engineers Limited
Transformation from Barren Quarry to Green Oasis

On Tai Estate

The old Anderson Road Quarry, used to be a barren land at the urban fringe, has been transformed into an "Urban Oasis" restoring green lives for a new community of 8,500 families in 11 domestic blocks.

The development connected the existing MacLehose trail and the future Anderson Quarry Park and also respected the Tai Sheung Tok ridgeline in the building block disposition which harmonized with nature. Based on findings from the public engagement workshops, we initiated the connection to four existing estates, decided on the local provisions, fixed the green oasis theme, and allowed connections to future developments.

Country: Hongkong
Project- On Tai Estate
Kwun Tong, Kowloon
# Transformation from Barren Quarry to Green Oasis

<table>
<thead>
<tr>
<th>Country</th>
<th>China</th>
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</thead>
<tbody>
<tr>
<td>Name of Project</td>
<td>On Tai Estate</td>
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<tr>
<td>Location</td>
<td>20 On Sau Road, Kwun Tong, Kowloon, Hong Kong</td>
</tr>
<tr>
<td>Area</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Land Area</td>
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<td></td>
<td>Built Area</td>
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<tr>
<td>Year of Completion</td>
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<tr>
<td>List of Professionals</td>
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<tr>
<td>Architect</td>
<td>Hong Kong Housing Authority (HKHA) / Chau Ku &amp; Leung Architects &amp; Engineers Limited</td>
</tr>
<tr>
<td>Structural Engineer</td>
<td>HKHA / AECOM Asia Company Limited</td>
</tr>
<tr>
<td>MEP Engineer</td>
<td>HKHA / AECOM Asia Company Limited</td>
</tr>
<tr>
<td>Landscape Architect</td>
<td>HKHA / ACLA Limited</td>
</tr>
<tr>
<td>Cost</td>
<td>US$780M</td>
</tr>
</tbody>
</table>
Transformation from Barren Quarry to Green Oasis

The building height profile respects the Tai Sheung Tok ridgeline and the proposed future Anderson Quarry Park to create an undulating skyline.

>30% Green Coverage

Prevailing Wind Oasis Corridors

Estate Main Entrance

Fung Tai

Shing Tai

Yung Tai

Kam Tai

Hang Tai

“Urban Oasis”

Green and breezy corridors were created by maximizing the spaces between buildings in order to provide a comfortable open spine for public use. Domestic blocks were dispositioned to allow for the unobstructed wind and view corridors ranging from 18 m to 30 m wide. This helps to eliminate the bulkiness and wall effect of the development, and also facilitate natural cross ventilation across the development and its surroundings.

Design Concept

Country: Hongkong
Project: On Tai Estate
Kwun Tong, Kowloon
Transformation from Barren Quarry to Green Oasis

Solar light tubes were installed at wet market and car park. They could distribute natural light to those areas for the purpose of illumination and saved energy.

Zero Irrigation System (ZIS) made use of sustainable urban drainage and sub-irrigation planting system, to minimize water consumption.

Oasis Void enhanced breezeways to save about 90% energy of mechanical ventilation at carpark.

Country: Hong Kong
Project: On Tai Estate
Kwun Tong, Kowloon
Transformation from Barren Quarry to Green Oasis

Green noise barrier facing Bus Stop allowed visual connection with internal garden.

The colouring pattern was designed according to the thermal study which minimizes the solar heat gain from the building façade.
Transformation from Barren Quarry to Green Oasis

Energy saving in Wet Market
- "free cooling operation mode" (saved 60% energy)
- "heat wheel energy recovery system" (saved 12% energy)

Energy saving in Domestic Blocks
- LED bulkheads (saved 30% energy)
- Two level lighting (saved 25% energy)
- Motion sensor (saved 10% energy)
- Photo sensor and time switches to fully utilize daylight (saved 5% energy)

Energy saving in carpark
- LED tubular light fittings (saved 30% energy)
- EV Charging Facilities in carpark to promote use of electric vehicles

Grid-connected Photovoltaic System
- More than 300 pieces of photovoltaic panels to save about 3% of electric power of residential communal areas.

Electricity Consumption in the Public Areas of Estates

Annual electricity consumption of the communal areas is about 30% lower than the requirements of the Hong Kong Government’s "Building Energy Code" at the time.

Country: Hongkong
Project: On Tai Estate
Kwun Tong, Kowloon

Green & Sustainable Design
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Transformation from Barren Quarry to Green Oasis

Country: Hong Kong
Project: On Tai Estate
Kwun Tong, Kowloon

Green & Sustainable Design
Transformation from Barren Quarry to Green Oasis

We engaged local community in public art projects. Teachers and students of nearby schools and artists joined together to upcycle machineries and artefacts from Anderson Quarry and to transform them into new art pieces. We reuse the precast footings of hoardings and upcycle into seating benches for the public uses in the Geoheritage Exhibition Gallery.

Country: Hong Kong
Project: On Tai Estate
Kwun Tong, Kowloon
Arcasia Committee on Green & Sustainable Architecture
GREEN AsiARCH- 04 at Ulaanbaatar, Mongolia

Transformation from Barren Quarry to Green Oasis

Video

Country: Hong Kong
Project: On Tai Estate
Kwun Tong, Kowloon
Arcasia Committee on Green & Sustainable Architecture
GREEN AsiARCH- 04 at Ulaanbaatar Mongolia

Transformation from Barren Quarry to Green Oasis

- Green Building Award 2021
- Quality Building Award 2020
- Asia Pacific Project Management Awards 2019
- Hong Kong Institute of Project Management Awards 2019
- Construction Industry Council Sustainable Construction Award 2018

Country: Hongkong
Project: On Tai Estate
Kwun Tong, Kowloon
Country - Malaysia
Project - 1 LASAM, Ipoh
Architect - Kuee Sheau Shyuan
Arcasia Committee on Green & Sustainable Architecture
GREEN AsiARCH- 04 at Ulaanbaatar Mongolia

1 LASAM, Ipoh

Country: Malaysia
Project: 1 LASAM, Ipoh
Arcasia Committee on Green & Sustainable Architecture
GREEN AsiARCH- 04 at Ulaanbaatar Mongolia

Country: Malaysia
Project- 1 LASAM, Ipoh

Brief Description
Lasam was conceptualized more than 8 years ago by the owner, Dato Lim when GRI rating tool was new and there was no green building in Perak. The client wanted to build the first GRI Platinum building to resonate with the group’s motto of being a pioneer in many businesses they have ventured into since decades ago. Measuring about 30,000sq ft of office space, the 5-storey office block caters with majority workspaces with ancillary spaces e.g. conference room, gallery space etc. Material were selected carefully to reflect the client’s intention to keep the building as “near” as possible. Exposed bare concrete, waterproofed red bricks, simple aluminium framed tinted glass, exposed ceiling throughout, and to many’s surprise, not a single drip of paint was used in the entire building. To resonate further the V-shape land and V-shape columns, V-shape balustrades were designed to emphasise the strong alphabet presence of the client’s mother company name 8"Y"H.

Lasam was perhaps one of the boldest additions to Ipoh’s low profile skyline. Its head-turning architecture has attracted interests from professionals and the public since It’s completion. We believe this will contribute positively to the local sustainable architecture scene in many years to come.

Neighbouring Army Camp Prohibitions
(a) Direct Views (b) Roof Access (c) Building Height

Floating Box Concept & Lifted Massing to maximise footprint on ground
Carved Out Central Courtyard allows daylight to reach most offices spaces; Nano Windows made cross and stack ventilation possible

Ventilation & Daylight Consideration

Project’s Drivers & Concept

Sunlight

THE SITE

V-shaped Site & Limited Space on ground

Sketches

Country: Malaysia
Project- 1 LASAM, Ipoh
**Floor Plan & Green Design Strategies**

- **Green initiatives**
  - Green Wall
  - Car Park Parking
  - Recyclable Material
  - Sketch Plan
  - Existing Area
  - Plumbing Area
  - Ground Floor Plan
- **Materials**
  - Concrete
  - Glass
  - Metal Frame
  - Steel Frame
  - Cross Ventilation

**Country: Malaysia**

Project - 1 LASAM, Ipoh

- **Notes:** Windows were installed at high levels of all office spaces for natural cross & stack ventilation through the central courtyard.
- **Materials:** Selected carefully to reflect the client's intention to keep the building as "raw" as possible.
- **Central Courtyard:** Central courtyard was carved in the centre, to allow more daylighting into the office spaces.
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Green Building Index (Platinum) Design Assessment Score

Other green features includes harvesting electricity from the solar panels, rainwater and grey water harvesting, tinted glass, grasscrete for lowering heat island effect, and biowalls on site for effective storm water drainage etc.

Country: Malaysia
Project- 1 LASAM, Ipoh
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Achieved 8 Categories of the United Nation's SDG Goals

Country: Malaysia
Project: 1 LASAM, Ipoh
Country- Malaysia
Project- Wao Shelter Home
Klang Valley
Architect- Syah Kamaruddin
Arcasia Committee on Green & Sustainable Architecture
GREEN AsiARCH- 04 at Ulaanbaatar Mongolia

WAO SHELTER HOME
KLANG VALLEY, MALAYSIA

Country: Malaysia
Project- Wao Shelter Home
Klang Valley
The WAO Shelter Home is a Corporate Social Responsibility project to rebuild a 50s house that had been struck by lightning and partly destroyed by fire. The house much deteriorated and due to its condition, it needed extensive rebuilding. The burnt roof tiles were salvaged from the partially demolished house. The existing house was a safe home for rescued children under eighteen, who found refuge within its walls.

The design idea is to keep portions of the old structure for the administration zone and create two-storey annexes for the residential zone. In between, the administration and residential zones share a green courtyard serving as a communal space.

The WAO Shelter home is one of the first childcare centers with Green certification achieving the highest Platinum score to date. The house design focus on its passive and active cooling strategies, recycled material, and optimized use of renewable energy.

The house is oriented to enable good daylight penetration with minimum solar heat gain even with large openings at the ground. Cross ventilation breezes and convective airflow were achieved via the central courtyard and permeable screen walls. Besides the main rooms, wet areas i.e. toilets, bathrooms, and kitchens are designed with operable windows and vent walls for natural ventilation and daylighting.

**Country:** Malaysia  
**Project:** Wao Shelter Home  
**Klang Valley**
pockets of light & atmospheres

1. transitioning silhouettes
2. pocket garden connecting office and living room
3. adjusted window wall ratio to achieve maximum thermal comfort at dormitory space
4. natural light & well ventilated corridor connecting all rooms at upper floors

Land Area: 530sqm
Built Area: 7000sqft
Year of Completion: 2022
Principal: Syah Kamaruddin
Associate: Choong Wei Li
PM: redzuan

To further limit the entrapment of heat through the window, the high-performance glasses were installed with RETV 15.24 W/m²k achieved. The selection of louvers window allows up to 95% open to breeze and window to wall ratio of 0.17 with concrete wall U-Value at 2.6W/m²k.

Country: Malaysia
Project: Wao Shelter Home
Klang Valley
Arcasia Committee on Green & Sustainable Architecture
GREEN AsiARCH- 04 at Ulaanbaatar Mongolia

Name of the Consulting Firm
Civil & Structure: W. Lee Associates
MEP: EAB Consulting Engineers Sdn. Bhd
Cost of the project (in USS): 268,198.00
Awards:
Malaysian Institute of Architects (PAM) 2022 -
Silver Winner Award for Adaptive Reuse Category
Malaysian Institute of Architects (RAM) 2022
Commendation Award for Sustainable
Development Gold Category

Country: Malaysia
Project: Wao Shelter Home
Klang Valley
The Home was the result of a six-year project with a limited budget; the new 2 and a half storey children’s home finally marked its completion on 20 January, 2022 with a total built-up of 5700 square feet. Despite the pandemic and experiencing 2 major lockdowns the shelter is a beacon of hope, just like the burnt roof tile screen wall, it symbolizes a gesture of recovery, regeneration, and resilience. It is hope that this calm and sheltered environment will inspire the children who have suffered domestic abuse and violence and inspire people to create a more supportive and regenerative environment for those less fortunate.

To reduce the detrimental impact on occupant health from finishes emitting internal air pollutants, low VOC paints, environmentally friendly adhesives were used as the source for interior surface finishes, besides that, several Certified green label products were used such as lightweight wall panels and Mineral roof tile.

With the limited budget valued at approximately RM180 per square foot, the new shelter home reused various recyclable materials such as the rejected porcelain tiles and sample marble tiles from developers, excess stock sanitary ware and fittings from the suppliers, and the burnt roof tiles from the fire-damaged house were repurposed and up-cycled to create a new protective interior screen wall.
Country - Japan

Project - Miyako Shimojishima Airport Terminal, Okinawa

Architect - Shinji Kaneuchi & Masanobu Koizumi
Miyako Shimojishima Airport Terminal

Country: Japan
Project: Miyako Shimojishima Airport Terminal, Okinawa

Built Environmental Eng: Daemu Nagasae + Kikka Uchida
Cost of the project: US 60,000,000
Awards: Excellence Award of JIA Environmental Architecture Award 2021; Excellence Award of Kyushu Carbon Neutral Award 2021; The highest prize of SABED Environmental simulation Award 2019.
Country: Japan
Project-Miyako
Shimojishima Airport
Terminal, Okinawa
Miyako Shimojishima Airport Terminal

“The resort experience begins at the airport”

This phrase is slogan of Miyako Shimojishima airport. Leisure travel is in which the primary motivation is to take a vacation from everyday life. We wanted travelers to feel the fun of travel at this airport as it is used for the beginning and the end of their travel.
Miyako Shimojishima Airport Terminal

Harmony with Natural Environment

The airport is surrounded by spacious landscaped areas that lead directly to the surrounding waterfront and vegetation. Passengers can choose indoor or outdoor seating while waiting to board their planes. Outdoors, one can feel the rich greenery of native plants, the water reflections in the sky with white clouds, and the gentle breeze on skin. It is difficult to imagine the atmosphere of such an airport.

Natural Ventilation

Natural Light

In order to bring the sunlight to the depths of the building while suppressing the solar radiation load, we used simulation technology to construct the roof in multiple layers and take in the light indirectly.

Country: Japan
Project: Miyako Shimojishima Airport Terminal, Okinawa

East ← West

5 m

Long eaves for solar shading

Cascade use of groundwater

The groundwater used as cooling water for the heat source is 7-18°C, which is lower than the asphalt, concrete, and outside temperature. Groundwater is channelled into a water feature installed around the building, and used to reduce the temperature of the surrounding air around the building and the temperature of the wind circulating the lounge from the outside.
Miyako Shimojishima Airport Terminal

Nature conservation

Water resources are very precious here on Miyako Island. All sewage wastewater used in the buildings is highly treated and used as recycled water. It is used for flushing toilets and irrigating plants and etc.

Sewage recycle system

The material used for the wooden roof is called CLT (Cross Laminated Timber). The use of CLT inside gives the space a natural warmth and glow. This contrasts with the cool polished concrete and weathered tile floors. Using CLT will also contribute to a forest recycling society.

Wood utilization system

Country: Japan
Project-Miyako
Shimojishima Airport
Terminal, Okinawa
Miyako Shimojishima Airport Terminal

Energy Saving Technologies

Evaporative Cooling System

This system can cool the air by taking heat from the air when the water evaporates into vapor. As a result, cooling is possible with use of a small amount of energy required to evaporate the water. Energy consumption can be reduced dramatically compared to conventional air conditioning. In addition, the evaporative system used in this airport works with a special mechanism that cools and moistens the evaporated water vapor with the indoor air, so does not raise the indoor humidity.

Real time simulation system

The windows around the building are opened and closed, so can create a comfortable natural wind in the room. By inclining wind direction and wind speed sensors in each direction of the room and analyzing the flow of the wind in real time, it provides feedback to the facility manager to make the most effective wind to open the windows. The system also identifies a method to control a comfortable space and energy-saving in real time.

SET*

In addition to the temperature and humidity values inside the building, the wind speed and the temperature of the building itself are measured in this system. Based on all these values, the indoor environment is determined comfortable or not. The formula used for this determination is called SET*. SET* is a comprehensive comfort index that allows us to incorporate all the basic physical elements of thermal comfort. In this airport, various comfort baselines are set all year round thanks to opening windows and taking in the outside environment. It is possible to modify the condensing settings and the opening/losing of the windows according to the SET* value. In this airport, SET* is set to be slightly higher than normal values to achieve an energy-saving and pleasant indoor space.

Thermal environment control

HVAC using groundwater

The Ground water which is stabilized at 24°C per year is used as cooling water for HVAC equipment. By using this, it is possible to make hot and cold water with extremely high heat source efficiency, thereby saving energy. This water for cooling and heating is sent to the water cooling and heating coils installed in combination with the evaporative cooling system, and enabling extremely high efficiency for air conditioning.
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Country- Sri Lanka
Project- The Quarry Site: Nature Pavilion
Architect- Gayan Herath Chartered Architects
Arcasia Committee on Green & Sustainable Architecture
GREEN AsiARCH- 04 at Ulaanbaatar Mongolia

Country: Sri Lanka
Project: The Quarry Site
Nature Pavilion
Arcasia Committee on Green & Sustainable Architecture
GREEN AsiARCH- 04 at Ulaanbaatar Mongolia

THE QUARRY SITE: NATURE PAVILLION
KIRIGALAHENA ESTATE - SRI LANKA

PROJECT INFORMATION
- Location: Province - Sabaragamuwa
  City - Ruhavankella
  Village - Lewangama
- Area: Built Area - 480 sqft
  Land Area - 2 acre property
- Cost of the project: 41200 US$
- Year of Completion: 2020
- Architect:
  Principal Architect - Gayan Herath
  Gayan Herath Chartered Architects
- Awards:
  Excellence Award in Green & Sustainable Architecture - 2022 awarded by SLAA

PROJECT DESCRIPTION
- The chosen site was once an abundant stone quarry; however, due to rapid stone quarry activity to years ago, the entire two acres of the estate's entry-level environment was highly disturbed, and the site's current state was an undeveloped area with no hope of revitalizing its habitat and life in its ecosystem.
- The goal of the project was not merely to create a aesthetically transformed site to surround an architecturally green and sustainable structure, but also to transform the context and master plan into a revitalized landscape project that could serve as a sustainable habitat involving the community in the coming years.

Timeline

Conversion of landscape through environment sustainable approach

STAGE 01 (2018)
This strategy began with the establishment of an organic farm in 2018 and a landscape corridor in 2019.

STAGE 02 (2018)
Launch of planting and identifying endemic plants within the area in order to preserve the natural context and its flora and fauna.

STAGE 03 (2018)
The launch of the cultivation and landscape projects was maintained on a regular basis to guarantee that soil fertility levels were restored to their previous levels.

STAGE 04 (2019)
The original water body was restored and given prominence to aid in natural cooling methods such as evaporation.

Country: Sri Lanka
Project: The Quarry Site
Nature Pavilion
Arcasia Committee on Green & Sustainable Architecture
GREEN AsiARCH- 04 at Ulaanbaatar Mongolia

CONVERSION OF ARCHITECTURE
KIRIGALAHENA ESTATE

STAGE 05(2019)
A new sustainable pavilion design was conceived using the identical footprint of the old quarry shed.

STAGE 06(2019)
A pavilion project was designed with a conscious approach to the current environment in order to facilitate logging and services.

Environmental sustainability through Enrichment of eco systems and Organic food habits

Social sustainability through Empowerment and Enhancing lifestyle

Country: Sri Lanka
Project- The Quarry Site
Nature Pavilion

An organic environment was created by women aged 45-55 who were involved in the project as estate workers, providing jobs for 200 families in the nearby village, providing a long-term solution to the problem of job insecurity.

Drafting pipes to deliver water to feed the village community due to the lack of clean water systems in the village.
SUSTAINABLE APPROACH TO PROJECT HABITAT

Firstly, the damaged land was revitalized by promoting plant growth and transforming the rock quarry into an organic cashew plantation to improve soil quality; the cashew plantation was chosen because it requires less fertile ground. This process required several years, as it involved transplanting infertile plants until they matured in order to ensure that the soil returned to a healthy state.

Along with this endemic trees in the context were identified, and densifying of the crucial sensitive vegetation around the context, was done to protect the current natural environment and animal species. And one of the most important difficulties addressed at the start of this voyage was exposing natural soil to the sun and rain. In addition, the regions around the existing stream were treated with specialized plants to prevent additional land erosion.

“conversion of a grey field into a sustainable gold field”
Arcasia Committee on Green & Sustainable Architecture
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Country: Sri Lanka
Project- The Quarry Site
Nature Pavilion
Arcadia Committee on Green & Sustainable Architecture
GREEN AsiARCH- 04 at Ulaanbaatar Mongolia

APPROACH TO SUSTAINABILITY

-MATERIAL AND RESOURCES-
The principle of recycling and reuse was followed when selecting materials for the project. Starting with the foundation, the remaining quarry boulders were used directly (low embodied energy), and the lumber for the roof structure and decks was supplied directly from recycled rafters from a village school. When it came to the decorative elements and household items, reused and recycled and locally sourced natural material were chosen instead of modern resources creating a ZeroPLASTIC FREE. The external walls were painted with "SAMARA," a local material created from natural materials that does not pollute the environment.

INTERIOR ENVIRONMENT
In order to construct a low carbon footprint structure, the architect employed the least amount of space within each room. In addition, the architect studied cross ventilation, natural cooling, and light approaches to prevent the usage of high energy costs and achieve thermal comfort.

Country: Sri Lanka
Project- The Quarry Site
Nature Pavilion
Arcasia Committee on Green & Sustainable Architecture
GREEN AsiARCH- 04 at Ulaanbaatar Mongolia

Country: Sri Lanka
Project: The Quarry Site
Nature Pavilion
Country- Thailand

Project- Pannar Sufficiency Economic and Agricultural Learning Center

Architect- Vin Varavarn Architects
PANNAR SUFFICIENCY ECONOMIC AND AGRICULTURE LEARNING CENTER

Location of Project: Nai Mueang, Thailand.
Year Completion: 2021
Cost:
Total Floor Area:
Site Area: 14 acres
Architect: Vin Varavarn Architects
Cost of the project ($):
Awards:
- National Best Architecture ASA Gold Award 2022, for Sustainable/Social Architecture
- Golden Pin Design Mark Awards, Taipei, 2021
BRIEF DESCRIPTION: SUFFICIENCY THINKING AND MINDSET

Within national and global crisis, the PANNAR Sufficiency Economic and Agriculture Learning Center is established with the aim to inspire and disseminate Sufficiency Economic Philosophy elaborated by His Majesty King Bhumibol Adulyadej of Thailand to the Thai people. Philosophy is based on the conviction that sufficiency thinking will strengthen human capabilities with wisdom, morality, and immunities to cope with unforeseeable changes and threats.

The project is designed to transform distorted and rocky deserted areas into the New Agriculture Model. The activity center, the main building of the project, is designed to enhance “sufficiency thinking and mindset” which represent local soil usage in a modern way. The bamboo craftsmanship is implemented as part of building under the traditional concepts of rural dwellings of bamboo huts or temporary shacks.
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Country: Thailand
Project: Pannar
Sufficiency Economic & Agriculture Learning Center

DESIGN CONCEPT
The Activity Center, is a two-story building, is placed as a landmark among the vast agricultural fields. It is designed as a large and open pavilion to facilitate flexible usage of functions with natural lights and natural ventilation to accommodate up to 100 people. The bamboo craftsmanship is decided to be used as roof material in a modern way. During the drought season, the expansive and prominent roof made from locally grown bamboo is designed to collect and drain rainwater and feed other areas of the land for usage. As part of the building material, the local soil is adapted to create the natural color of earthen walls. These result to create modern designs which is attractive, well suited for present-day ways of life, durable as well as achieve harmony with the environment.
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Country: Thailand
Project: Pannar
Sufficiency Economic & Agriculture Learning Center
The locally grown bamboo is used for roof material.

Country: Thailand
Project: Pannar
Sufficiency Economic & Agriculture Learning Center
Arcasia Committee on Green & Sustainable Architecture
GREEN AsIARCH-04 at Ulaanbaatar Mongolia

Country: Thailand
Project: Pannar
Sufficiency Economic & Agriculture Learning Center

Source:
https://archid.com/2021/06/pannar-agricultural-sufficiency-science-learning-center

The natural color of earthen walls is made of local soil.
Country- Thailand
Project- Forest Pavilion
At the Forestiers
Architect- Fosters + Partners
Location of Project: The Forestias, Samut Prakan, Thailand
Year Completion: 2020
Site Area: 48,000 square meters.
Total Floor Area: 1,230 square meters.
Architect: Foster + Partners – Foster + Partners
Local Architect: DT Design
Interior Designer: Bug & DT Design
Landscape Designer: TK Studio Co.
Structural And Civil Engineer: Eec Lincolne Scott
Mep Engineer: EEC Engineering Network
Lighting Specialist: Aclid
Hardscape Contractor: Christiani & Nielsen (Thai)
Softscape Contractor: CPS
Quantity Surveyor: Aecom (Thailand)
Sustainability Consultant: Atelier Ten Ltd.
Awards: National Best Architecture ASA Gold Award 2022
for Office/Commercial Building
BRIEF DESCRIPTION

The Forest Pavilion is located at the center of a 40,000 square meters of urban forest of Forestias project. The Forest Pavilion is intended to be a testing lab for symbiosis with nature. The essence of nature where users can have a unique experience of nature in an urbanized form have been integrated with landscape design at the Forest Pavilion.

Currently, the forest pavilion functions as the sales gallery for a residential project in the Forestias, and will be replaced to The Forestias Ecosystem Learning Center for sharing knowledge of forest ecosystem and to be a hub of resilience society for joyful moments in the future. Happiness is the ideal living sanctuary that demonstrates the happiness of dwelling within the urban forest.

Country: Thailand
Project: Forest Pavilion At The Forestiers
DESIGN CONCEPT

To support happiness and wellness of the users and create an immersive experience of living with nature, the architecture committee, the majority of area is dedicated to green space which can be seen from every angle of the Forest Pavilion. These lead to users’ integration and encouragement to access to nature.

Myawaki Eco Forest is implemented to the forest pavilion through dynamic forest-like landscape called “living paradise”. The biodiversity is created by living paradise will grow and evolve along with the current and future generations. A refreshing living experience with nature which integrated sustainable design with high-quality modern lifestyle for residents to appreciate international standards of SITES, WELL, and LEED are implemented. In order to create a better and more sustainable world, residents will share mutual benefits with nature harmoniously, learning to be part of nature and raising awareness.

Country: Thailand
Project: Forest Pavilion
At The Forestiers
Country: Thailand
Project: Forest Pavilion
At The Forestiers
Country: Thailand
Project: Forest Pavilion
At The Forestiers

Connect to the nature. The user experiences the variety of planting along the walkway.

Planting and trees along the walkway to The Forest Pavilion.
Arcasia Committee on Green & Sustainable Architecture
GREEN AsiARCH- 04 at Ulaanbaatar Mongolia

Country: Thailand
Project: Forest Pavilion
At The Forestiers

Interior design of The Forest Pavilion, Exhibition space
Country: Brunei

Project: Eco Luxury Resort, The Abode Resort and Spa
Arcasia Committee on Green & Sustainable Architecture
GREEN AsiARCH- 04 at Ulaanbaatar Mongolia

GREEN AsiARCH 2022

EXHIBITION OF GREEN AND SUSTAINABLE PRACTICE OF ARCHITECTURE IN ASIA

PROPOSED DEVELOPMENT OF ECO LUXURY RESORT, THE ABODE RESORT & SPA
LABU, TEMBURONG DISTRICT, BRUNEI

Country: Brunei
Project: Eco Luxury Resort, The Abode Resort & Spa
THE ABODE IS A UNIQUE ENCLAVE OF LUXURY 21ST CENTURY SAFARI STYLE TENTED VILLAS ALONGSIDE THE WATERS OF LABU RIVER, WHERE LUXURY AND NATURE CONVERGE FOR THE PERFECT GETAWAY. LOCATED LESS THAN 1KM FROM BRUNEI OWNED LANDMARK, THE LONGEST BRIDGE IN SOUTHEAST ASIA (KNOWN AS SOAS BRIDGE, TEMBURONG), THE FIRST RESORT THAT IS Powered 100% BY RENEWABLE ENERGY. THE PROJECT DEVELOPED BY ECO GREEN DEVELOPMENT SDN BHD. THE DEVELOPMENT CRITERIA OF THE ECO-TOURISM FACILITY INCLUDES IMPLEMENTING GREEN INITIATIVES WHERE SELECTION OF APPROPRIATE SITE WITH USING SUSTAINABLE BUILDING MATERIALS AND APPLYING NATURAL DESIGN STYLE. WITH THESE STANDARDS IN MIND, IT CREATED MINIMAL IMPACTS TO THE NATURAL RESOURCES WHILE COMPLEMENTING THE SURROUNDINGS AND RESPECTFUL TO THE LOCAL COMMUNITY. THE COST OF THE PROJECT IS LESS THAN USD 5 MILLION.

- 100% RENEWABLE ENERGY
- SUSTAINABLE MATERIALS
- NATURE IMMERSIVE EXPERIENCE
- ECO SENSITIVE ENVIRONMENT
- PREFAB STRUCTURE

Completed in December 2021

Country: Brunei
Project-Eco Luxury Resort, The Abode Resort & Spa
Arcasia Committee on Green & Sustainable Architecture
GREEN AsiARCH- 04 at Ulaanbaatar Mongolia

Country: Brunie
Project-Eco Luxury Resort, The Abode Resort & Spa
Arcasia Committee on Green & Sustainable Architecture
GREEN AsiARCH- 04 at Ulaanbaatar Mongolia

The design concept generally surrounds eco-friendly and does not deviate far from the sustainability aspect where the locations of each villa intended to be as close to nature experience as possible. In this context, the river, were also challenged by the location of the existing foals. The design team had to get their boots dirty during construction to identify the new location to avoid cutting down big trees as part of the initial design criteria for a minimal impact.

Country: Brunei
Project-Eco Luxury Resort, The Abode Resort & Spa
Welcome to The Abode!

Here at The Abode Resort & Spa we have done our best to ensure sustainability during construction and well into the life of the resort.

**DID YOU KNOW?**
The Spa Boardwalk is locally fabricated with local timbers Belau & Kayu Kapur.

Recycled Timber from Site Clearance

Repurposed steel from SOAS Bridge as structural elements

Your locally sourced eco driveway!

Local Temburong Gravel

Crushed Repurposed Spun Piles from SOAS Bridge

Soil

Prefab Architecture during the pandemic reduces manpower and resources used

Local timber & pebbles from Temburong!

Locally available Temburong Materials lower carbon footprint

Country: Brunei

Project-Eco Luxury Resort, The Abode Resort & Spa
Arcasia Committee on Green & Sustainable Architecture
GREEN AsiARCH-04 at Ulaanbaatar Mongolia

The ABODE

Operates on 100% off-grid solar power.

- 816 Solar PV panels
- Load Capacity: At normal full load operation, the estimated maximum demand is around 142kW
- Solar Inverters converted using 2 nos of inverters for electricity supply.
- 280 nos Battery 420kWh
- 200 kW Standby Genset 300 kVA in case of emergency case

Solar power installation at the Abode contributes 0.3% to Brunei’s share of renewable energy.

Country: Brunei
Project: Eco Luxury Resort, The Abode Resort & Spa
Country- India
Project- School in the Dumpyard, Delhi
Arcasia Committee on Green & Sustainable Architecture
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Country - India
Project - School in the Dumpyard, Delhi

Immediate surroundings of the "School in the Dumpyard"
Arcasia Committee on Green & Sustainable Architecture
GREEN AsiARCH- 04 at Ulaanbaatar Mongolia

Country- India
Project- School in the Dumpyard, Delhi
Arcasia Committee on Green & Sustainable Architecture

GREEN AsiARCH- 04 at Ulaanbaatar Mongolia

Country- India
Project- School in the Dumpyard, Delhi
Arcasia Committee on Green & Sustainable Architecture
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Country- India
Project- School in the Dumpyard, Delhi

Aerial view of the School sitting amongst large garbage mound.
Arcasia Committee on Green & Sustainable Architecture
GREEN AsiARCH- 04 at Ulaanbaatar Mongolia

Country- India
Project- School in the Dumpyard, Delhi
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Project- School in the Dumpyard, Delhi
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Project- School in the Dumpyard, Delhi
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Country- India
Project- School in the Dumpyard, Delhi
Country- Bangladesh
Project- Vision Garden,
BPATC, Savar, Dhaka
Architect- Ahsan Samim Sumit
Presentation for
GREEN AsiARCH2022
Exhibition of Green and Sustainable Practice of Architecture in Asia

1. Country: Bangladesh
2. Name of the project: Vision Garden (an atrium for general meetings, seminars, celebrating occasions, idea sharing space etc.)
3. Location: ITC building, BPATC, Savar, Dhaka, Bangladesh.
4. Area: 2,275 sq ft Land Area: 41,977 sq ft Built Area: 2,275 sq ft
5. Year of completion: November 2019
6. List of professionals:
   - Architect/s:
     - Principal Architect: Ahsan Samim Sumit
     - Associate Architects: Ahmed Abdul Wasi, Jalal Uddin Rumi
     - Name of the Consulting Firm: Nesting Architects Consultants
   - Engineers:
   - Structure: PWD (Public works department), Bangladesh
   - MEP: PWD (Public works department), Bangladesh
   - Landscape: PWD (Public works department), Bangladesh
   - Interior:
7. Cost of the project: 29,988 US$
8. Brief description:
The project is located at Savar, in Dhaka, inside the ITC (International Training Complex) building at BPATC (Bangladesh Public Administration Training Centre). The main ITC building used to have only 5 stories till 2017, later it lifted up to a 10 storey building to accommodate all the necessary academic programmes and facilities. Today, the 10 storey building is a 9 story atrium at its centre starting from the 1st floor to the 9th floor. This atrium used to be just a void having a glass roof at top to get protection from rain and direct sunlight from above, which resulted in a green house effect inside the building in summer season adding discomfort and stress to the day to day lives of users. So the clients were searching for a solution that consumes less energy (avoiding Air Conditioning system) and to be made of locally available materials which could be purchased from nearby cities. Chasing this endeavour, in walks us to give an imaginative solution to the problem and design an environment that could house multipurpose activities in this heart of the building, simultaneously provide a natural method of refining the air and cooling down the indoor by creating a microclimate. We feel lucky to finish the project. Hopefully we have provided a place of relief and comfort to these very important personals of our country.
Inspiration

"I felt like lying down by the side of the trail and remembering it all. The woods do that to you, they always look familiar, long lost, like the face of a long-dead relative, like an old dream, like a piece of forgotten song drifting across the water, most of all like golden eternities of past childhood or past manhood and all the living and dying and the heartbreak that went on a million years ago and clouds as they pass overhead seems to testify (by their own longsome familiarity) to this feeling."

-Jack Kerouac

What is GREEN?

- Love
- Nil/Pain/Stress
- Sensitivity/Freshness
- Idea

Preliminary Site Condition

- General office spaces create a stressful environment for the employees.
- Open yards and green spaces create idea sharing and love making spaces.
- Combining green spaces with office space leads to stress relief environment for the employee.

Country: Bangladesh
Project: Vision Garden, BPATC, Savar, Dhaka
Arcasia Committee on Green & Sustainable Architecture
GREEN AsiARCH- 04 at Ulaanbaatar Mongolia

Previously Existing Courtyard Plan  Atrium Section

Exploded Axonometric View

Re-Designed Courtyard Plan

Light Wave Meter

Indoor Plants For Landscape
- Sapota (ostichia)
- Patalabahal
- Madhubothe
- Areca Palm

Floor Design

These indoor plants can grow in less water and low sunlight.

- Silver queen
- Keys
- Revish Palm
- Dhanlaly
- Korma

In previous conditions, sunlight fell over the surface used to release long heat radiation waves which get trapped inside the atrium, thus causing internal heat rise.

After designing the courtyard the sun light first bit the green layer above the surface. Then the longer wave length of heat is absorbed by the marble layer on the surface. So environment remains cool and comfortable.

Country: Bangladesh
Project: Vision Garden,
BPATC, Savar, Dhaka
Arcasia Committee on Green & Sustainable Architecture
GREEN AsiARCH- 04 at Ulaanbaatar Mongolia

Country: Bangladesh
Project- Vision Garden, BPATC, Savar, Dhaka
Arcasia Committee on Green & Sustainable Architecture
GREEN AsiARCH- 04 at Ulaanbaatar Mongolia

Country: Bangladesh
Project- Vision Garden, BPATC, Savar, Dhaka
Country- Bangladesh
Project- EKMATTR A Dutch
Bangla Bank Academy
Architect- Iqbal Habib, Ishtiaque Zahir Titas,
Shahnaz Akhter Parveen
Arcasia Committee on Green & Sustainable Architecture
GREEN AsiARCH- 04 at Ulaanbaatar Mongolia

EKMATTR A Dutch Bangla Bank Academy

Country: Bangladesh
Project: EKMATTRA
Dutch Bangla Bank Academy
Arcasia Committee on Green & Sustainable Architecture
GREEN AsiARCH- 04 at Ulaanbaatar Mongolia

Project Description

EKMATTRA is a foundation for under-privileged street children founded by joint effort of a Japanese student Hiroki Watanabe and his friends from Dhaka university. With hope of providing regular life to these children with shelter and education, EKMATTRA Academy developed in phases with limited ability and budget constrain. The project, initiated on 27th August, 2010 took seven long years to be a reality with funding from different sources especially Dutch Bangla Bank Foundation. Surrounded by seasonal waterbody and lush green landscape of Haluaght, Mymensingh, the Academy is now home for more than 60 boys and 64 girls with their teaching stuffs and support personnel.

Country: Bangladesh
Project: EKMATTRA Dutch Bangla Bank Academy

<table>
<thead>
<tr>
<th>Country</th>
<th>Bangladesh</th>
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<tbody>
<tr>
<td>Name of the Project</td>
<td>EKMATTRA Dutch Bangla Bank Academy</td>
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<tr>
<td>Location</td>
<td>Haluaght, Mymensingh</td>
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<tr>
<td>Land Area</td>
<td>12800 sq. m.</td>
</tr>
<tr>
<td>Built Area</td>
<td>2500 sq. m.</td>
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<tr>
<td>Year of Completion</td>
<td>2017</td>
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<tr>
<td>Architect</td>
<td>Iqbal Habib, Ishbaque Zahir Titus, Shahnaz Akhter Parveen</td>
</tr>
<tr>
<td>Associate Architect</td>
<td>Kawary Parveen</td>
</tr>
<tr>
<td>Name of the Consulting Firm</td>
<td>VITI Strapatni Brindo Ltd, Minmoy Consultants.</td>
</tr>
<tr>
<td>Structure</td>
<td>A.K.M. Jahangir Alam</td>
</tr>
<tr>
<td>Plumbing</td>
<td>Md. Fakruzzaman</td>
</tr>
<tr>
<td>Electrical Engineer</td>
<td>Abul Kasem</td>
</tr>
<tr>
<td>Awards</td>
<td>30th JK Cement Award, India (Foreign Architect Category)</td>
</tr>
</tbody>
</table>
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Country: Bangladesh
Project-EKMATTRA
Dutch Bangla Bank Academy
Arcasia Committee on Green & Sustainable Architecture
GREEN AsiARCH- 04 at Ulaanbaatar Mongolia

Country: Bangladesh
Project-EKMATTRA
Dutch Bangla Bank Academy
Like the common rural settings of built forms in Bangladesh, the school has been designed surrounding a courtyard or “Uthian”. The facilities have been designed in clusters of small buildings that give one a sense of the village homesteads bounded by natural landscape. The whole facility is based on pure natural ventilation. The glare free lights are used for internal lighting with the window openings carefully protected from private wing and direct sun glare. The cross ventilation above the ceiling and under the roof takes away hot air and cools the environment down through convection.

Considering the remoteness of the place, the materials are carefully chosen with local burnt brick, folded GI plate roof, MS frames as base materials with exposed brick construction technique as to keep the budget restricted.

The project accommodated rainwater harvesting tank to facilitate clean water at dry seasons with careful orientations of its masses to manipulate natural ventilation of the south and south east. Overhang roof lines are visible to ensure rain protection as well as to cast shadows at appropriate moment. The roof lines are separated with light MS frames from the solid brick walls to accommodate a ‘buffer’ space between the roof the usable space at the lower level, which will be continuously replenished with fresh air of breezes.
Country - China

Project - Han Theater Of
Wuhan International EXPO Center

Architect - Wang Xiaohui, Liu Ying, Yin Jintao, Xia Ni,
Wu Sixing, He Xiangyi, Huang Donglin
Arcasia Committee on Green & Sustainable Architecture
GREEN AsiARCH- 04 at Ulaanbaatar Mongolia

Country - China
Project - Han Theater Of Wuhan International EXPO Center
Basic Information

Country: China
Name of the Project: Han Theater Of Wuhan International EXPO Center
Location: Wuhan, China
Land Area: 36,314m²
Built Area: 56,354m²
Year of Completion: 2022

List of Professionals:
Architects: Wang Xiaohui, Liu Ying, Yan Jiaoo, Xia Ni, Wu Shigang, He Xiaoyi, Huang Dongli
Structure: Peng Ning, Ren Feng, Chen Yi, Cheng Qiu, Lin Dong
MEP & Sustainable Design: Tang Xiaolong, Jin Blui, Yi Biao, Feng Xiaolong, Wu Lei
Cost of the Project: $118.78 million

Brief Introduction:
Han theater is a multi-functional building, aiming to improve the exhibition, conference and performance functions of Wuhan International Expo Center.
Han theater has three floors, the ground floor is the welcoming hall and equipment rooms. The second floor is the exhibition front hall, with eight corridors connecting the surrounding pavilions. In the middle of the second floor is the central exhibition hall, which has a 2800 square meters area, and it can host the opening ceremony of large-scale exhibitions or high-quality exhibitions. The third floor is a multi-functional theater, which can accommodate more than 2,000 people for meetings and performances, and contains meeting rooms, reception rooms, lounges and dressing rooms. The fourth floor is the gallery and meeting rooms.
Design Concept

- Carry forward the spirit of Wuhan: As a representative of Wuhan spirit, the project takes the pursuit of excellence as the design theme, and takes the tradition and culture of Wuhan as the design concept.

- Promoting urban culture: The outline of the building is derived from the tripod of the ancient State of Chu, which reflects the classic shape of the surrounding exhibition halls. The facade design of the building takes ancient Chinese landscape painting as the concept, using the Yangtze River water pattern. The roof adopts the traditional phoenix pattern of the ancient State of Chu, which symbolizes flying high.

- Connecting city: The layout of the circular exhibition hall in Wuhan International Expo Center has solved the problem of too-long streamlines. The Han theater is built in the middle of the site and connects the surrounding exhibition halls through 8 connecting corridors, which greatly improves the evenness of the circular exhibition halls.

Awards: The 11th "Longtu Cup" National BIM Competition in 2022 - Second Prize of Comprehensive Group.
Arcasia Committee on Green & Sustainable Architecture
GREEN AsiARCH- 04 at Ulaanbaatar Mongolia

Country- China
Project- Han Theater Of Wuhan International EXPO Center

- Vertical exterior wall shading: The energy-saving performance of curtain wall system is improved by setting fritted wall, exterior shading and double silver insulating glass.

- Energy saving and low carbon emission: Reasonable selection of insulation materials for the envelope. The heating and air conditioning load generated by the envelope is reduced by 12.20%. Energy consumption for building heating, air conditioning and lighting was reduced by 11.42%. Carbon emission per unit area is 40.8kgCO₂/(m²·a)

- Outdoor heat-island intensity control: Roof and road surface use green roof and light colored pavement. The solar radiation reflection coefficient of pavement materials is greater than or equal to 0.40, which is conducive to outdoor heat-island intensity control.
Sustainable Design

- Prefabricated building: This project adopts the prefabricated building construction method, a large number of recyclable and high-strength materials and green building materials are adopted to improve the adaptability, durability and recycling renewability of the building.

- Full lifecycle BIM application: The project has created a BIM-based EPC project general contracting construction mode. BIM scheme simulation and optimization are placed in the project, which shorten the engineering time, and obviate rework and material waste.

- Intelligence operations: Combined with the building intelligence and network service platform, the project realized intelligent lighting control, accurate transmission measurement of energy consumption, equipment operation and maintenance monitoring and other intelligent service functions.
Arcasia Committee on Green & Sustainable Architecture
GREEN AsiARCH- 04 at Ulaanbaatar Mongolia

- **Indoor natural lighting**: Artificial lighting and natural lighting are integrated utilized to ensure indoor day lighting. The proportion of area that has a higher value of the standard hours of natural lighting illumination value of indoor space than 40% is 68.1%.

- **Acoustic design and noise simulation**: Ambient noise satisfies class II acoustic functional zone requirements. The design aims to reduce reverberation and offer a better conversation environment. It avoids sound quality defects, such as echo and quivering echo in the hall, and provides a good architectural sound environment.

- **Outdoor wind environment simulation**: Through the simulation analysis of outdoor sound and wind environment, the sound revolution and the requirements of ventilation of the site are determined.

**Sustainable Design**
Country: China

Project: The Renovation and Adaptive Reuse of the Panoff Mansion

Architects: Xiao Wei, Qi Wei, Zhang Xi, Wang Xiang, Li Yuting, Zhang Wenzhu
Country: China
Project: The Renovation and Adaptive Reuse of the Panoff Mansion
Project Overview

Country: China
Name of the Project: The Renovation and Adaptive Reuse of the Panoff Mansion
Location: Wuhan, China
Land Area: 2681.06m²
Built Area: 12939.28m²
Year of Completion: In progress

List of Professionals:
Architects: Xiao Wei, Qi Wei, Zhang Xi, Wang Xiang, Li Yutong, Zhang Wenchao
Structure: Zhong Xun, Lei Daowei, Zhang Si
MEP & Sustainable Design: Zhang Fan, Cai Xiongfei, Shen Jinfang, Fang Xiaoliang
Cost of the Project: 17.53 million $
Brief Introduction

The Panoff Mansion was built around the year of 1910. At that time, it was the largest mansion in Hankou. The Panoff Mansion is of a masonry-timber structure, showing a triangle flat in the perspective view. It comprises two neighbouring architectures named as "J.K. Panoff Mansion" and "Zeno Panoff Mansion". Material deterioration caused problems in its structural stability while its facades got partly damaged because of weathering and lack of maintenance. Inappropriate additions and transformations in certain parts of the complex compromised its cultural significance.

A new round of intensive survey, testing, investigation and conceptual design were carried out from 2018, followed by the structural stabilization, renovation and adaption for new functions. The progression of the structural stabilization has been finished, and will be all completed within this year. In the future, this former mansion will be used as a cultural experiential-type hotel, with the function of the Ten Thousand Li Tea Route Exhibitions to the public.
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- Restoration to Former Glory: Based on careful research and design, the conservation and renovation work restored the Panoff Mansion to its former glory.
- Opening up a New Life through Adaptive Design: reversible addition of new structures and facilities adapted the heritage site to brand new usage.
- Green and Sustainable Design Incorporated: Green and sustainable concepts and technologies were adopted. Based on the full corresponding to the local climate features, integrated design of ventilation, sunshade and thermal insulation were carried out. The BIM Technology is fully adopted in the whole process of construction.
- Close Attention to the Public Experience: the Panoff Mansion, as one of the representative buildings along the “Ten Thousand Li Tea Route”, carries lots of historical information; the second and fourth floors will be renovated as historical experiential hotel; the first floor will continue the original function as the commercial restaurant open to the public; the “Ten Thousand Li Tea Route” exhibition hall will be set in the building with the patio open to the public.

Design Concepts
Sustainable Design

- **Atriums with Natural Lighting**: Combining Energy Saving and Response to Local Climate. The new atrium roofing system with a combination of roof light glass and metal sheets accommodates local climate and the atrium and courtyards maximize the use of natural lighting.

- **Natural Ventilation System** incorporated: The open space under glass ceiling leads air flows in the "zero Panoff Mansion" and let them go out of the complex through the openings right below the atrium roof, forming favorable overall natural ventilation.

Country - China
Project - The Renovation and Adaptive Reuse of the Panoff Mansion
Country- Pakistan
Project- Telenor Campus
Islamabad, Pakistan
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Country: Pakistan
Project: Telenor Campus, Islamabad, Pakistan

The impact of the Telenor Office Campus has been in its holistic embrace of Mother Nature, through which a realization of the work place has taken place. Earth, Light, Water and Wind form the Conceptual framework around which spaces for work, study, and leisure areas are created. A Campus setting unique to this Site. The architectural formprinter in modernity is created through a dialogue with its land, history and context. Sustainable design concepts are developed and appreciated as everyday possibilities by young knowing workers who realize that their place of work isDry special the way they are the heart of the Ponder Plateau studies on earth's walls, their begin to appreciate nature conservation in the form of 'local' could not just as a voice of history but as an everyday reality. The planning concept, their experience of the Offices as an indoor-outdoor sequence of Park systems, Courts, Colonnades, Walkways where they can contemplate, meet and exchange. The notions and cultures at come together their larger work environments. The design ensures that the Site existing topography and historical water courses remain intact. In this regard, a key design intervention has been the creation of an existing, seasonal point, called "prior to a plane walls of the Theatre and theater centred "the landscape of the Indian Subcontinent" are commercial works. The Architecture of the building is created through an interior palette made up of Travertine Stone, grass, glass, timber and the colors of the unique Ponder Plateau materials. Local stone: brick, stone, and brick, Travertine walls, Travertine stone floor, Travertine stone windows, Travertine stone and modern glass windows. The Landscape design chosen is based on the rich history of local and natural landscapes particular to the region, such as the visual geometry of natural landscapes found in the Shahrzad or Water Gardens, the environmental interpretation of the champaigne (Beaux Arts) of Northern India and the severity of the Himalayan

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20

345 TELENOR CAMPUS ISLAMABAD, PAKISTAN

These steps down in the theatre and theater centred "the landscape of the Indian Subcontinent" are "architectural works. The Architecture of the building is created through an interior palette made up of Travertine Stone, grass, glass, timber and the colors of the unique Ponder Plateau materials. Local stone: brick, stone, and brick, Travertine walls, Travertine stone floor, Travertine stone windows, Travertine stone and modern glass windows. The Landscape design chosen is based on the rich history of local and natural landscapes particular to the region, such as the visual geometry of natural landscapes found in the Shahrzad or Water Gardens, the environmental interpretation of the champaigne (Beaux Arts) of Northern India and the severity of the Himalayan
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Country: Pakistan
Project- Telenor Campus, Islamabad, Pakistan
People ↔ Nature

Earth, Light, Water and Plant form the Conceptual framework around which the architecture of the Telenor office campus is created.

Earth

- A bag material to create insulated Rammed Earth walls in the East-West direction.

Water

- Rainwater harvesting takes place throughout the campus with a holding capacity of 594,590 gallons, providing 80% of landscape usage.

- Traditional jali screens act as shading devices, along with overhangs.

Country: Pakistan
Project: Telenor Campus,
Islamabad, Pakistan
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Project- Telenor Campus, Islamabad, Pakistan