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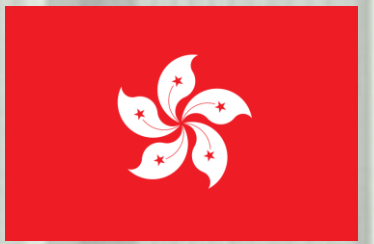
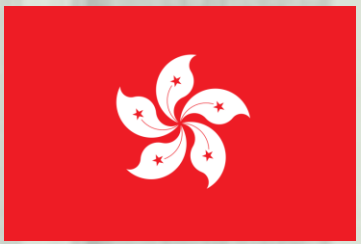


Country- Hong Kong

Project- InnoCell

Hong Kong Science Park

Architect- Leigh & Orange Limited



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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 Chong 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 / Ove Arup & Partners (HK) Limited
Civil, Geotechnical & Structural Engineer / WSP (HK) Limited
Quantity Surveyor / Currie & Brown Limited
Main Contractor / Hip Hing Engineering Company Limited
Environmental, Acoustic & Sustainability / Allied Environmental Consultant Limited
Facilities Management / Jones Lang LaSalle

Leigh & Orange

Country: Hongkong
Project- InnoCell
Hong Kong Science Park

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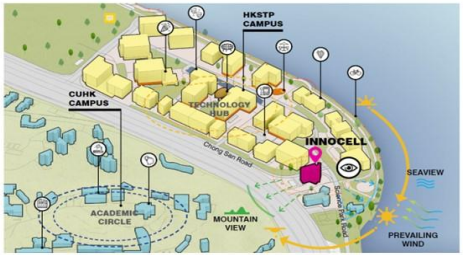
Quality Resources Sustainability Innovation

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



Description

InnoCell is a 17-storey building with 392 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-stop 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 city's housing challenges due to its significant shortage 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 residences to participate in a diversified "**Co-working & Co-living" lifestyle 24/7**.

InnoCell's design incorporates thorough considerations of the surrounding environments, which employ a natural colour palette and environmentally friendly materials to create an airy and relaxed ambience. The inspiration of the "windmill concept" to centralise communal space ensures energy efficiency and maximises the sea and mountain views available to residents.

DECENTRALISED **COMMUNAL SPACE**

CENTRALISED **COMMUNAL SPACE**

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	MIPIM Asia Awards – Gold Award (Best Residential Development)
2021	IFMA Asia Pacific Awards of Excellence Asia Pacific Awards of Excellence in Facility Management Strategy - Winner
2021	WIN Awards - Finalist (Studios, co-working spaces and home office category)
2021	WAN Awards - Silver Award (Residential category)
2021	CIC Construction Digitalisation Award – Silver Award (Project Category)
2021	RICS Awards Hong Kong – Sustainability Award
2021	BEAM Plus-NB [v1.2] Platinum
2020	HKIBIM 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)

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- *Environmental Quality and Wellbeing*
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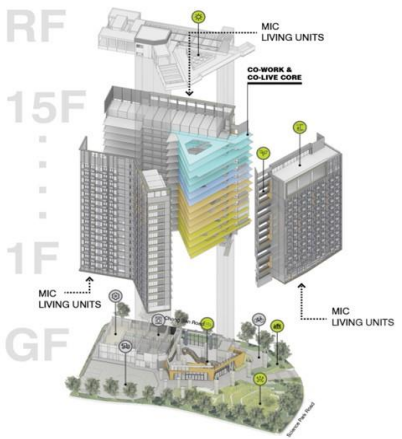
The Vision



LEGEND

CO-WORK & CO-LIVE CORE

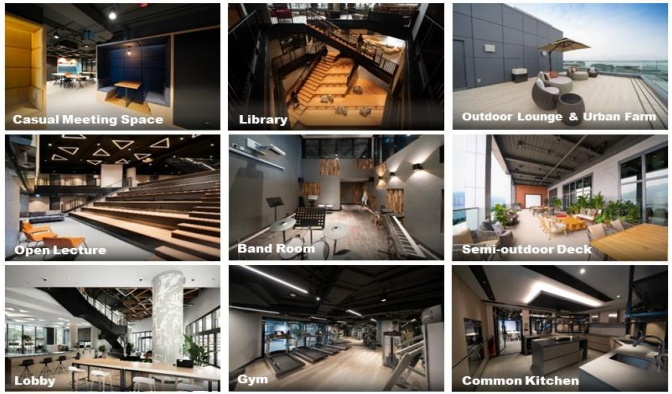
15F	OT	OUTDOOR TERRACE
14F	LA	LOUNGE AREA
13F	SO	SEMI-OUTDOOR DECK
12F	CK	COMMON KITCHEN
11F	LI	LIBRARY
10F	MS	MUSIC STUDIO
9F	MB	MUSIC BAR
8F	GR	GAME ROOM
7F	GY	GYM/ DANCE STUDIO/ INDOOR YOGA ROOM
6F	MR	MEETING ROOM
5F	ES	EVENT SPACE
4F	BC	BUSINESS COMMON
3F	BL	BUSINESS LOUNGE
2F	OL	OPEN LECTURE
1F	MH	MULTI-FUNCTION HALL

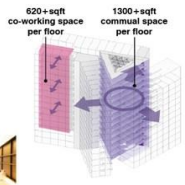
ANCILLARY FACILITIES

GF	Sh	LOADING/ UNLOADING AREA
GF	BP	BICYCLE PARK
GF	LA	LAUNDROMAT
GF	PR	PLANT ROOM

DESIGN FEATURES

RF	SK	SKYLIGHT
RF	OT	OUTDOOR TERRACE
GF	GS	GRAND STAIRCASE
GF	GL	GRASS LAWN
GF	OE	OUTDOOR EVENT SPACE
	EB	ECO BALCONY





COMMUNAL SPACE

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 bond **[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 "Windmill 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 are 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 foundational 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, kitchens, 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 Well-being]**. 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 a environmentally conscious healthy lifestyle and fostering **social cohesion**. Moreover, shared living spaces facilitate **social interactions** and assist in the 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.

Leigh & Orange

Country: Hongkong

Project- InnoCell

Hong Kong Science Park

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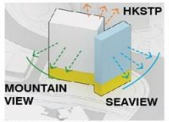
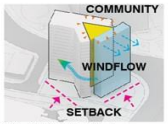
- *Environmental Quality and Wellbeing*
- *Site, Neighborhood, Landscape and Ecology*

Design Response

1/ POPULATE
Massing + Modularize



2/ ORIENTATE
View + Connection

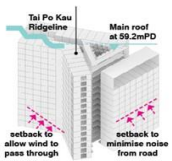


3/ AUGMENT
Daylight + Community + Sustainability

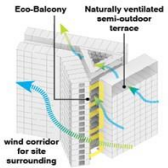
4/ ELEVATE
Public Access + Greenery

Visual Amenity – Mountain View

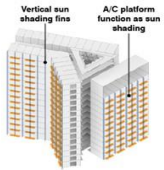
Visual Amenity – Seaview



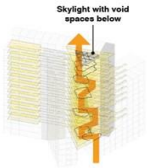
ACOUSTIC



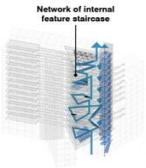
NATURAL VENTILATION



SUN SHADING



SLAB OPENING



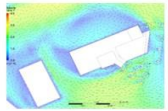
ACCESSIBILITY

View from Landscape Terrace

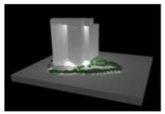
View to Landscape Terrace

View to Landscape Terrace

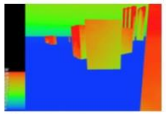
View from Landscape Terrace



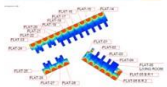
Micro-climate
The provision of an empty bay on G/F allows the annual prevailing **wind** from the East to penetrate and enrich the air quality. Under the East wind, the average wind velocity for Chong San Road is around **2.5m/s** at pedestrian level. The 7.5m building **set-back** creates a natural pathway for **air movement** reducing the heat island impacts.



Exterior Lighting
The obtrusive light from exterior lighting has been minimised in order to diminish the **light pollution** to the surrounding developments. The level of exterior lighting pollution (max. Sky Glow ULR: 2.5%; Light into Windows Ev: 0.96 Lux; Source Intensity I: 0.285 kcd; average Building Luminance before curfew: 2.22 cd/m²) has **complied with** CIBSE Fact file 7 for the **environmental zone E2**.



Neighbourhood Daylight Access
The neighbourhood daylight access was comprehensively examined during the design stage. The **vertical daylight factors** for the nearby sensitive receiver ranged from **14% to 25%**, which are well above the BEAM Plus **requirement of 12%.**



Natural Lighting
97% of normally occupied space is adequately lit with an **average daylight factor** of 1% or above; The average daylight factors for residential unit can be up to **4.28%**.

Soft Landscape
31% of site area is allocated for greenery, urban ecological habitat and recreation space, which is **55% above the minimum** requirement in BEAM Plus NB v1.2.

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Country: Hongkong
Project- InnoCell
Hong Kong Science Park

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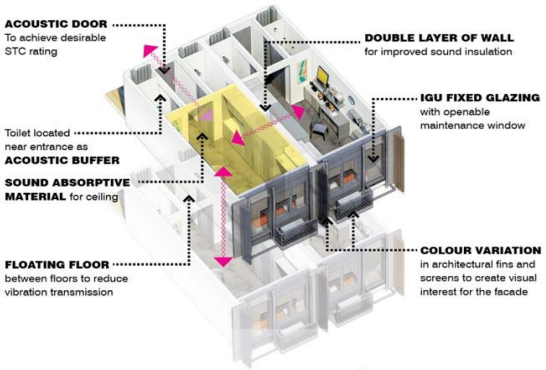
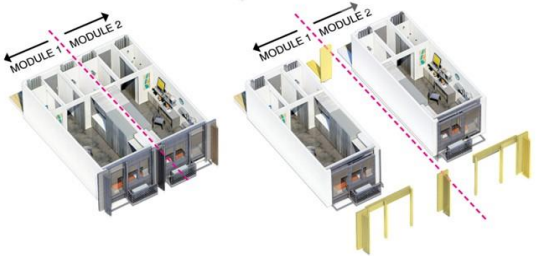
Quality | Resources | **Sustainability** | Innovation

- *Life Cycle Perspective*
- *Building Amenities*

Construction Approach (MiC)

MiC MODULES DETAILS

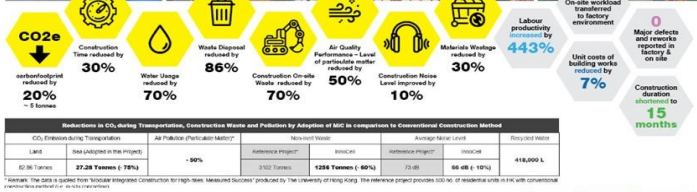




An innovative construction approach - **Modular Integrated Construction (MiC),** has been adopted to challenge conventional construction methods and to tackle the current housing challenges faced in Hong Kong. There is an evident shortage of housing in Hong Kong which when coupled with an **aging workforce**, **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; heat preservation; 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, 95% 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 m³/ man-hour for the InnoCell project and 0.07 m³/man-hour for the conventional scenario, i.e. increase of approximately **443%**. **[UN SDG 8 – Decent Work and Economic Growth]**. Besides, there was **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.**



Reductions in CO_2 during Transportation, Construction Waste and Pollution by Adoption of MiC in comparison to Conventional Construction Method

CO_2 Emission during Transportation		Air Pollution (Particulate Matter)*	Non-inert Waste		Average Noise Level		Recycled Water
Land	Sea (Adopted in this Project)		Reference Project*	InnoCell	Reference Project*	InnoCell	
82.86 Tonnes	**27.28 Tonnes (- 75%)**	**- 90%**	3102 Tonnes	**1256 Tonnes (- 60%)**	73 dB	**66 dB (- 10%)**	**418,000 L**

* Remark: The data is quoted from "Modular Integrated Construction for High-rises: Measured Success" produced by The University of Hong Kong. The reference project provides 500 no. of residential units in HK with conventional construction method of in-situ reinforced concrete.

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Quality | **Resources** | **Sustainability** | **Innovation**

Resources
- *Consumption & Conservation*
- *Waste Management & Pollution Control*

Sustainability
- *Building Amenities*

Construction Digitalisation

3-D SCAN x BIM modeling x Noise Nuisance

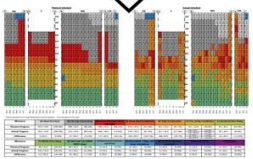
To minimise the **noise nuisance** caused by module transportation, **drones**, **3D scanning** and **BIM animation** were utilized to simulate the **optimal swept path** and **transportation route** with the minimum sound levels.

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.

DWSS

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 379,000 pieces of paper** by using the e-inspection form and QR code, i.e. 528 kg CO_2e / 24 no. of trees.

3-D Printing, AR and VR

Application of **3-D printing techniques** allowed workers to have better understanding of fixing details, which was important to the site installation quality, especially with this 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.

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- *Building Amenities*
- *Sustainable Lifestyle*

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:-

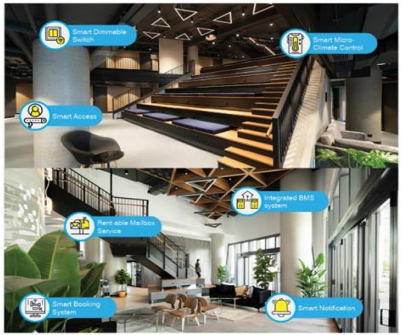
- Tenant Only InnoCell Living App
- Your Personal Google Butler
- Multi-language Chatbot
- High Speed Internet Network
- Home Automation System
- IAQ System
- 24-hours Security

INNO APP

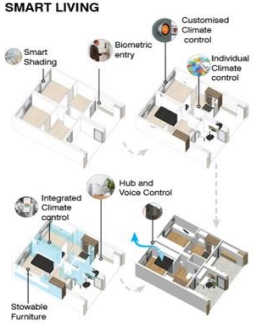
Intelligent Technology for Smart and Contemporary Living

InnoCell provides ease operational efficiency by providing:-

- Seamless self check-in Kiosk
- Advanced Facial Recognition Access
- Keyless Mobile Door Access
- Secured Cashless Payments



SMART LIVING



USER AWARENESS

As younger, tech-savvy generations look for a sense of community, they also seek a greater degree of flexibility, so they can choose when 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.

InnoCell Living App

Occupants can control their own **air conditioning**, adjust **thermal comfort**, reserve facilities inside the InnoCell through the exclusively self-developed apps.

Facial Recognition

Tenants can use facial recognition scanners to unlock rooms, and personalise room settings using convenient voice control functions

Smart & Sustainable I&T System	
Home	**Communal Area**
Smart Socket	Smart Dimmable Switch
Universal Control	Smart Micro-climate Control
Smart Dimmable Switch	Integrated BMS system
Smart Shading	
Automatic Climate Control	

Leigh & Orange

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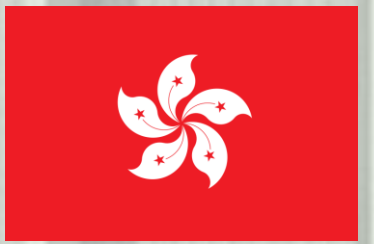
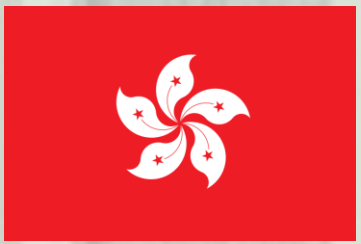


Country- Hong Kong



Project- On Tai Estate,
Kwun Tong, Kowloon

Architect- Hong Kong Housing Authority (HKHA)
Chau Ku & Leung Architects and Engineers Limited

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Transformation from Barren Quarry to Green Oasis

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.

Project Description

Country: Hongkong

Project- On Tai Estate

Kwun Tong, Kowloon

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GREEN AsiARCH- 04 at Ulaanbaatar Mongolia

Transformation from Barren Quarry to Green Oasis

Country	China
Name of Project	On Tai Estate
Location	20 On Sau Road, Kwun Tong, Kowloon, Hong Kong
Area Land Area Built Area	 6.67 ha 5.65 ha
Year of Completion	2017 to 2018
List of Professionals	
Architect	Hong Kong Housing Authority (HKHA) / Chau Ku & Leung Architects & Engineers Limited
Structural Engineer	HKHA / AECOM Asia Company Limited
MEP Engineer	HKHA / AECOM Asia Company Limited
Landscape Architect	HKHA / ACLA Limited
Cost	US$780M

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

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GREEN AsiARCH- 04 at Ulaanbaatar Mongolia

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.

"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

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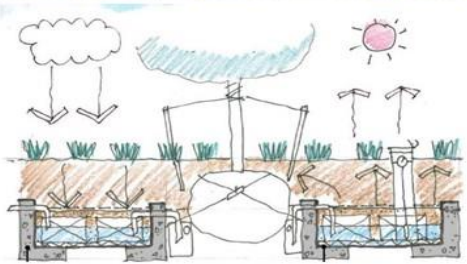
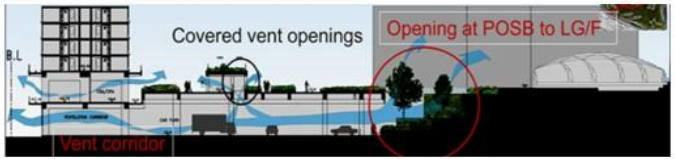
Transformation from Barren Quarry to Green Oasis



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

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.

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



Green & Sustainable Design

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

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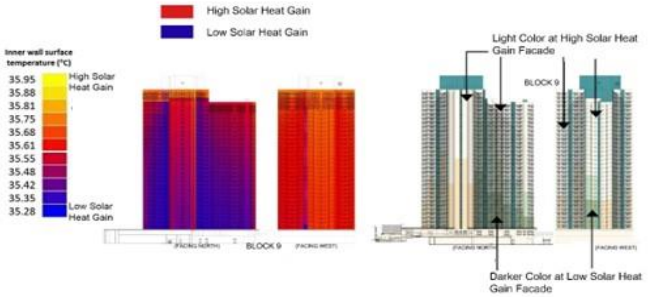
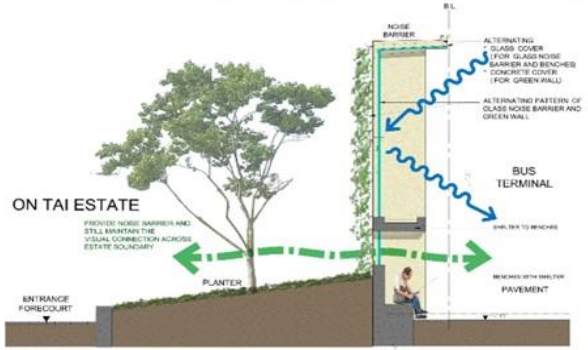
Transformation from Barren Quarry to Green Oasis

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.



Green & Sustainable Design

Country: Hongkong

Project- On Tai Estate

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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

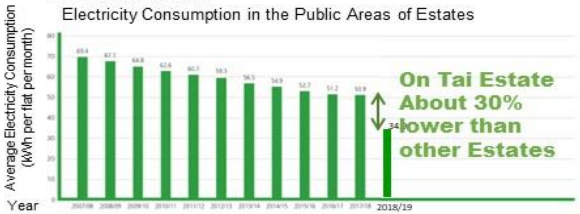
- **LED bulkheads** (saved **30%** energy)
- **Two level lighting** (saved **25%** energy)
- **Motion sensor** (saved **10%** energy)
- **Photo sensor and time switches** to fully utilize daylight (saved **5%** energy)

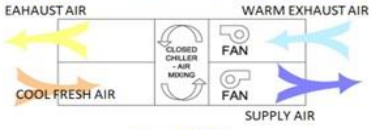
Energy saving in carpark

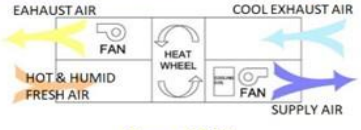
- **LED** tubular light fittings (saved **30%** energy)
- **EV Charging Facilities** in carpark to promote use of electric vehicles

Grid-connected Photovoltaic System

- More than 300 pieces of photovoltaic panels to **save about 3% of electric power** of residential communal areas.







Two level lighting

Photovoltaic Panels

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.

Green & Sustainable Design

Country: Hongkong

Project- On Tai Estate

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Transformation from Barren Quarry to Green Oasis


Hug the Hut


My Dream Community


Remember Our History


Geo-Heritage Exhibition Gallery


The Way Forward

Upcycle & Transform

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.

Community Art

Country: Hongkong

Project- On Tai Estate

Kwun Tong, Kowloon

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Project- On Tai Estate
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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

Awards

Country: Hongkong

Project- On Tai Estate

Kwun Tong, Kowloon

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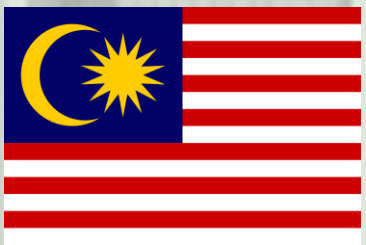
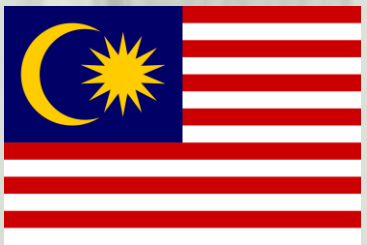


Country- Malaysia

Project- 1 LASAM, Ipoh

Architect- Kuee Sheau Shyuan



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GREEN AsiARCH- 04 at Ulaanbaatar Mongolia

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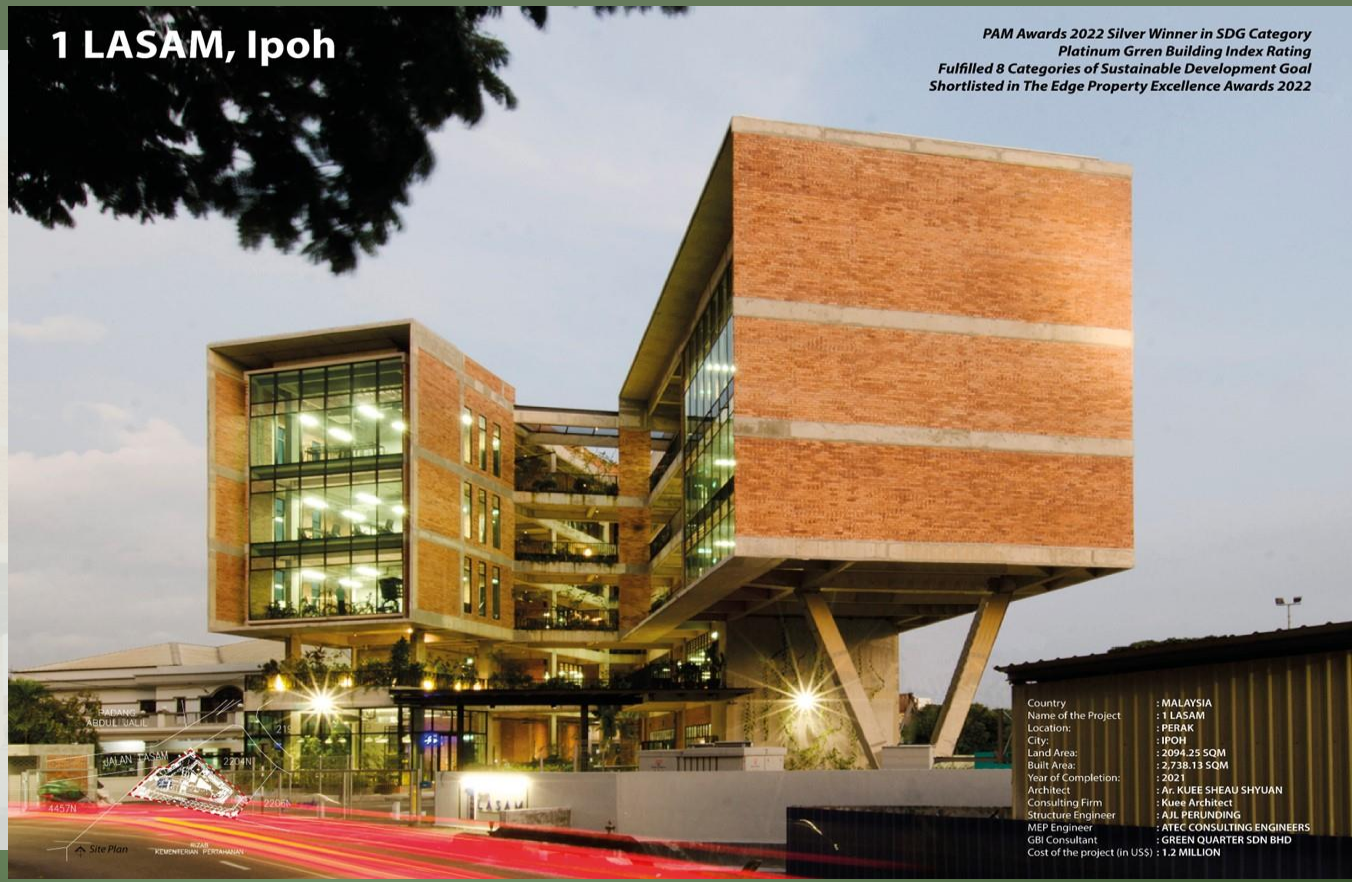
Country: Malaysia

Project- 1 LASAM, Ipoh



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Country: Malaysia

Project- 1 LASAM, Ipoh

Brief Description

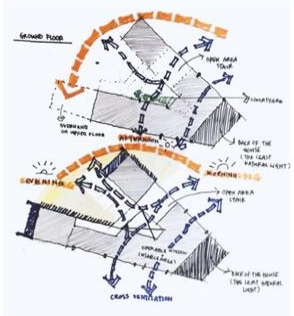
1 Lasam was conceptualized more than 8 years ago by the owner, Dato Lim when GBI rating tool was new and there was no green building in Perak. The client wanted to build the first GBI Platinum building to resonate with the group's motto of being a pioneer in many businesses they have ventured in since decades ago.

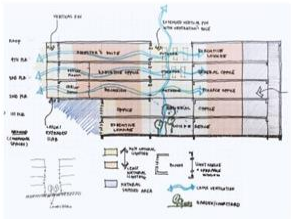
Measuring about 30,000sf of office space, the 5-storey office block came with majority workspaces with ancillary spaces e.g. conference room, gallery space etc. Materials were selected carefully to reflect the client's intention to keep the building as "raw" as possible. Exposed bare concrete, waterproofed red bricks, simple aluminium framed tinted glass, exposed ceiling throughout, and to many's surprises, not a single drip of paint was used in the entire building.

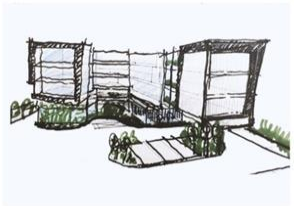
To resonate further the V-shape land and V-shape column, V-shape balustrades were designed to emphasise the strong alphabet presence of the client's mother company name B"V"H.

1 Lasam was perhaps one of the boldest additions to Ipoh's low profile skyline. It's 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.

Sketches



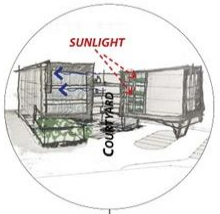




Project's Drivers & Concept

V-shaped Site & Limited Space on ground

Floating Box Concept & Lifted Massing to maximise footprint on ground



Ventilation & Daylight Consideration

Carved Out Central Courtyard allows daylight to reach most office spaces;
Nako WIndows made cross and stack ventilation possible

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

Army Camp Compliances
(a) Vertical strips louvers
(b) Inaccessible roof with solar panels installed
(c) Height limited to 5 storeys

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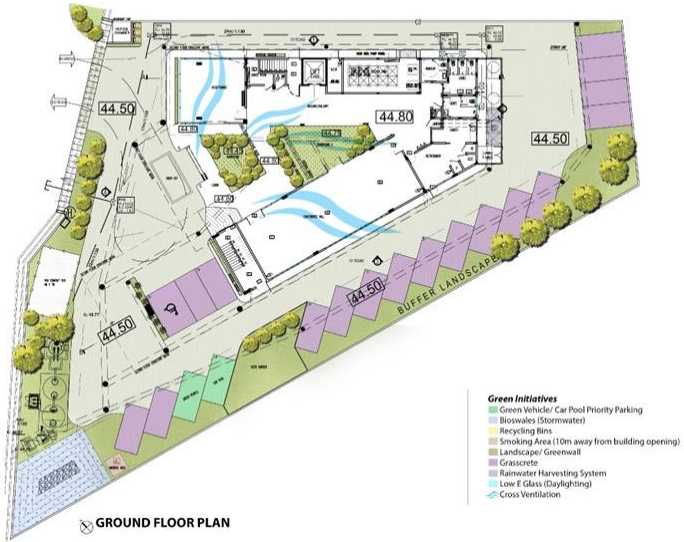
Country: Malaysia

Project- 1 LASAM, Ipoh

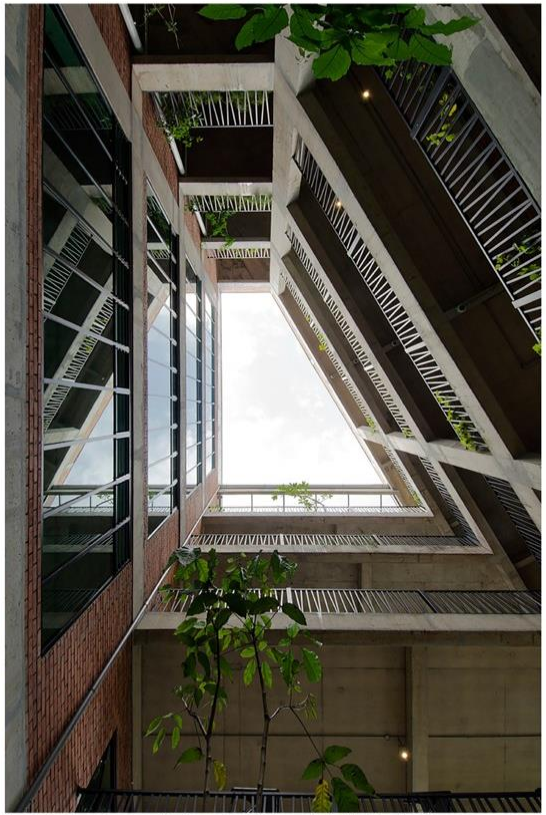
Floor Plan & Green Design Strategies



GROUND FLOOR PLAN

Nako windows were installed at high levels of all office spaces for natural cross & stack ventilation through the central courtyard.

Materials were selected carefully to reflect the client's intention to keep the building as "raw" as possible.



A central courtyard was carved in the centre, to allow more daylighting into the office spaces.

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Green Building Index (Platinum) Design Assesment Score

EE *ENERGY EFFICIENCY*

EE1 Miminum EE Performance
EE2 Lighting Zoning
EE3 Electrical Sub-metering
EE4 Renewable Energy
EE5 Advanced EE Performance BEI
EE6 Enhanced Commisioning
EE7 Post Occupancy Commisioning
EE8 EE Verification
EE9 Sustainable Maintenance

EQ *INDOOR ENVIRONMENTAL QUALITY*

EQ1 Minimum IAQ Performance
EQ2 Environmental Tobacco Smoke (ITS) Control
EQ3 Carbon Dioxide Monitoring Control
EQ4 Indoor Air Pollutants
EQ5 Mould Prevention
EQ6 Thermal Comfort: Design & Controlliability of Systems
EQ8 Daylighting
EQ9 Daylight Glare Control
EQ10 Electric Lighting Levels
EQ11 High Frequency Ballasts
EQ12 External Views
EQ13 Internal Noise Levels
EQ14 IAQ Before & During Occupancy
EQ15 Post Occupancy Comfort Survey: Verification

SM *SUSTAINABLE SITE PLANNING & MANAGEMENT*

SM1 Site Selection
SM3 Development Density
SM4 Environment Management
SM5 Earthworks - Construction Activity Pollution Control
SM6 QLASSIC
SM7 Workers' Site Amenities
SM8 Public Transportation Access
SM9 Green Vehicle Priority
SM10 Parking Capacity
SM11 Stormawater Design- Quantity & Quality Control
SM12 Greenery & Roof
SM13 Building User Manual

MR *MATERIALS & RESOURCES*

MR2 Recycled Content Materials
MR3 Regional Materials
MR4 Sustainable Timber
MR5 Storage & Collection of Recyclables
MR6 Construction Waste Management
MR7 Refrigerants & Clean Agents

WE *WATER EFFICIENCY*

WE1 Rainwater Harvesting
WE2 Water Recycling
WE3 Water Efficient - Irrigation/Landscaping
WE4 Water Efficient Fittings
WE5 Metering & Leak Detection System

IN *INNOVATION*

IN1 Concrete Usage Index (CUI)
IN1 Real Time Energy & Water Display
IN1 Vertical Green Wall System
IN1 Herb Garden
IN1 AC Condesate Water Recovery
IN1 EV Charger
IN2 Green Building Index Facilitator

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

Country: Malaysia

Project- 1 LASAM, Ipoh

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Project- 1 LASAM, Ipoh

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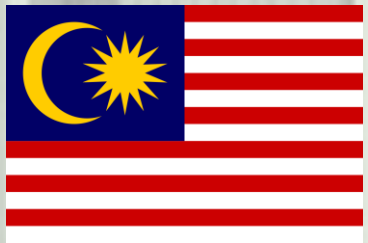
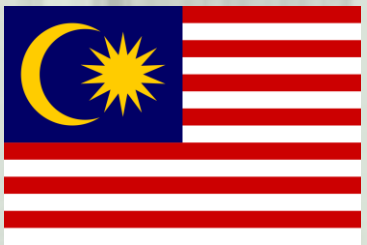


Country- Malaysia

Project- Wao Shelter Home

Klang Valley

Architect- Syah Kamaruddin



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WAO SHELTER HOME
KLANG VALLEY, MALAYSIA

Country: Malaysia

Project- Wao Shelter Home

Klang Valley

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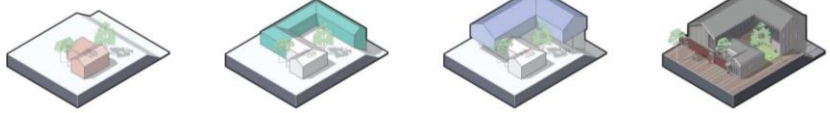
WAO SHELTER HOME

PETALING JAYA, KUALA LUMPUR

The WAO Shelter Home is a Corporate Social Responsibility project to rebuild a 1960s 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 child-care center 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.



1 Existing house to be converted to office space

2 Extension of living spaces to form a semi-enclosed courtyard

3 adding on dormitory space on new structures

4 adding facade envelope for maximum thermal comfort.

design strategy

extend + rebuilding from the old

Country: Malaysia

Project- Wao Shelter Home

Klang Valley

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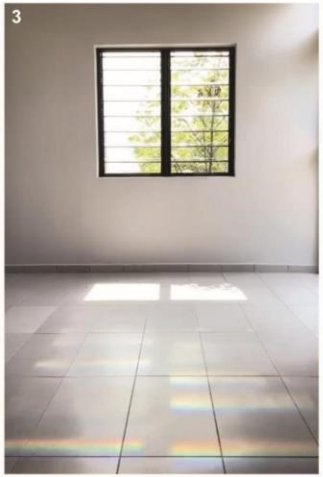
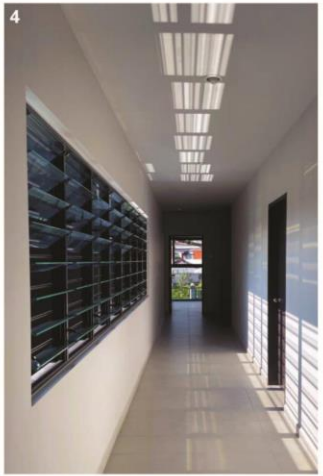
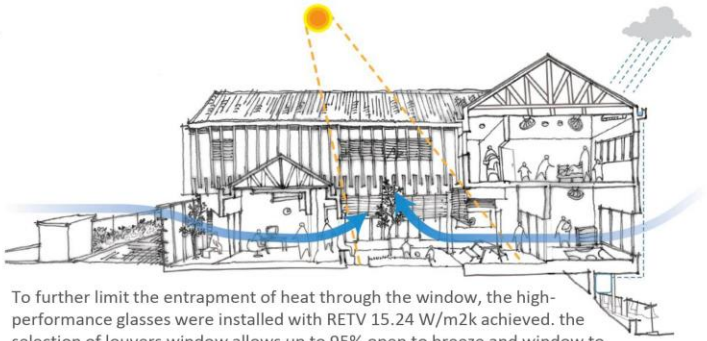




pockets of light & atmospheres

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 lit & 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

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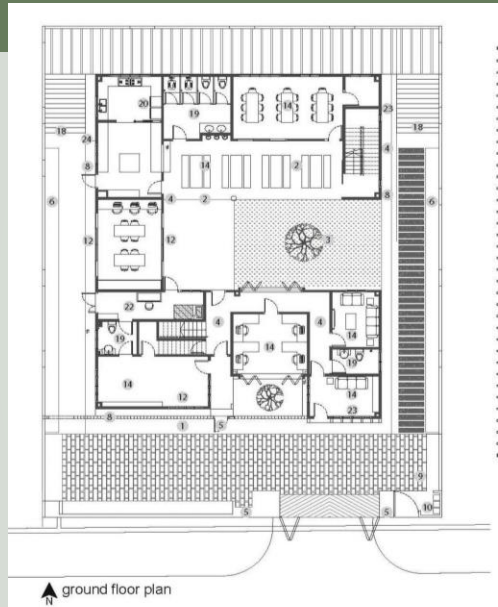
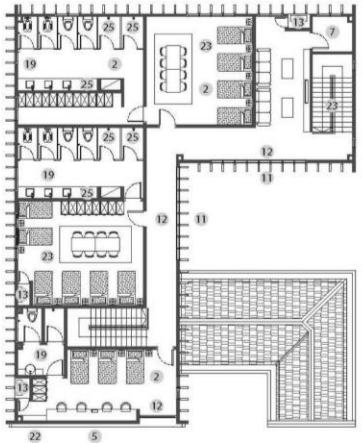
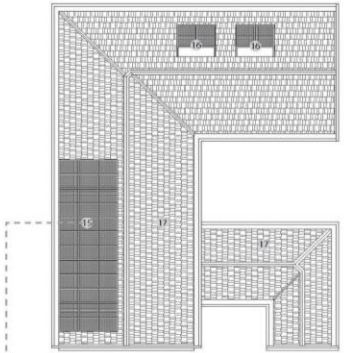


ground floor plan



first floor plan



donated pv cells help to reduce 10-15% of monthly electricity costs

roof plan

green content


1. recycle roof tiles


2. rejected tiles


3. courtyard


4. low voc paint


5. off-form concrete


6. herbs garden


7. rainwater harvesting tank


8. rainwater water tap


9. bicycle rack


10. recycle bins


11. shading device


12. high performance glass


13. 5 star rating air conditioning


14. led light


15. solar panel


16. solar water heater


17. green certified roof tiles


18. recycle brick


19. natural ventilated wc


20. 5 star rated fridge


21. isolation room


22. concrete wall 2.6 w/m2K


23. hyrbid cooling system


24. 5 star rated washing machine


25. water heater system

Country: Malaysia

Project- Wao Shelter Home

Klang Valley

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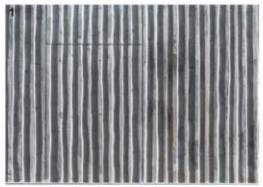
GREEN AsiARCH- 04 at Ulaanbaatar Mongolia






reused, recycled, rebuilt

1. selection of bricks
2. piled up bricks
3. forming social space from existing structures
4. making full usage of surplus material from other sites
5. site coordination via online during pandemic period
6. repurpose of sample marble tiles for entryway






crafts and textures

1. bamboo-lined concrete wall
2. movement of shadows
3. burnt roof tiles
4. hand-crafted wall
5. perforations of space
6. lines and shadows

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

Country: Malaysia

Project- Wao Shelter Home

Klang Valley

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openings

1. permeable wall as a screen for large openings at ground floor
2. window bar incorporated to the window design for extra security
3. large bay window allow direct interaction between outside and inside
4. blurring boundaries, bringing in the green
5. window to wall ratio of 0.17 at upper floor bedroom to limit direct sunlight penetration
6. large windows acting as watch tower has the direct view towards the street front
7. balcony as a buffer to bring in daylight
8. shading devices were incorporated within the window frame design to allow unobstructed views

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.

trees

1. Kiara Payung
2. Temple tree
3. Tasmanian bluegum
4. Creeping fig
5. Orange Jessamine
6. King's salad
7. Lemongrass
8. Misai Kucing
9. Mango tree
10. Manila grass

Country: Malaysia

Project- Wao Shelter Home

Klang Valley

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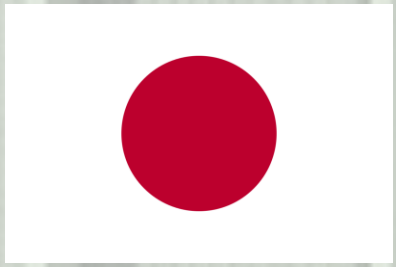
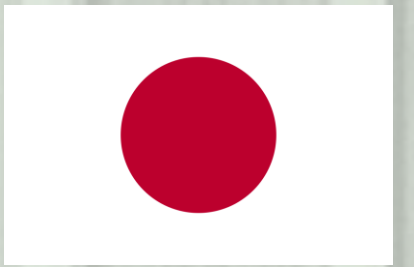


Country- Japan

Project- Miyako Shimojishima Airport Terminal, Okinawa

Architect- Shinji Kaneuchi & Masanobu Koizumi



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Country: Japan

Project-Miyako Shimojishima Airport Terminal, Okinawa

Miyako Shimojishima Airport Terminal

Country : Japan
Location : Miyakojima, Okinawa
Area : Land Area : 12,571㎡ Built Area :12,027㎡
Years of Completion : 2019
Architect/s: Shinji Kaneuchi + Masanobu Koizumi
Structure: Katsuhide Murakami
MEP: Takuya Asagawa + Naoyuki Harada

Built Environmental Eng: Osamu Nagase + Kikka Uchida
Cost of the project : US 60,000,000$
Awards : Excellence Award of JIA Environmental Architecture Award 2021. Excellence Award of Kyusyu Carbon Neutral Award 2021. The highest prize of SABED Environmental simulation Award 2019.

NIKKEN
EXPERIENCE, INTEGRATED

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Miyako Shimojishima Airport Terminal

Country: Japan

Project-Miyako Shimojishima Airport Terminal, Okinawa

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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.






Country: Japan

Project-Miyako Shimojishima Airport Terminal, Okinawa

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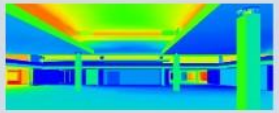
Country: Japan

Project-Miyako Shimojishima Airport Terminal, Okinawa

Miyako Shimojishima Airport Terminal

Harmony with Natural Environment

The airport is surrounded by openable glass walls that lead directly to the surrounding waterfront and vegetation. Passengers can choose indoor or outdoor seating while waiting to board their plane. Outdoors, can feel the rich greenery of native plants, the waterscape reflected in the sky with white clouds, and the tropical breeze on skin. It is difficult to imagine the atmosphere of such an airport.



In order to bring in 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.

For realizing a comfortable space with energy saving, solar radiation control is important. As a countermeasure, for prevent the indoor temperature from rising due to solar radiation, eaves with a length of 3 to 5m installed around the building according to the azimuth characteristics without using insulation. In addition, the long eaves do not close blinds, so can see the beautiful sunset from the lounge.

The groundwater used as cooling water for the heat source is ≒28℃, which is lower than the asphalt, concrete and outside temperature. Groundwater is channeled into a waterscape installed around the building and used to reduce the temperature of the surrounding air around the building and the temperature of the wind entering the lounge from the outside.

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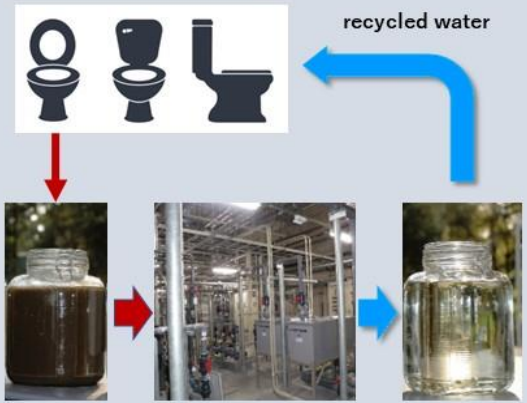
Country: Japan

Project-Miyako Shimojishima Airport Terminal, Okinawa

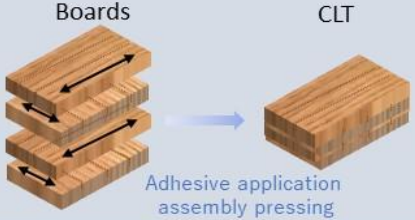
Miyako Shimojishima Airport Terminal

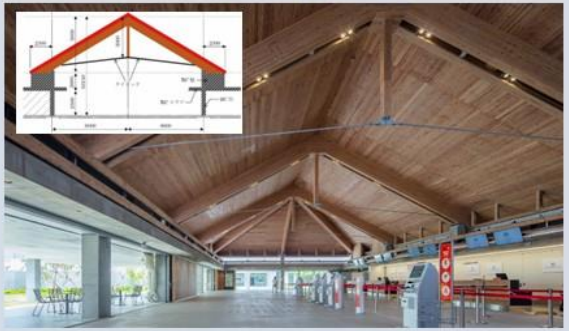
Nature conservation



Water resources are very precious here on Miyako island. All sewage wastewater used in the building 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 earth-toned tile floors. Using CLT will also contribute to a forest recycling society.

Wood utilization system

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Country: Japan

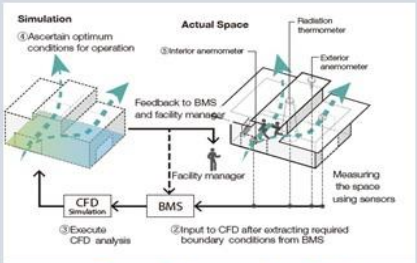
Project-Miyako Shimojishima Airport Terminal, Okinawa

Miyako Shimojishima Airport Terminal

Energy Saving Technologies

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 just the small amount of energy required to evaporate the water. Energy consumption can be reduced dramatically compared to conventional air conditioning. In addition, the evaporation system used in this airport works with a special mechanism that does not mix the evaporated water vapor with the indoor air. so, does not raise the indoor humidity.

Evaporative Cooling System

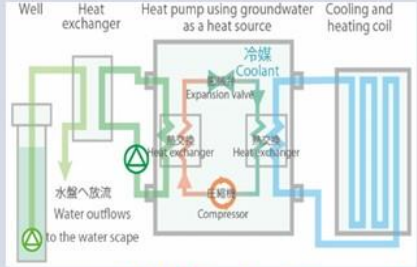


The windows around the building can be opened and closed, so can always feel a comfortable natural wind in the room. By installing wind direction and wind speed sensors in each direction of the room and analyzing the flow of the wind in real time, it provides feedback to the facility manager on the most effective way to open the windows. thereby, devised a method to control a comfortable space and energy-saving in real time.

Real time simulation system

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 airport. 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 endeavors to incorporate all six basic physical elements of thermal comfort. In this airport, various comfortable areas exist all year round thanks to opening windows and taking in the outside environment. It is possible to modify air conditioning settings and the opening/closing 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 resort-like space.

Thermal environment control



The Ground water which is stable at 24℃ per year, it is used as cooling water for heat source machine.
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.

HVAC using groundwater

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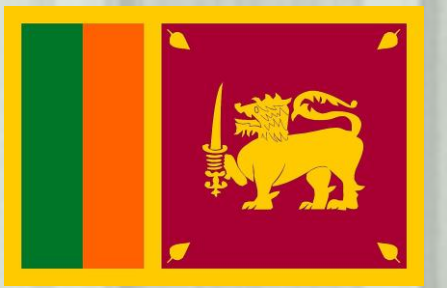
Country- Sri Lanka

Project- The Quarry Site:

Nature Pavilion

Architect- Gayan Herath Chartered Architects



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Country: Sri Lanka

Project- The Quarry Site

Nature Pavilion

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THE QUARRY SITE: NATURE PAVILLION

KIRIGALAHENA ESTATE - SRI LANKA

PROJECT INFORMATION

Location :
Province - Sabaragamuwa
City - Ruwanwella
Village - Lewangama

Area :
Built Area - 480 sqft
Land Area - 2 acre property

Cost of the project : 41200 US$

Year of Completion : 2020

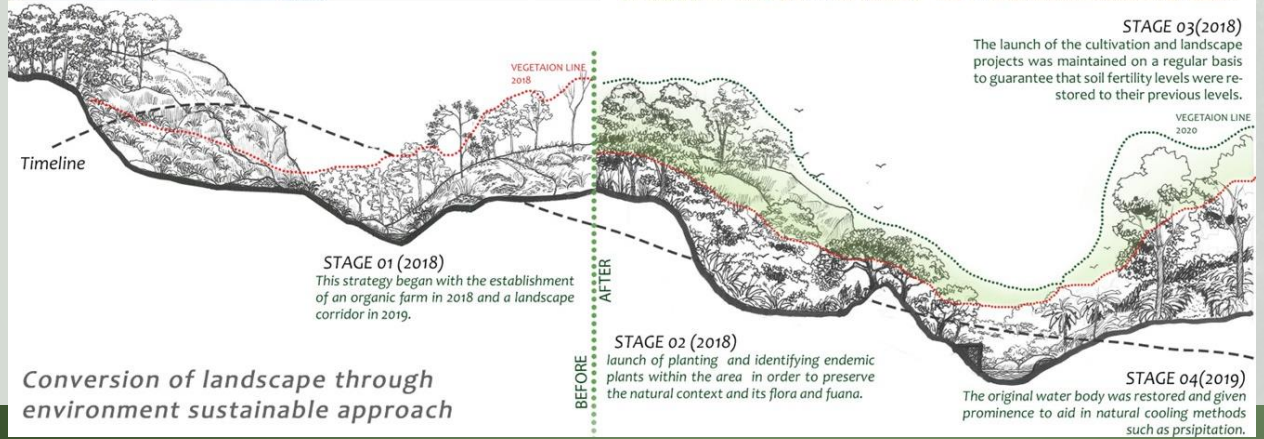
Architect :
Principal Architect - Gayan Herath
Gayan Herath Chartered Architects

Awards :
Excellence Award in Green & Sustainable Architecture - 2022 awarded by SLIA

PROJECT DESCRIPTION

- The chosen site was once an abundant stone quarry; however, due to rapid stone quarry activity 10 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.



Conversion of landscape through environment sustainable approach

Country: Sri Lanka

Project- The Quarry Site Nature Pavilion

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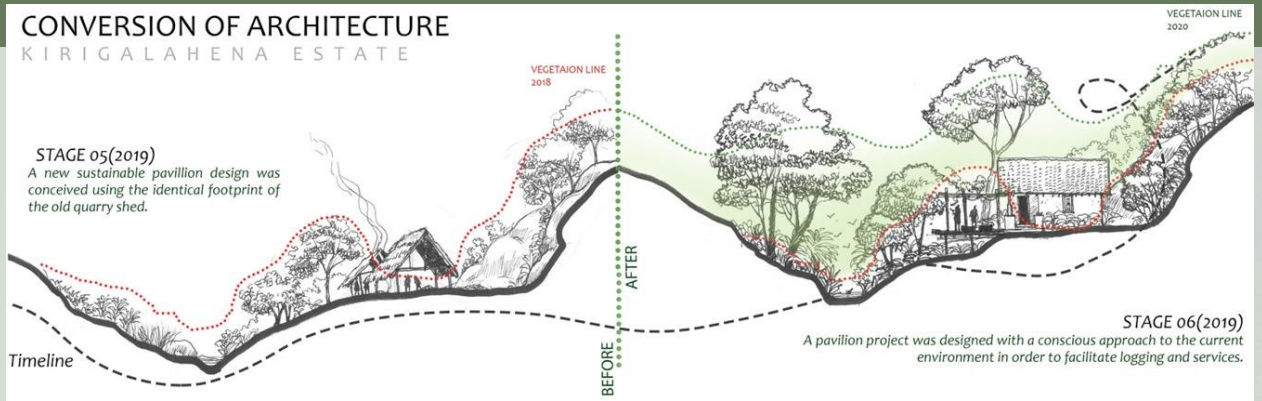
CONVERSION OF ARCHITECTURE

KIRIGALAHENA ESTATE



Environmental sustainability through *Enrichment of eco systems* and *Orgainc food habits*

Social sustainability through *Empowerment* and *Enhancing lifestyle*

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

Country: Sri Lanka

Project- The Quarry Site Nature Pavilion

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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.

NATURE PAVILLION 2018 2020

"converstion of a grey field into a sustainable gold field"

CONVERTION OF ROCK ROCK QUARRY 2018 2020

LANDSCAPE PROJECT 2018 2020

Country: Sri Lanka

Project- The Quarry Site

Nature Pavilion

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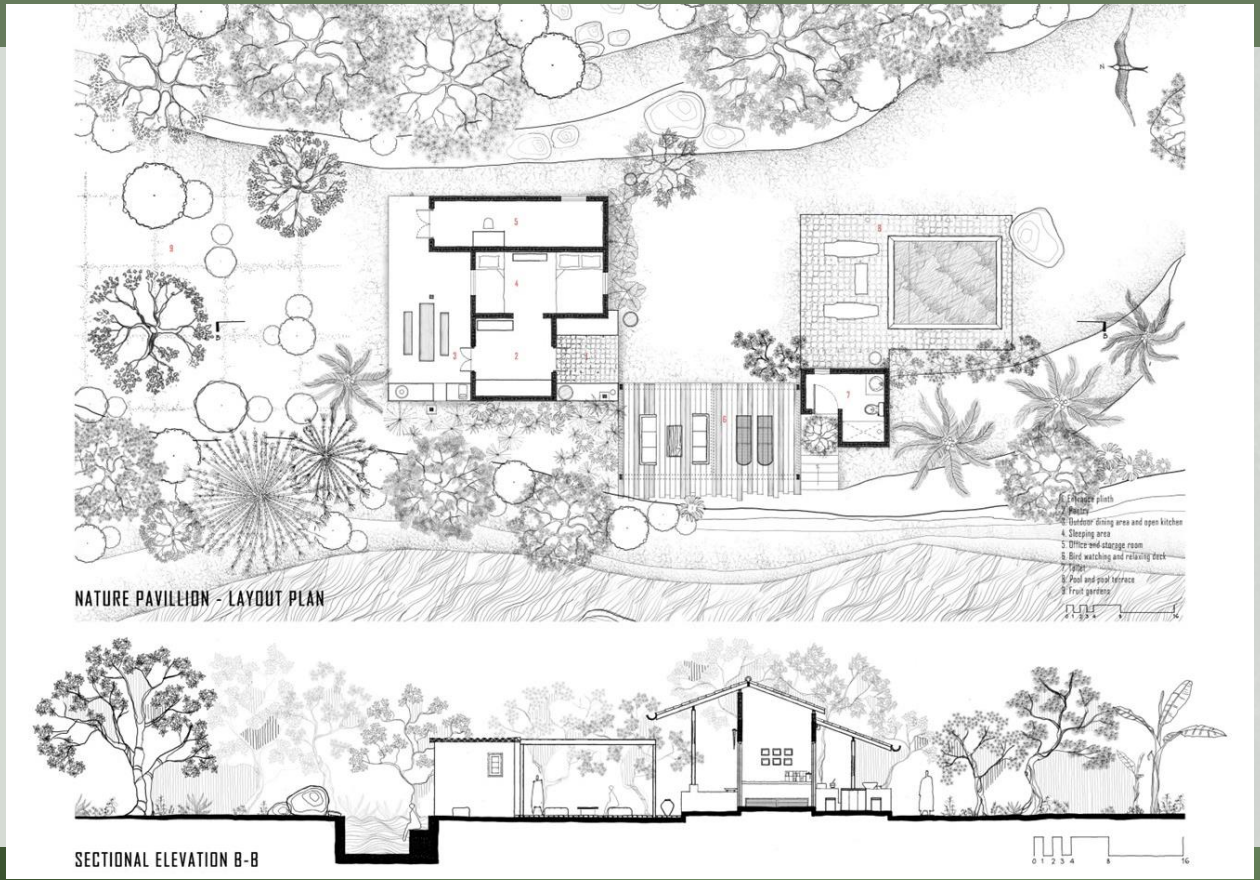

Country: Sri Lanka

Project- The Quarry Site

Nature Pavilion

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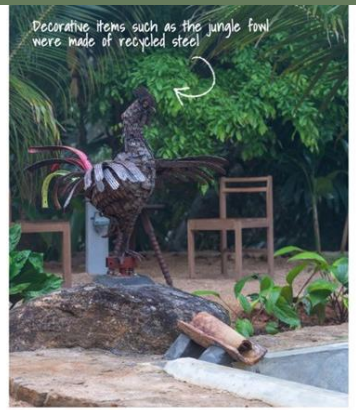

APPROACH TO SUSTAINABILITY

-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 sorced 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 achive thermal comfort.

Country: Sri Lanka

Project- The Quarry Site

Nature Pavilion

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Country: Sri Lanka

Project- The Quarry Site

Nature Pavilion

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Country- Thailand

Project- Pannar Sufficiency

Economic and Agricultural Learning Center

Architect- Vin Varavarn Architects

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Country: Thailand

Project- Pannar Sufficiency Economic & Agriculture Learning Center

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BRIEF DESCRIPTION: SUFFICIENCY THINKING AND MINDSET

Within national and global crisis, The project '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 arid 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

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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.

Country: Thailand

Project- Pannar Sufficiency Economic & Agriculture Learning Center

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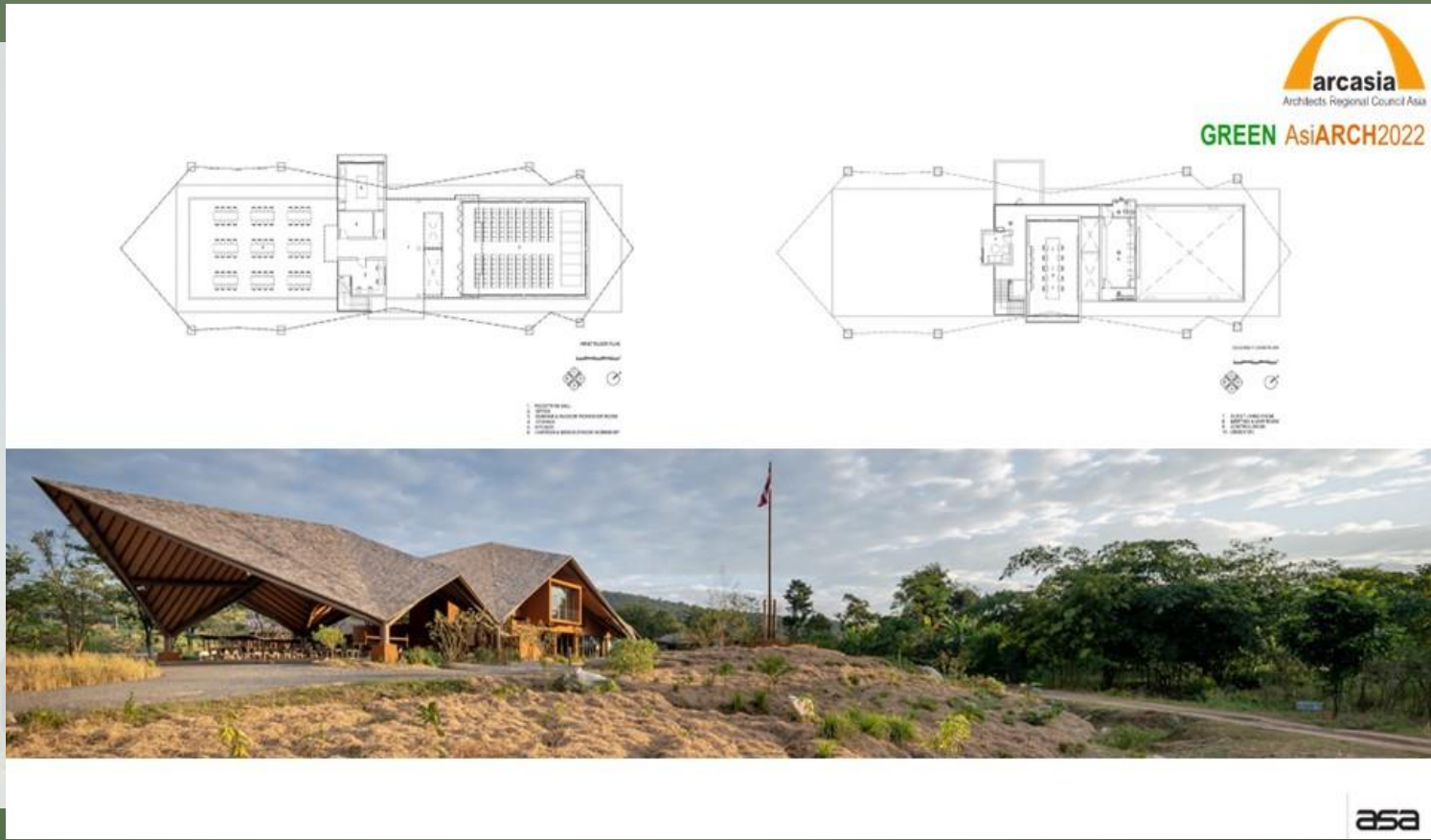

Country: Thailand

Project- Pannar Sufficiency Economic & Agriculture Learning Center

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Country: Thailand

Project- Pannar Sufficiency Economic & Agriculture Learning Center

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Country: Thailand

Project- Pannar Sufficiency Economic & Agriculture Learning Center

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The natural color of earthen walls is made of the local soil.

Source:
https://art4d.com/2021/05/pannar-agricultural-sufficiency-science-learning-center

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Country- Thailand

Project-Forest Pavilion

At the Forestiers

Architect- Fosters + Partners

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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: Apld
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

Country: Thailand

Project- Forest Pavilion At The Forestiers

FOREST PAVILLION at The Forestiers

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BRIEF DESCRIPTION

The Forest Pavilion , is located at the center of a 48,000 square meters of urban forest or 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 sale 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 residence 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

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Symbiosis with Nature, Landscape Concept Diagram

DESIGN CONCEPT

To support happiness and wellness of the users and create an immersive experience of living with nature, the architects commitment, 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.

Miyawaki 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

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Country: Thailand

Project- Forest Pavilion

At The Forestiers

Eco – Forest Planting Technique Diagram

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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.

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Interior design of The Forest Pavilion, Exhibition space

Country: Thailand

Project- Forest Pavilion

At The Forestiers

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Country- Brunei

Project- Eco Luxury Resort,
The Abode Resort and Spa

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GREEN AsiARCH- 04 at Ulaanbaatar Mongolia

Country: Brunie

Project-Eco Luxury Resort, The Abode Resort & Spa

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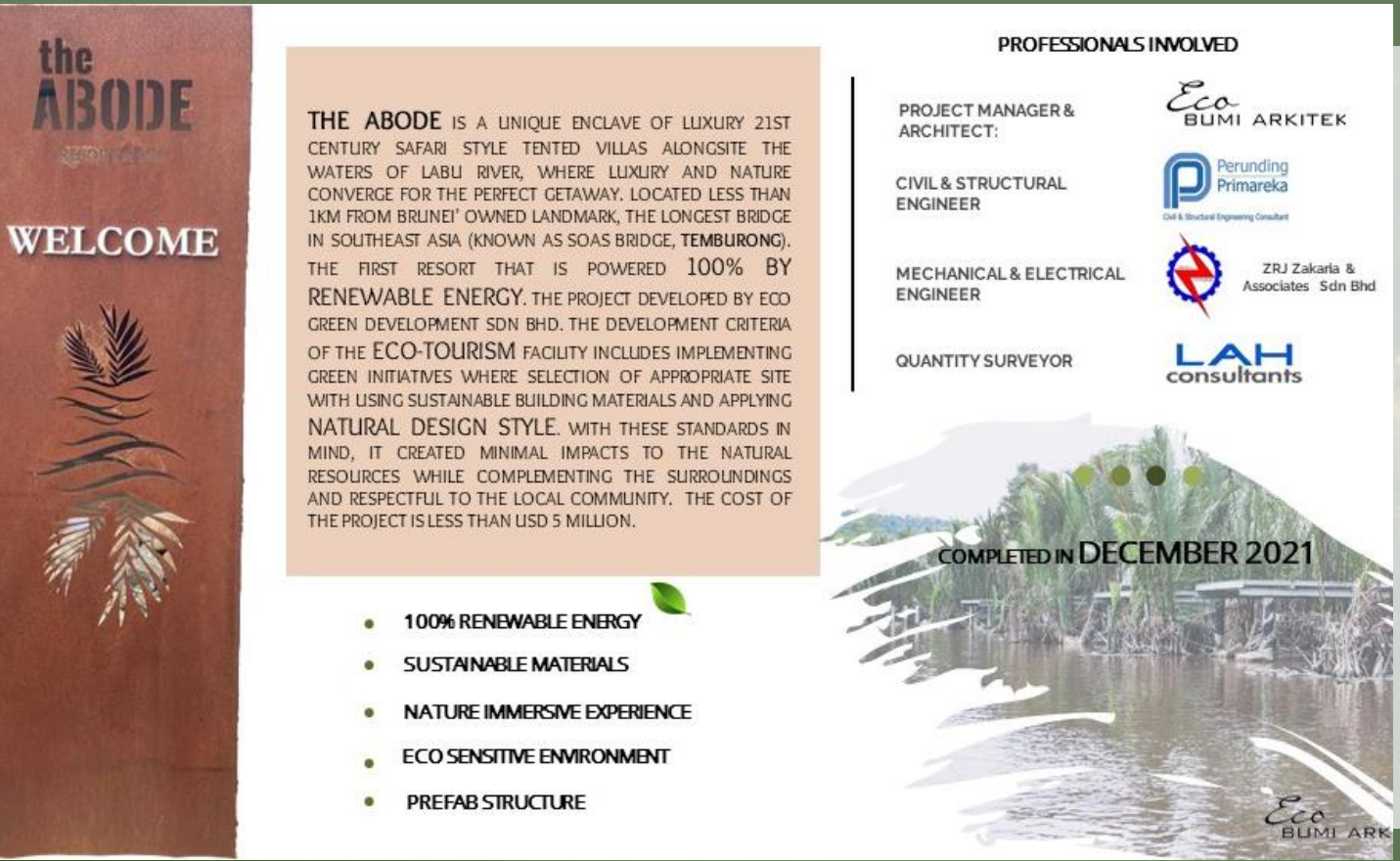

Country: Brunie

Project-Eco Luxury Resort, The Abode Resort & Spa

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Country: Brunie

Project-Eco Luxury Resort,

The Abode Resort & Spa

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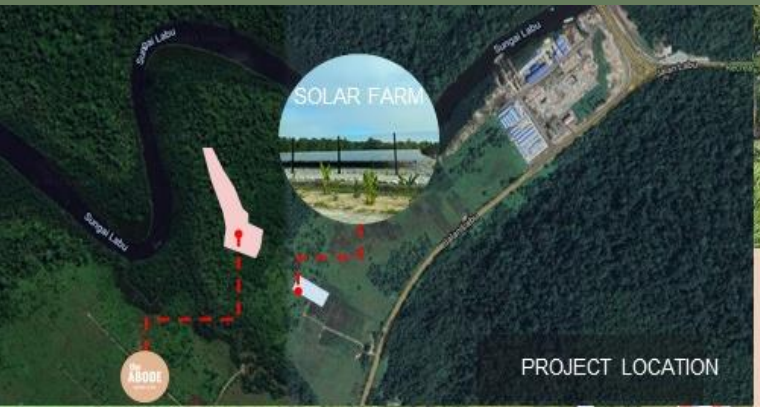

The design concept generally surrounds eco friendly and does not deviate far off the sustainability aspect where the locations of each villa intended to be as close to nature experience as possible, in this context the river, were also challenged by the location of the existing floras. The design team 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.

Villas

Kid's Club

Reception

Country: Brunie

Project-Eco Luxury Resort, The Abode Resort & Spa

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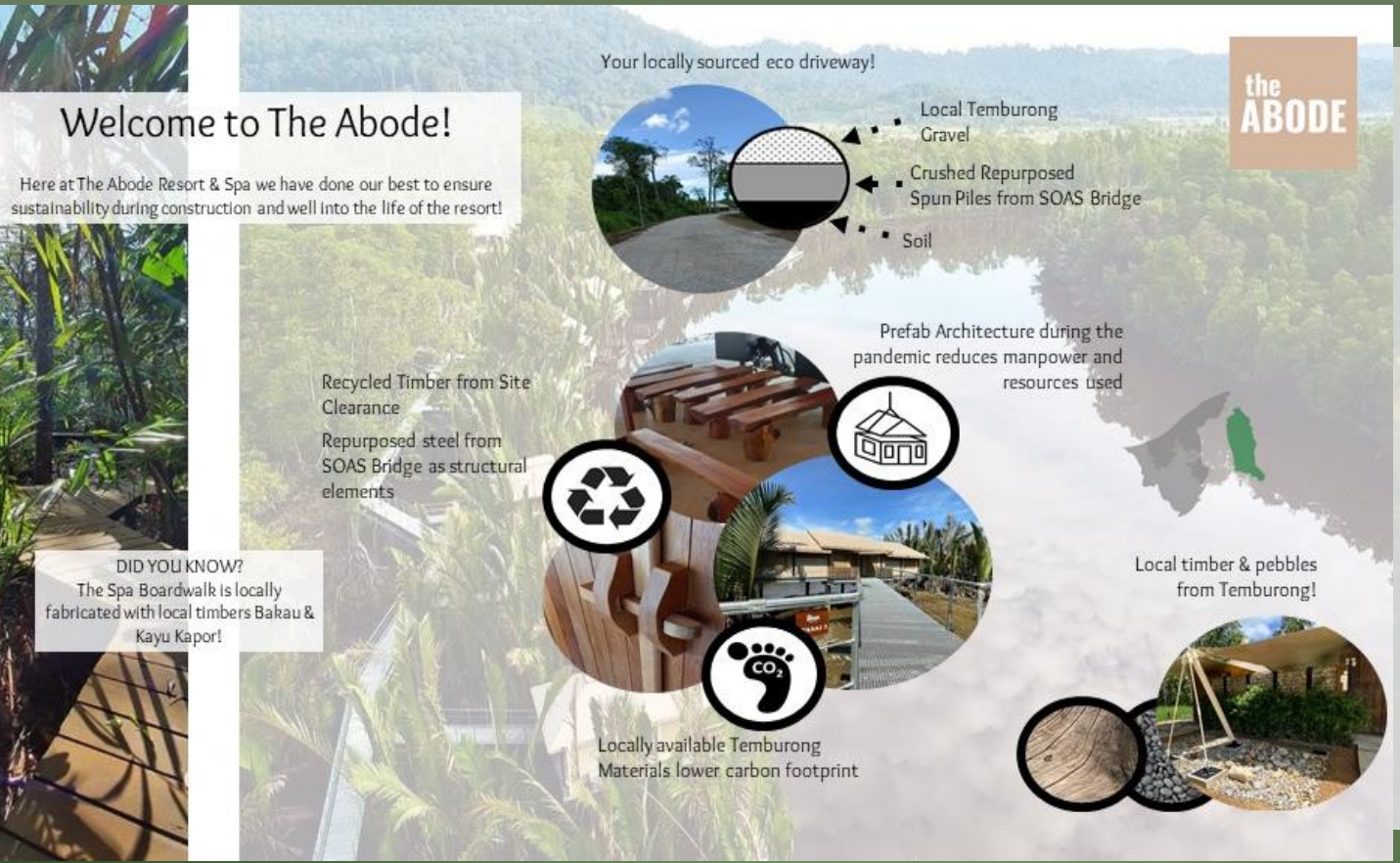

Country: Brunie

Project-Eco Luxury Resort, The Abode Resort & Spa

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the ABODE

Operates on
100%
off-grid solar power.

816 Solar PV panels

This contributes to around 326 kW system in total of the solar farm

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

Country: Brunie

Project-Eco Luxury Resort, The Abode Resort & Spa

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COMPLETED PHOTOS

Country: Brunie

Project-Eco Luxury Resort,

The Abode Resort & Spa

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Country- India

Project- School in the Dumpyard, Delhi

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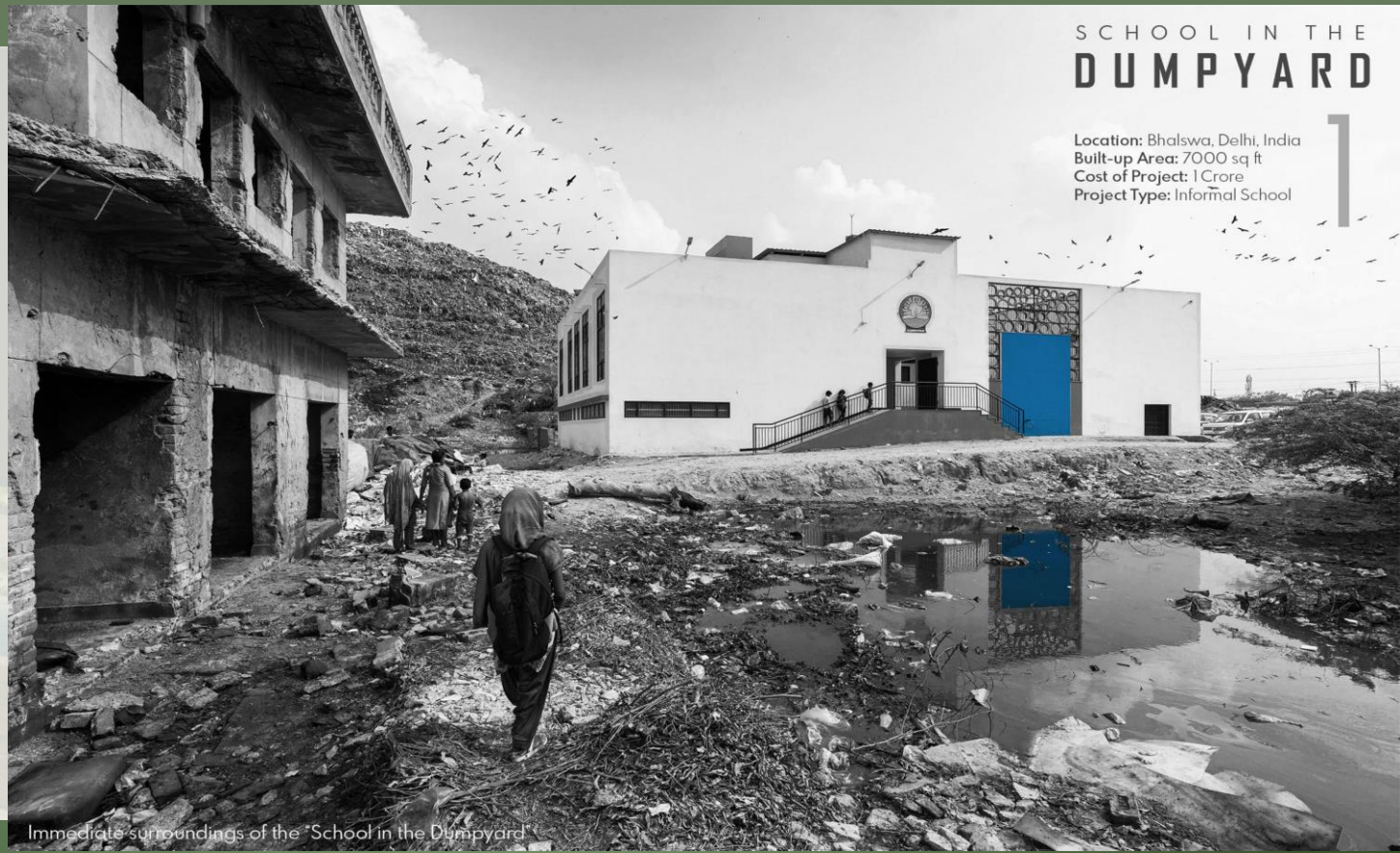
GREEN AsiARCH- 04 at Ulaanbaatar Mongolia

Country- India

Project- School in the Dumpyard, Delhi



Immediate surroundings of the "School in the Dumpyard"

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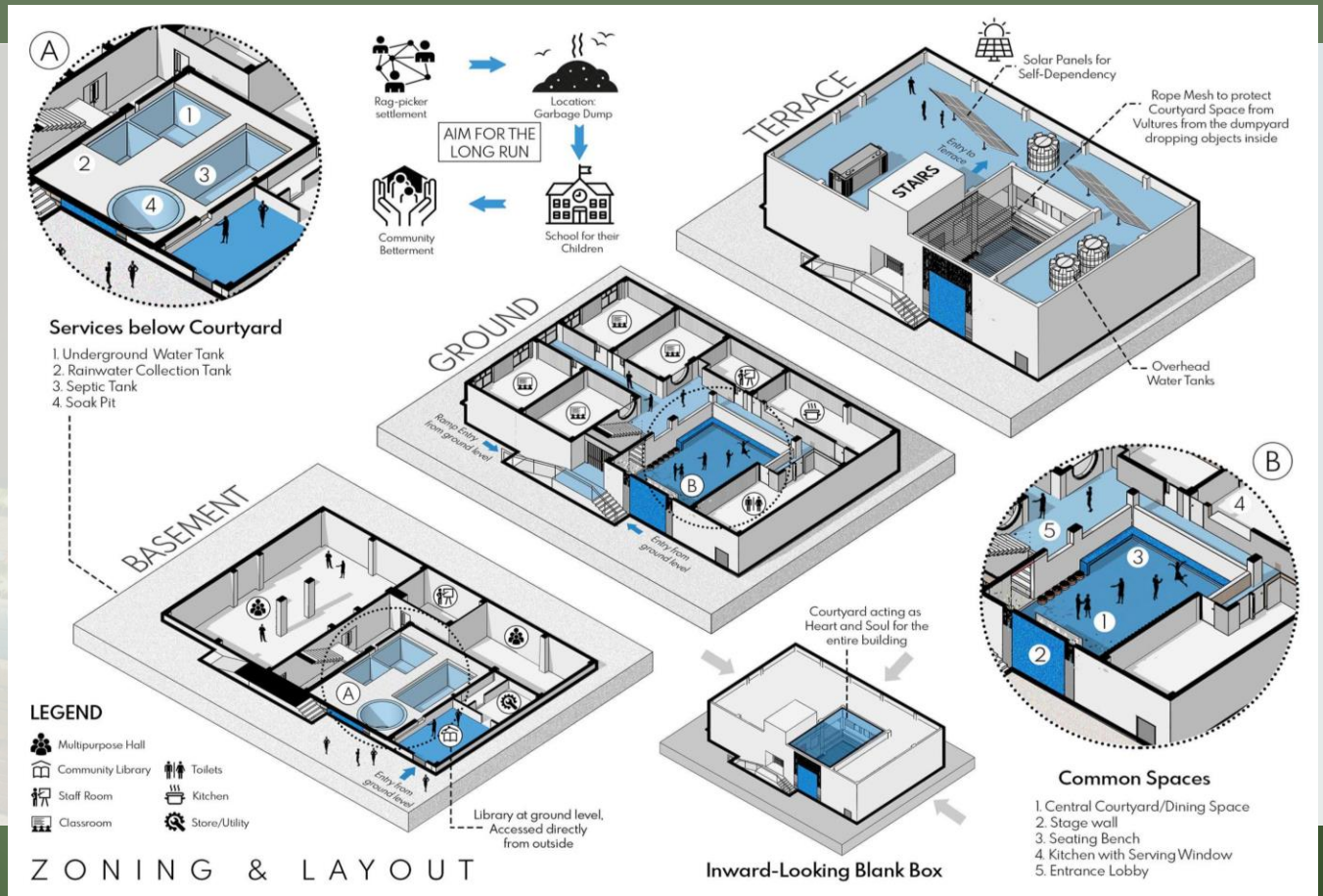
Country- India

Project- School in the Dumpyard, Delhi



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Country- India

Project- School in the Dumpyard, Delhi

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Aerial view of the School sitting amongst large garbage mou

Country- India

Project- School in the Dumpyard, Delhi

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Country- India

Project- School in the Dumpyard, Delhi

Children playing in the colourful Central Courtyard decorated with small planters

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Country- India

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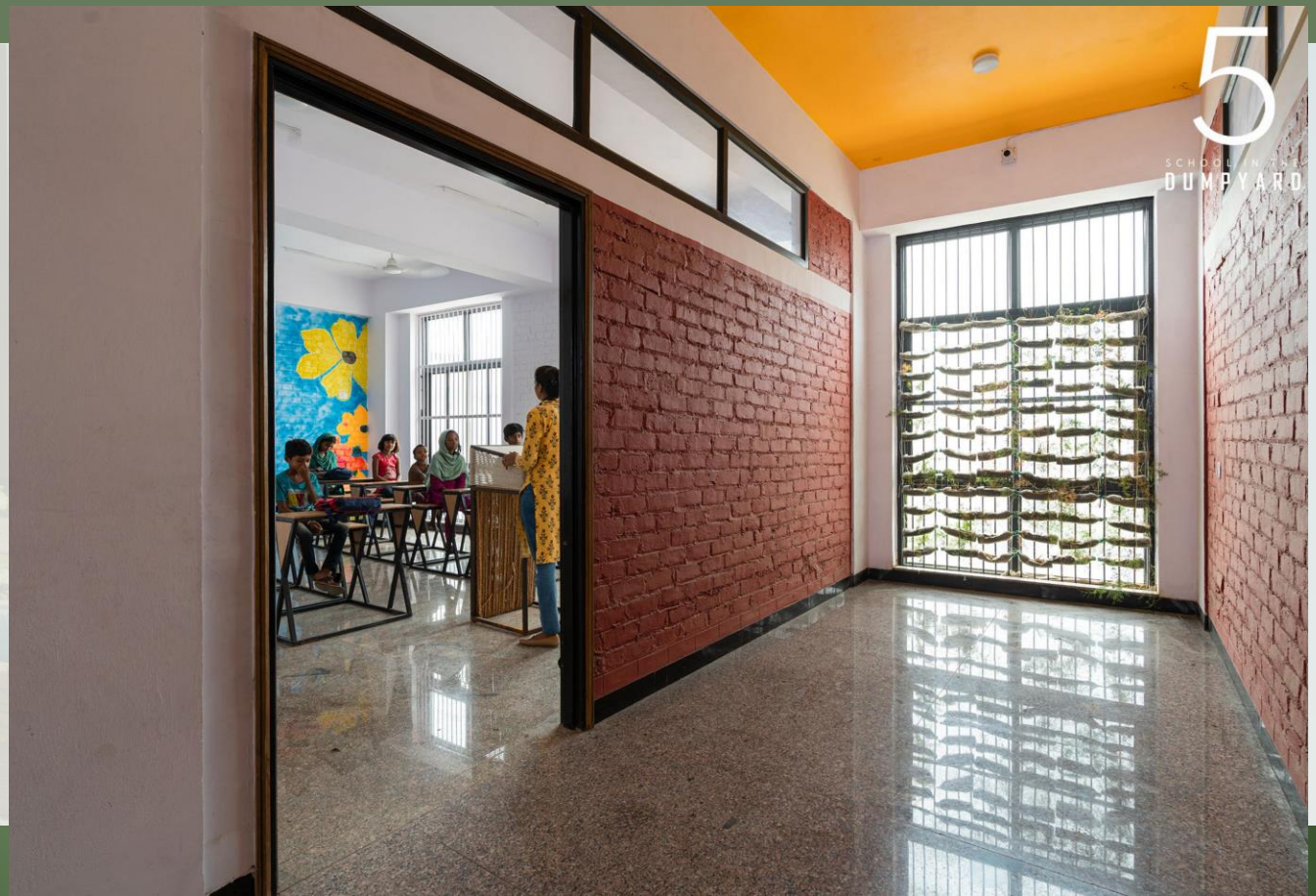

Country- India

Project- School in the Dumpyard, Delhi

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Country- India

Project- School in the Dumpyard, Delhi

The tyres and ropes make interesting shadow effects below

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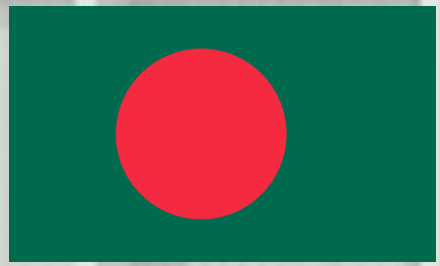
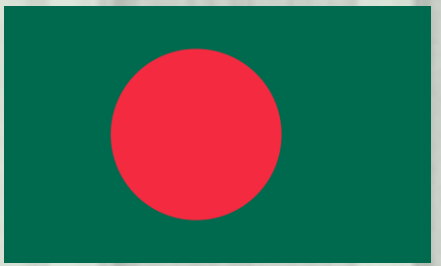


Country- Bangladesh

Project- Vision Garden,
BPATC, Savar, Dhaka

Architect-Ahsan Samim Sumit



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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 sft **Land Area:** / 41,977 sft **Built Area:** 2,275 sft
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 Farm:** 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:** 29,588 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, this 10 story building inherent 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's from above, which resulted in a green house effect inside the building in summer season adding discomfort and stress in 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 imaginable 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.

Country: Bangladesh

Project- Vision Garden, BPATC, Savar, Dhaka

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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 Karonae

What is GREEN?

- General office spaces creates a stressful environment for the employees.

- Open Yard and green spaces create idea sharing and love making spaces.

- Combining Green spaces with in office space leads to stress relief environment for the employee.

Preliminary **Site Condition**

Country: Bangladesh

Project- Vision Garden, BPATC, Savar, Dhaka

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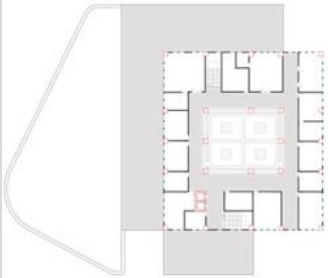
Previously Existing Courtyard Plan

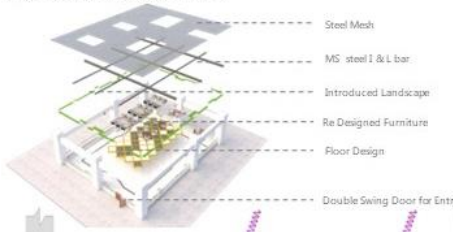


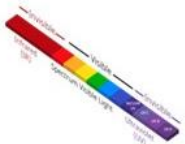
Atrium Section

- *Green house effect inside the atrium*

Re-Designed Courtyard Plan

Exploded Axonometric View



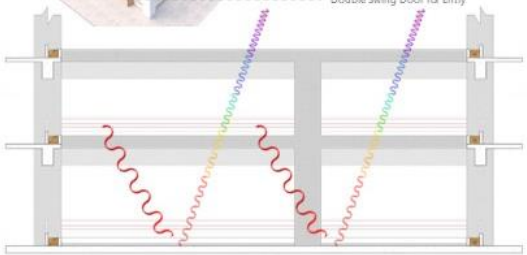


Light Wave Meter

Indoor Plants For Landscape

- Ivy lota (odelia)
- Patabahar
- Madhobilota
- Arica Palm
- Silver queen
- Keya
- Ravish Palm
- Dhanlily
- Talpata
- Cantina Palm
- Money plant (big leaf)
- Kameli

(These indoor plants can grow in less water and low sunlight)



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

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

Country: Bangladesh

Project- Vision Garden, BPATC, Savar, Dhaka

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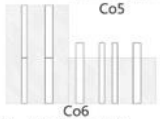
Construction Details

Low Height Round Table (H 1' -3")

Low Height Rectangular Table (H 1' -4") For Keeping Visual Connectivity more clear

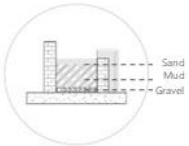
Co4

Co5



Co6

Plant Holder Details



Double Swing Door Detail

Light Holder Details

Marble Laying Process

Country: Bangladesh

Project- Vision Garden, BPATC, Savar, Dhaka

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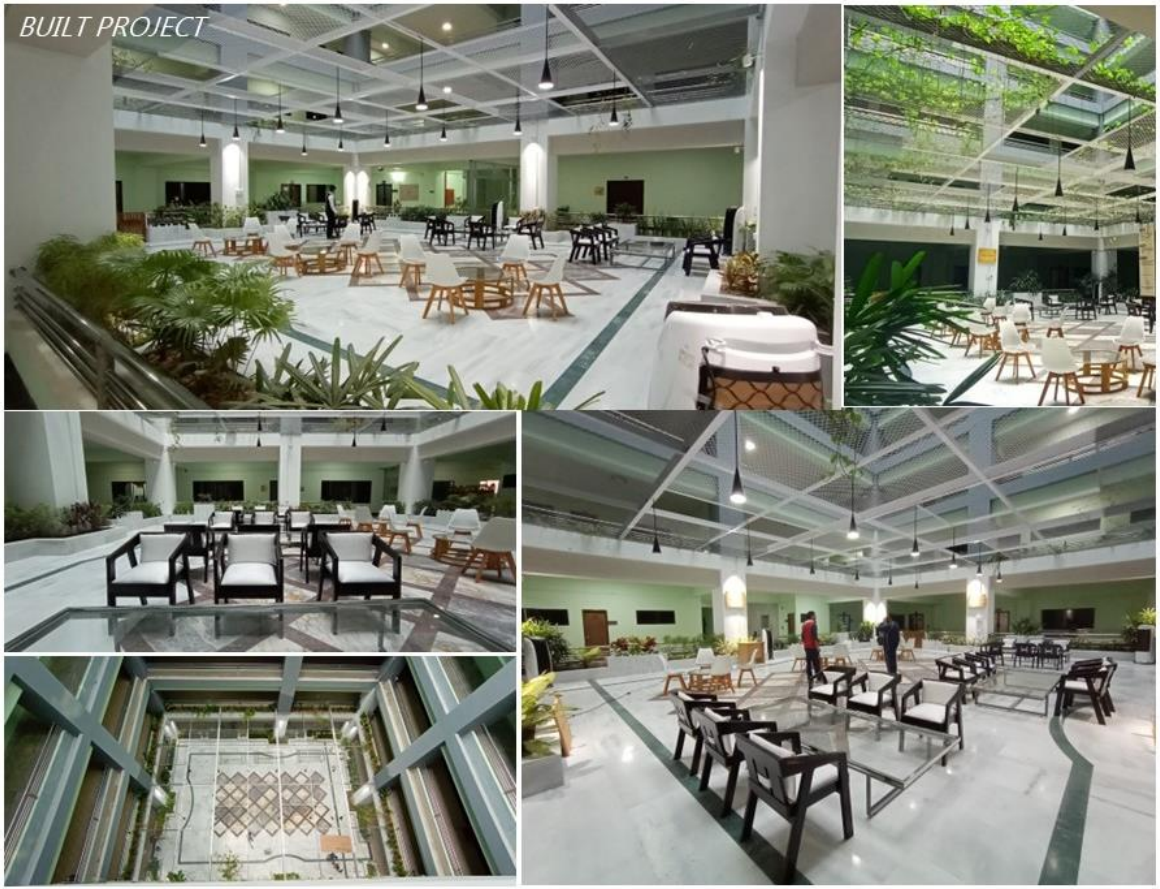

Country: Bangladesh

Project- Vision Garden, BPATC, Savar, Dhaka

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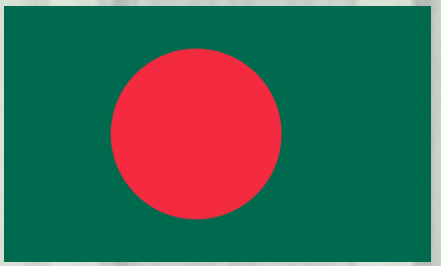
GREEN AsiARCH- 04 at Ulaanbaatar Mongolia

Country- Bangladesh

Project- EKMATTRA Dutch Bangla Bank Academy

Architect- Iqbal Habib, Ishtiaque Zahir Titas, Shahnaz Akhter Parveen



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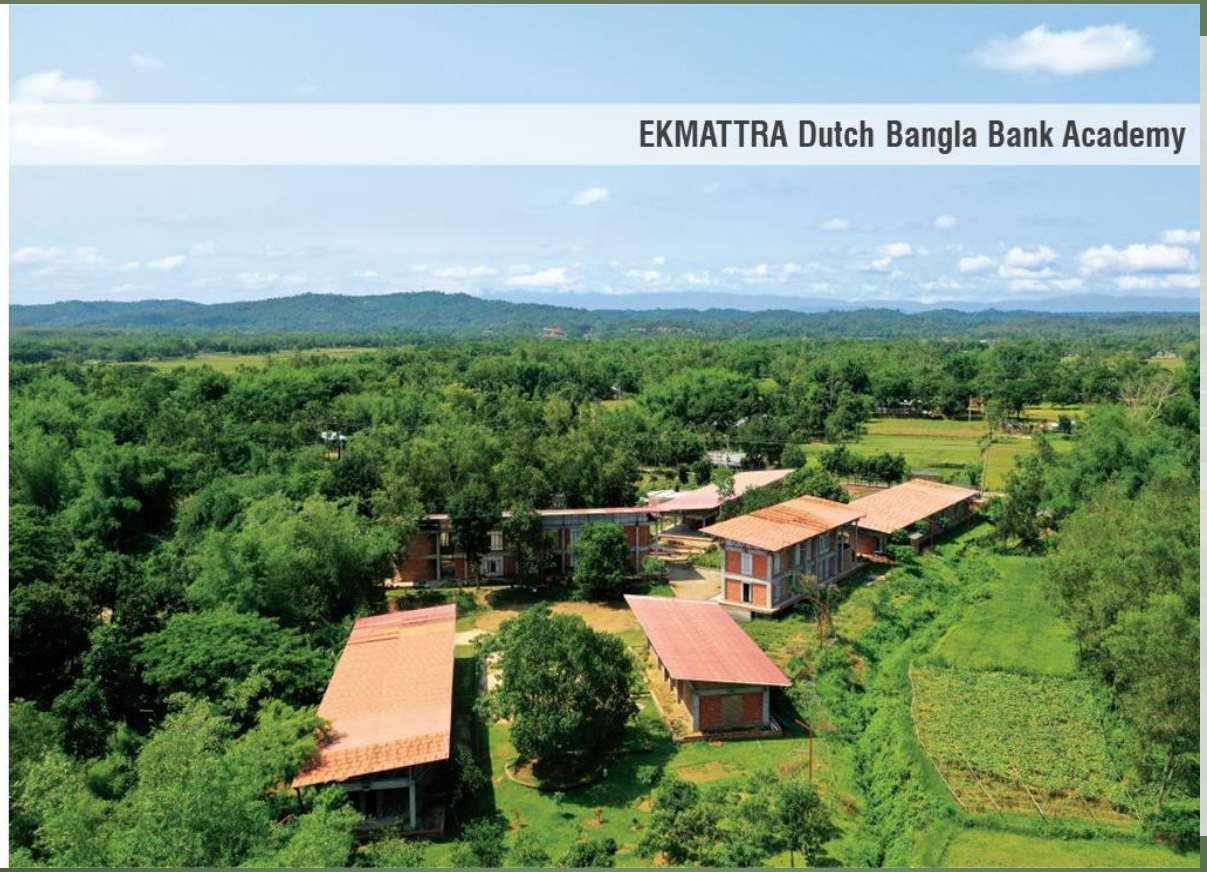

©Photograph by Wasik Edaaf

Country: Bangladesh
Project-EKMATTRA Dutch Bangla Bank Academy

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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 in 17th 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 Haluaghat, Mymensingh, the Academy is now home for more than 80 boys and 64 girls with their teaching stuffs and support personnel.

Country	Bangladesh
Name of the Project	EKMATTRA Dutch Bangla Bank Academy
Location	Haluaghat, Mymensingh
Land Area	12800 sq. m.
Built Area	2900 sq. m.
Year of Completion	2017
Architect :	Iqbal Habib, Ishtiaque Zahir Titas, Shahnaz Akhter Parveen
	Associate Architect : Kawsary Parveen
Name of the Consulting Firm :	VITTI Sthapati Brindo Ltd, Mrinmoy Consultants.
Structure :	A.K.M. Jahangir Alam
Plumbing :	Md. Faikuzzaman
Electrical Engineer :	Abul Kashem
Awards :	30th JK Cement Award, India (Foreign Architect Category)

Country: Bangladesh

Project-EKMATTRA Dutch Bangla Bank Academy

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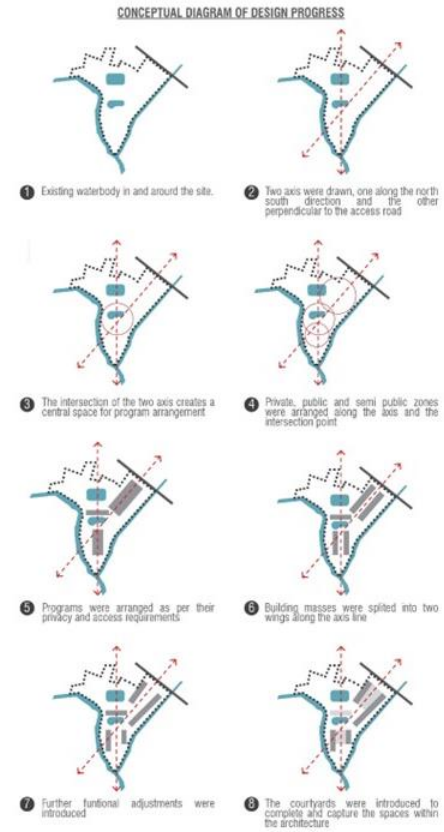

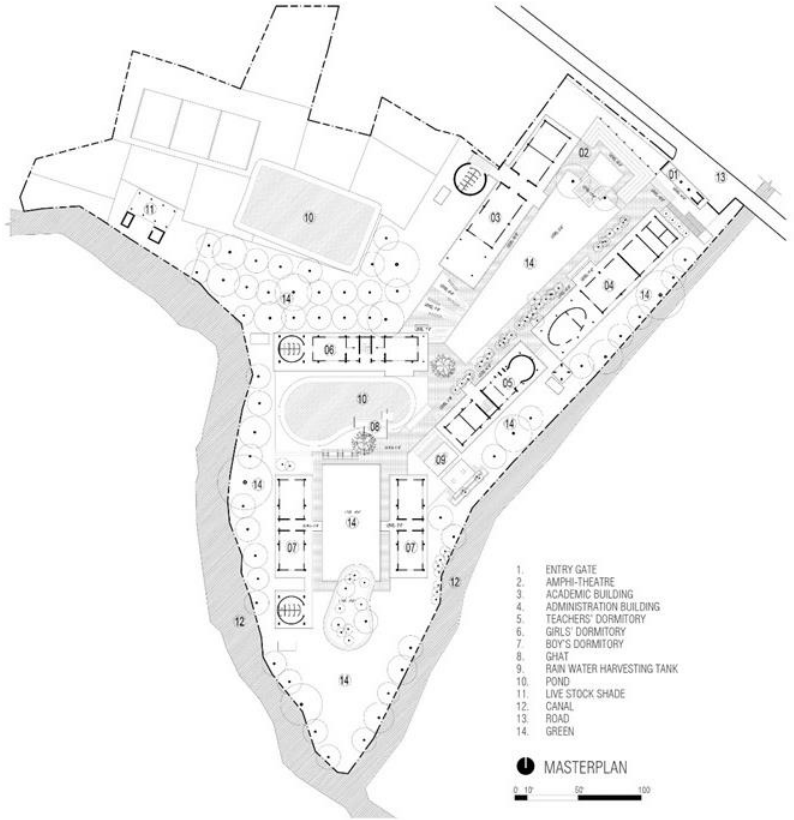

Country: Bangladesh

Project-EKMATTRA

Dutch Bangla Bank

Academy

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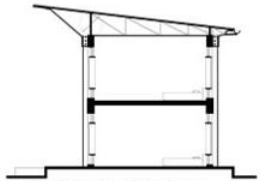
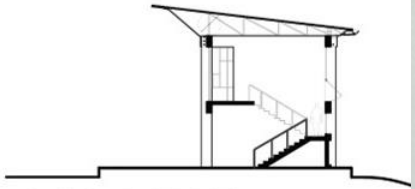
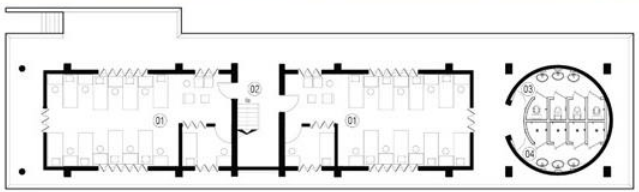


GIRLS' DORMITORY SECTION B-B



TEACHERS' DORMITORY SECTION C-C



GIRLS' DORMITORY (GROUND FLOOR PLAN)

1. Girl's Dormitory
2. Stair
3. Toilet
4. Shower

Country: Bangladesh
Project-EKMATTRA
Dutch Bangla Bank
Academy

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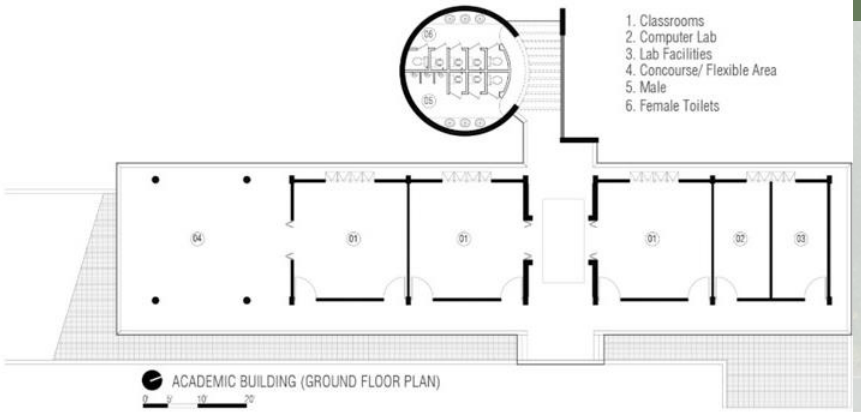
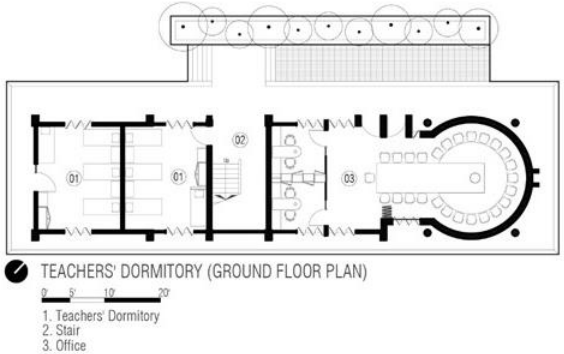
Photographs by Wasik Edaaf





Country: Bangladesh

Project-EKMATTRA

Dutch Bangla Bank

Academy

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Like the common rural settings of built forms in Bangladesh, the school has been designed surrounding a courtyard or 'Uthan'. 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 CI 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 manner. 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.

© Photograph by Nazmus Sakib

Country: Bangladesh

Project-EKMATTRA Dutch Bangla Bank Academy

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GREEN AsiARCH- 04 at Ulaanbaatar Mongolia

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

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GREEN AsiARCH- 04 at Ulaanbaatar Mongolia

Country- China

Project- Han Theater Of Wuhan International EXPO Center

Han Theater Of Wuhan International EXPO Center

中信建筑设计研究总院有限公司
CITIC General Institute of Architectural Design and Research Co. Ltd.

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: 36,341m^2
Built Area: 56,354m^2
Year of Completion: 2022
List of Professionals:
Architects: Wang Xiaohui, Liu Ying, Yin Jintao, Xia Ni, Wu Sixing, He Xiangyi, Huang Donglin
Structure: Peng Ning, Ren Feng, Chen Yu, Cheng Qiu, Liu Dong
MEP & Sustainable Design: Tang Xiaoliang, Jin Bihui, Yi Biao, Feng Xiaoliang, Hu 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 connecting 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 hold the opening ceremony of large-scale exhibitions or high-quality exhibitions. The third floor is a multi-functional theater, which can accommodate more than 2,300 people for meetings and performances, and contains meeting rooms, reception rooms, lounges and dressing rooms. The fourth floor is the gallery and meeting rooms.

Country- China

Project- Han Theater Of Wuhan International EXPO Center

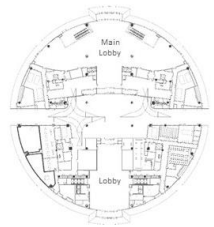
Design Concept

- **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

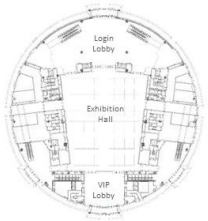
- **Promoting urban culture:** The outline of the building is derived from the tripod of the ancient State of Chu, which reflects the chime shape of the surrounding exhibition halls. The facade design of the building takes ancient Chinese landscape painting as the concept, using the Yangtze River water 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 caused the problem of too long streamline. 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.

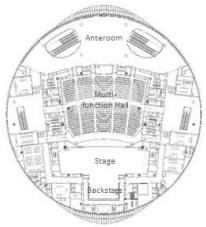
Awards: The 11th "Longtu Cup" National BIM Competition in 2022 Second Prize of Comprehensive Group



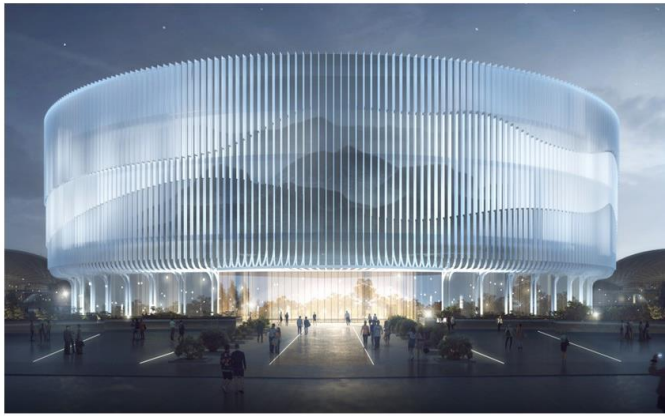
Ground Floor Plan

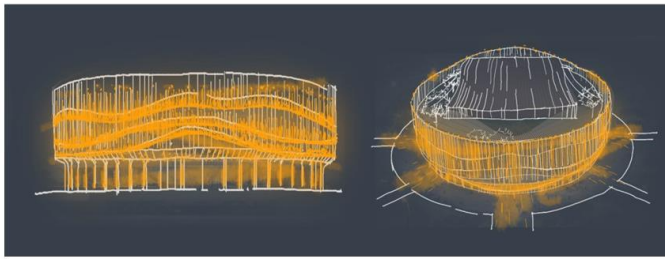


Second Floor Plan



Third Floor Plan





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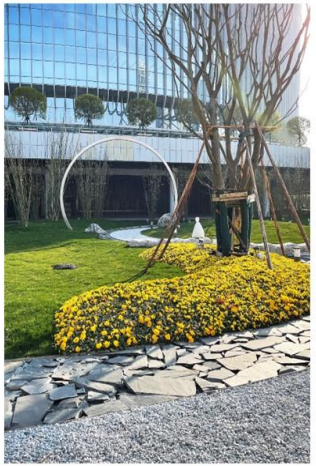
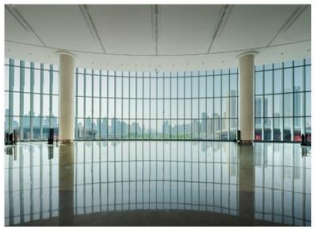
GREEN AsiARCH- 04 at Ulaanbaatar Mongolia

Country- China

Project- Han Theater Of Wuhan International EXPO Center





Vertical exterior wall shading

Energy saving and low carbon emission

Outdoor heat-island intensity control

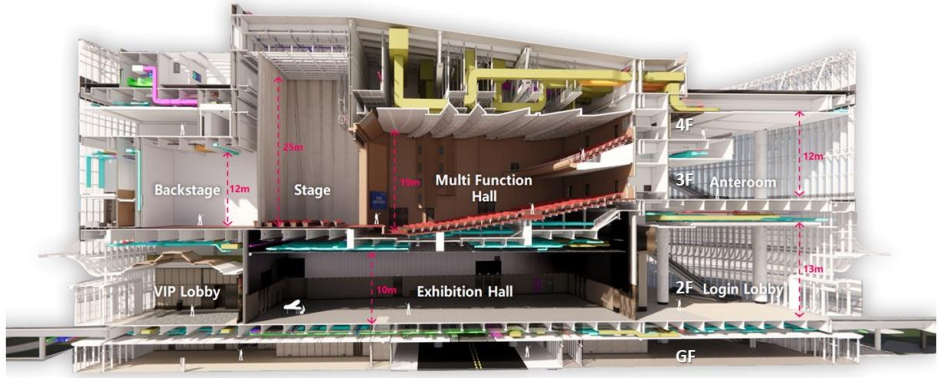
- **Vertical exterior wall shading:** The energy-saving performance of curtain wall system is improved by setting lining wall, exterior shading and double silver insulating glass.
- **Energy saving and low carbon emission:** Reasonable selection of insulation materials for the envelope. The heating and 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 40.86kgCO_2/(m^2·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

Arcasia Committee on Green & Sustainable Architecture
GREEN AsiARCH- 04 at Ulaanbaatar Mongolia

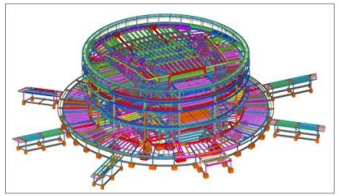
Country- China

Project- Han Theater Of Wuhan International EXPO Center

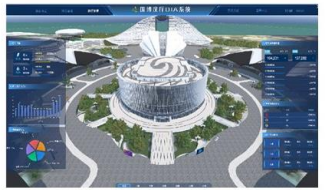


Sustainable Design

- **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.



All steel structures are prefabricated by the factory



Intelligence operation platform

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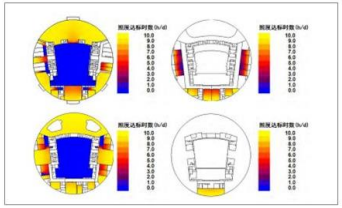
Country- China

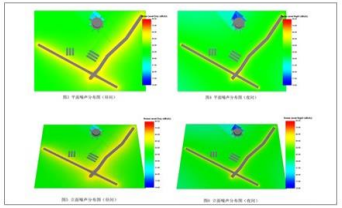
Project- Han Theater Of Wuhan International EXPO Center

Sustainable Design

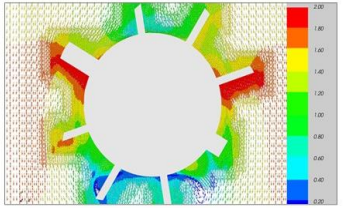
- **Indoor natural lighting :** Artificial lighting and natural lighting are integrated utilized to ensure indoor day lighting. The proportion of area that has a higher value of the standard hours of natural lighting illumination value of indoor space than 4h/d is 68.1%.
- **Acoustic design and noise 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 provide a good architectural sound environment.
- **Outdoor wind environment simulation :** Through the simulation analysis of outdoor sound and wind environment, the sound insulation and the requirements of ventilation of the site are determined.



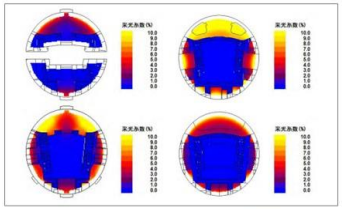
Indoor natural lighting

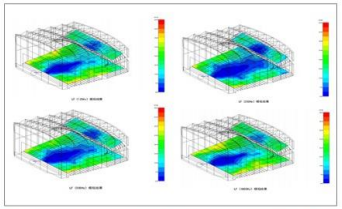


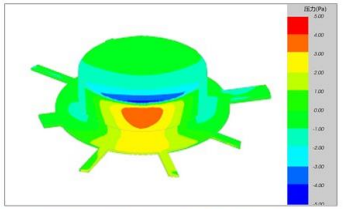
Acoustic design and noise simulation

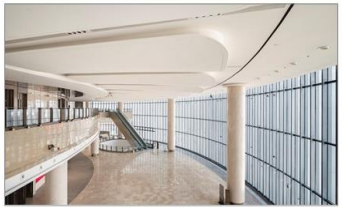


Outdoor wind environment simulation









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Country- China

Project- The Renovation and Adaptive Reuse of the Panoff Mansion

Architect- Xiao Wei, Qi Wei, Zhang Xi,
Wang Xiang, Li Yuting ,Zhang Wenzhu

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GREEN AsiARCH- 04 at Ulaanbaatar Mongolia

Country- China

Project- The Renovation and Adaptive Reuse of the Panoff Mansion

中信建筑设计研究总院有限公司
CITIC General Institute of Architectural Design and Research Co. Ltd.

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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: 12519.24m²
Year of Completion: in progress

List of Professionals:
Architects: Xiao Wei, Qi Wei, Zhang Xi， Wang Xiang, Li Yuting ,Zhang Wenzhu
Structure: Zhong Xun, Lei Daowei,Zhang si
MEP & Sustainable Design: Zhang Fan,Cai Xiongfei,Shen Jinfang,Tang Xiaoliang
Cost of the Project: 17.53 million $

Site Area

Country- China
Project- The Renovation and Adaptive Reuse of the Panoff Mansion

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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 mansory-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.

Country- China

Project- The Renovation and Adaptive Reuse of the Panoff Mansion

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Country- China

Project- The Renovation and Adaptive Reuse of the Panoff Mansion

- **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 representiative buildings along the "Ten Thousand Li Tea Route", carries lots of historical information; the second and fourth floos will be renovated as historical experiential hotel; the first flood 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

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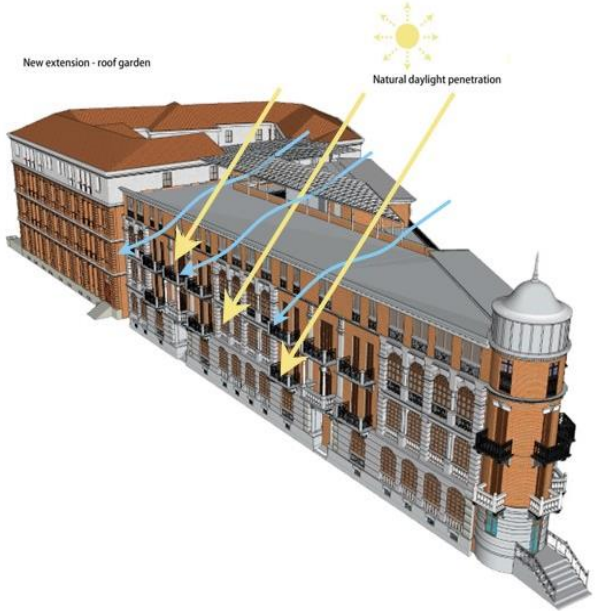
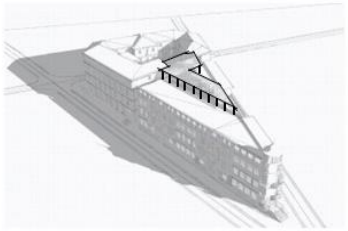


Sustainable Design



- **Atriums with Natural Lighting Combining Energy Saving and Response to Local Climate:** The new atrium roofing system with combination of roof light glass and metal sheets accommodates to 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 " Zeno 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

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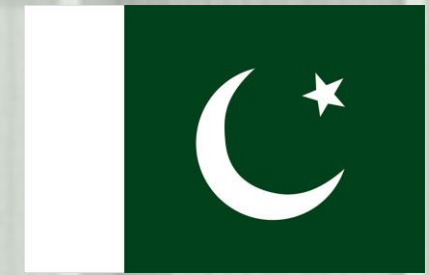
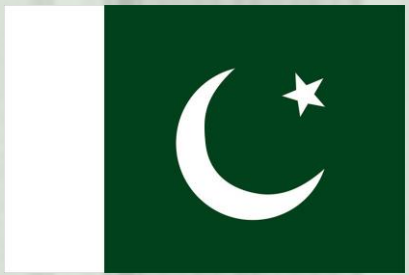


Country- Pakistan

Project- Telenor Campus

Islamabad, Pakistan



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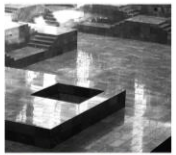
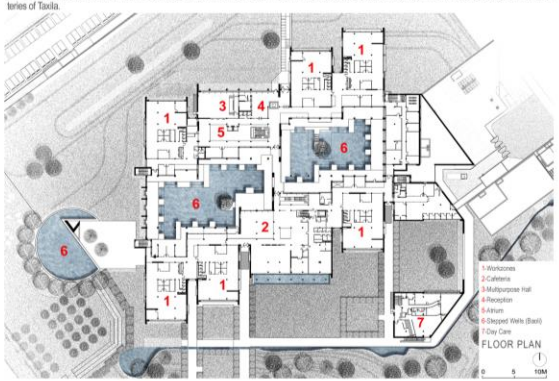


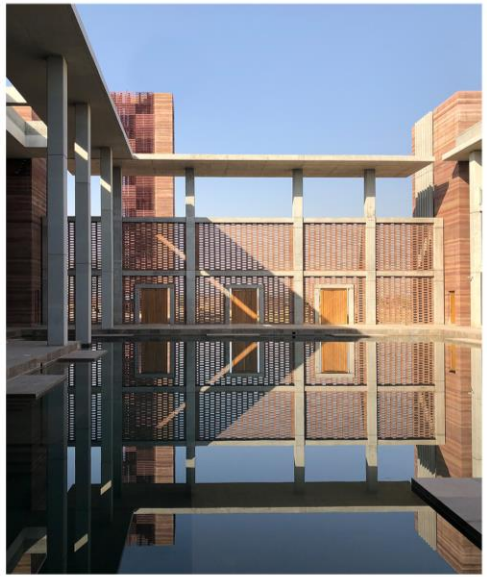
Stepwells of the Sub Continent

345 TELENOR CAMPUS ISLAMABAD, PAKISTAN

The impact of the Telenor Office Campus has been in its holistic embrace of Mother Nature, through which a redefinition of the work place has taken place. Earth, Light ,Water and Flora form the Conceptual framework around which spaces for work are created in a Campus setting unique to this Site. An Architecture rooted in modernity is created through a dialogue with its Land, History and Context. Sustainable design concepts are celebrated and appreciated as everyday spectacles by young knowledge workers who realize that their place of work is truly special.Here they see the hues of the Potchar Plateau dabble on rammed earth walls, they begin to appreciate water conservation in the form of "baoli" courts not just as a place of History but as an everyday reality. The Planning makes them experience the Office as an indoor-outdoor sequence of Work spaces, Courts, Cafes, Walkways where they can contemplate , meet and explore . The indoors and outdoors all come together to form a larger work experience.The Design ensures that the Site's existing topography and natural water courses remain intact. In this regard a key design intervention has been the conversion of an existing seasonal pond into "Baolis".

These stepped wells in fifteenth and sixteen century dotted the landscape of the Indian Subcontinent as Architectural wonders.The Architecture of the building is created through a material palette made up of Stabilized Rammed Earth (as dug) Walls, depicting the colours of the unique Potchar Pleatue walls Local stone Jaali screens, Fair Faced Concrete Overhangs, Downspouts and Louvers. Aluminium windows and insulated glass windows.
The Landscape design draws its essence from the rich history of hard and soft landscapes particular to this region, such as the axial geometry of Mughal landscapes found at the Shalimar or Wah Gardens; the environmental stewardship of the stepwells (Baolis) of Northern India and the serenity of the Monasteries of Taxila.





Country: Pakistan
Project- Telenor Campus, Islamabad, Pakistan

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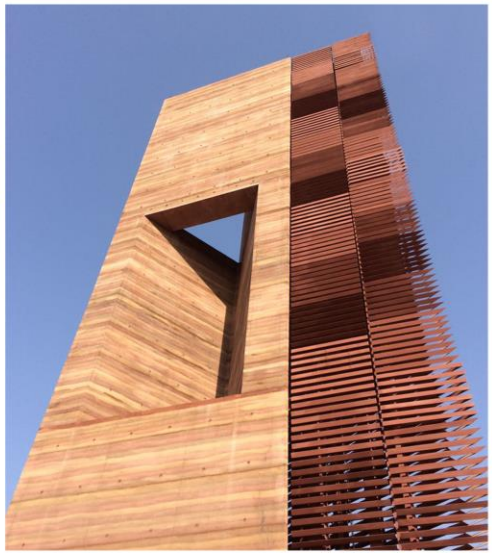
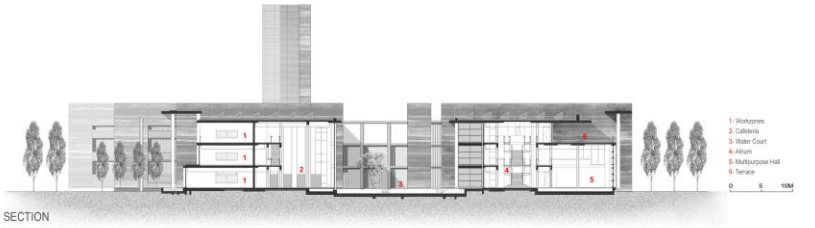
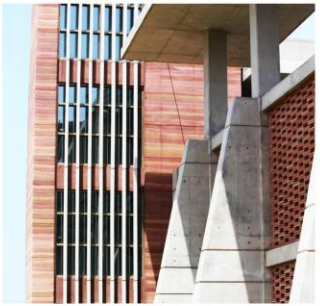




SECTION



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Country: Pakistan

Project- Telenor Campus, Islamabad, Pakistan

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PEOPLE <···> NATURE

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

EARTH

WATER

LIGHT

FLORA

5080. PAK.

Country: Pakistan

Project- Telenor Campus, Islamabad, Pakistan

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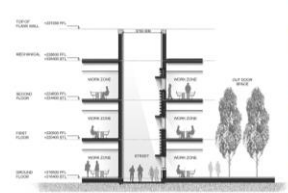
PEOPLE <···> NATURE

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

EARTH

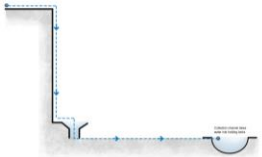
- As dug material used to create insulated Rammed Earth walls in the East West direction.



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

WATER

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



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Country: Pakistan
Project- Telenor Campus, Islamabad, Pakistan

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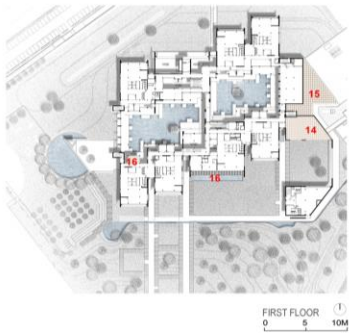

LANDSCAPE COURTS

The landscape design draws its essence from the rich history of hard and soft landscapes particular to this region, such as the axial geometry of Mughal landscapes found at the Shalimar or Wah Gardens; the environmental stewardship of the stepped wells (Baolis) of Northern India and the serenity of the Monasteries of Taxila. The design successfully integrates the building's architecture and its landscape into a holistic experience. The campus is made up of a series of Courts and Gardens which are different in nature and character. Contemplation courts are scattered along the southern gardens and are created by poplar trees placed close together; each have places for sitting and discussion. The buildings entry courts are the primary arrival spaces and allow for the traffic and people to be screened and processed in a landscaped environment. A system of gridded pathways emanate axially through the site connecting these courts, lined with ornamental trees, aromatic herbs, flowers, water channels. The strong relationship between the building architecture and the surrounding landscape provides the users with an experience that is enriched by the constant interaction with nature in the workplace.


Entry Court I


Campus Garden


Tower Court


Meeting Court (Tree Lining Underway)


Assembly Court


Play Terrace


Upper Level Walkway


Stepped Well Court (Back) With Sculpture


Badminton Court

5080. PAK.

Country: Pakistan

Project- Telenor Campus, Islamabad, Pakistan

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WORKSPACE INTERIOR

5080. PAK.

Country: Pakistan
Project- Telenor Campus, Islamabad, Pakistan

Thank You