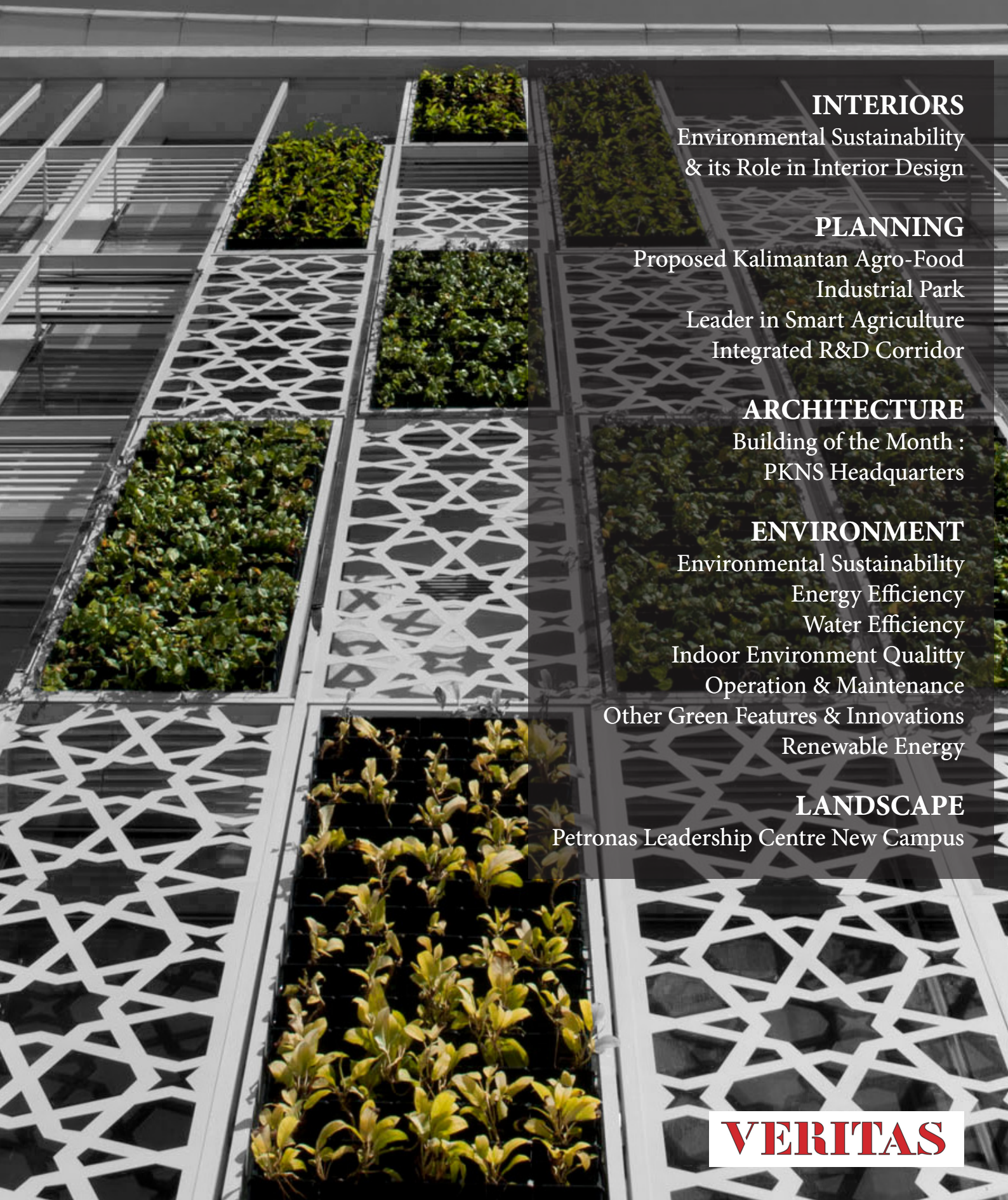
DEC 2022
VOL. 04

SHADES OF GREEN



INTERIORS
Environmental Sustainability & its Role in Interior Design

PLANNING
Proposed Kalimantan Agro-Food Industrial Park
Leader in Smart Agriculture Integrated R&D Corridor

ARCHITECTURE
Building of the Month : PKNS Headquarters

ENVIRONMENT
Environmental Sustainability
Energy Efficiency
Water Efficiency
Indoor Environment Qualitty
Operation & Maintenance
Other Green Features & Innovations
Renewable Energy

LANDSCAPE
Petronas Leadership Centre New Campus

VERITAS

CONTENTS

Environmental Sustainability and its Role in Interior Design

Having concerns about the environmental impact of your home, or the levels of productivity and creativity in your office? Maybe it's time to consider a more nature-based interior design in real estate, with concepts such as energy and water efficiency, waste reduction and recyclable materials implementation - not only for reduced environmental impact but for the positive impact on human health and wellbeing.
Biophilic designs for people, planet and your profit! Our actions address human health, environmental sustainability, and financial gain. As the world becomes increasingly urbanized, our lifestyle conveniences and wishes are increased, while access to nature and green spaces decreases. As a result, we have a fundamentally disconnected evolutionary flow, with many problems (mainly diseases) tightly connected to it.

What is Environmental Sustainability?

When we talk about environmental sustainability meaning to address all aspects of our lives - we need to include everything, from eco-homes, the sourcing of our supplies, renewable energy, environmentally conscious communities until low impact furniture and even clothing.

But What is Environmental Sustainability Actually?

The meaning of environmental sustainability has many definitions used by green groups, businesses and even politicians and activists, but the concept and principles of sustainable development were first introduced in 1987, in the "Our Common Future" report, prepared for the World Commission on Environment and Development.

Why is Environmental Sustainability Important And Needed?

The importance of environment and sustainability has been recognized for all the damaging factors that can be caused by individuals to our environment. We must all take care for each other - humans need to look after the plants and animals we share our planet with, of the air we breathe, our rivers and oceans we consider continental boundaries.

Looking after environmental health is crucial for ensuring a green future and healthy lives on a healthy planet. That is why looking after our environment is something we must all be a part of. There are many environment development and sustainability projects, on a large and small, local, or national/global level.

How Environmental Sustainability Affects Social Responsibility?

A relationship of people and spaces is based on psychological and psychical parameters, and has great implications on the improvement of life quality. Targeting social welfare and happiness through environmental sustainability is a measure that results in higher levels of employee creativity, motivation, and wellbeing.

The most important criteria to save and heal the planet is the selection of materials that are going to be used in the process of building and decorating. Every material has its function, so materials used in hospitals and shopping malls should be different due to the sterilisation needs, but it is very important to select the materials with maximum potential to reduce waste.
The embodied energy (energy needed to produce some material) is also an important factor when choosing a sustainable material for a home or some public space. Concrete, steel and the plastics are higher in embodied energy than some more natural elements like stone or timber.

Recycling potential is an important factor in the field of waste management. Moreover, the level of emission of toxic gases (in production and use) should be considered as an important step to go for more traditional, but highly sustainable techniques in construction. Decreasing the amount of global waste leads to creating new technology in order to generate electricity from the plantation. Interior environments are places where all human needs are exposed. They are the most intimate spaces where our health, physical and psychical, is affectable by many bad factors we have inflicted upon ourselves.

Environmental Sustainability in Business

Taking the initiative in creating a more environmentally conscious company culture through eco-friendly policies is a bold move, even if it starts with the elimination of plastic straws and paper in an effort to reduce plastic waste. Developing a corporate environmental responsibility begins on the level of your workforce. It is crucial (especially for young) people to believe in the vision and practice of environmental sustainability, changing their habits in the office, in order for the mission of sustainability to be carried out accordingly.

01 INTERIORS

Environmental Sustainability & Interior Design Elements

Interior design is a profession subjected to the context of human needs and the many different levels of their satisfaction. The interior space is made to satisfy the needs of security, surviving and achieving higher self-esteem. Recent studies have shown the need for environmental health and sustainability within our living spaces, and the obligation for the niche to be included and survive. This is why the practice of interior design elements is looked upon as a context of sustainability.

In the environment development and sustainability principles, the links between inequality, poverty and environmental degradation were recognized, thus the elements of their improvement were needed to support communities and to find a way forward for a fairer world with less damage to the environment.

So, the environment development and sustainability concept met the needs of the present, without compromising the ability of future generations to live in a better world.
Environmental sustainability in interior design is referred to all the systems and materials integrated into one whole purpose (for example into healthy buildings spaces for inhabitation), minimizing negative impacts on the environment and occupants, while maximizing the positive health, economic and social life cycle.

Environmental Sustainability in Interior Design Elements & The Planet

Issues of environmental development and sustainability are concerns like whether environmental resources will be protected and maintained for future generations. Limiting consumption of non-renewable resources, and naturally, shifting to renewable resources and avoiding excess pollution damaging to our health and the earth's atmosphere. The biggest problem now is making an economic decision based on the insight of the long-term consequences and making integration decisions to target economic and social welfare.

The Long-Term Health of Ecosystems

Principles of sustainable development protect the long-term productivity, and health of the resources that are going to be used in the future, meeting the economic and social needs. Making decisions to protect food supplies, farmlands and fishing stocks, species diversity and ecological structure, we ensure the health of our future generations and the loam of our lands.

Prevention of Man-Made Global Warming

Water shortages, extreme weather events, excess temperature and all the other problems have been predicted for the future generations to face because of the deterioration, usage of harmful materials and substances - factors that could make living in some parts of the world very difficult, if not possible.

Intergenerational Decision Making

When making large economic decisions, we should focus on the implications for the future, not just for the present moment. For example, using coal as energy gives a short-term benefit of cheapness, but the pollution weight is immense for future generations.

Renewable Resources

Diversifying energy sources from non-renewable into renewable and sustainable ones that, again, do not rely on non-renewable resources is one of the main concerns that should be met in the future. For example, most popular solutions are solar and wind power generating windmills, panels and skylights.

The willingness to create sustainable environments should be primary met and fulfilled within workplaces and private home interiors. Interior designers have an essential tool in their hands to lead sustainable environments and create consciousness in sustainability. Interior design elements are major tools in creating long term environmental sustainability, with elements of natural resources, sustainable fabrication, manufacturing, and installation, all the way up to sustainable use, reuse, recycle and final disposal.

Proposed Kalimantan Agro-Food Industrial Park

RETHINKING DEVELOPMENT

Current Paradigm

The existing conditions of the site have a poor public realm and sense of place as majority of the land is a monotonous Monoculture Plantations-Palm Oil. The site currently is disconnected from employment Opportunities.

New Paradigm

The new paradigm will seek to reconfigure traditional relationships between farmland and industrial-business development.

MASTER PLAN PRINCIPLES

Strategic Development & Economic Vialibility

Maximize local business & employment

Mixed use development generate profits and steady job opportunities and are adaptable to future expansion and economic settings.

Social responsibility

Nodes of interaction are created between community to elevate essence of Kalimantan.

Identity and Design

Eco City Destination

Quality, Timeless design throughout it encompasses robust quality in design of both the public and exclusive spaces that also reflects the local area.

Heat of Sustainability

Controlled amount of development

Development area must encourage sustainable way.

Integrated Circulation System

Accessible to all

Pedestrian, buggy, automobile, rail transport & airport

Limit reliance on car journeys & traffic congestion

Visitors parking is controlled at periphery at each port.

Sustainability, Impacts & Long Term

Eco-centric construction

Lightweight construction that uses ecological material and technique

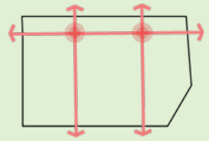
Self sustaining operation system

Renewable energy in new buildings, passive cooling design with tropical climate, energy efficiency operation and rainwater harvesting.

MASTER PLAN STRATEGIES

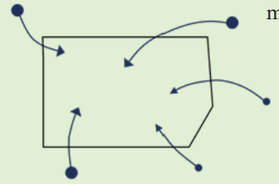
Site
Approximately 2800 acre

Proposal Activity
Incorporating technology, innovation along with modern lifestyle, agriculture and wellness.



Accessibility
Global and regional access. Well connected road with efficient city layout. Encourage walkability and transit movement.

Energy Efficient
Using renewable energy to power the city and integrate sustainability and resilient strategies as main development components.



Economy Collaboration with Nearby Cities
Samarinda, Bontang, and other nearby cities will experience direct impact from this city development including economic growth, job employment and GDP.

04 BIG I.D.E.A.S.

A guiding framework for Eco City

Vision

Transform the proposed site to become the first Agro Food Industrial Park in East Kalimantan Region

BIG Ideas

Leader in Smart Agriculture

~ A leading Smart Agriculture City
~ Sustainability
~ Environmental leader
~ Partnership with state and investor

Integrated R&D Corridor

~ Wellness
~ Affordable Homes
~ Workers' Homes

Well Connected

~ Active transport and connectivity
~ Green Transport
~ Walkability

City Experience

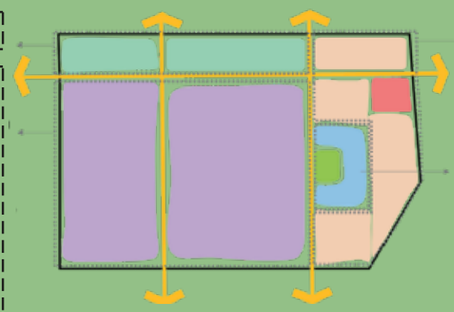
~ Affordable
~ Relax and Comfort
~ Green Lung with water elements
~ Culture
~ Privacy and safe

CONCEPTUAL PLAN

Smart Agriculture

Agro Food and Industrial Hub

- Crops Processing
- Agri Product Warehouse (logistic hub)
- Agrobusiness R&D Centre
- Agritech Education Centre
- Animal Husbandry



Lively Neighborhood Hub

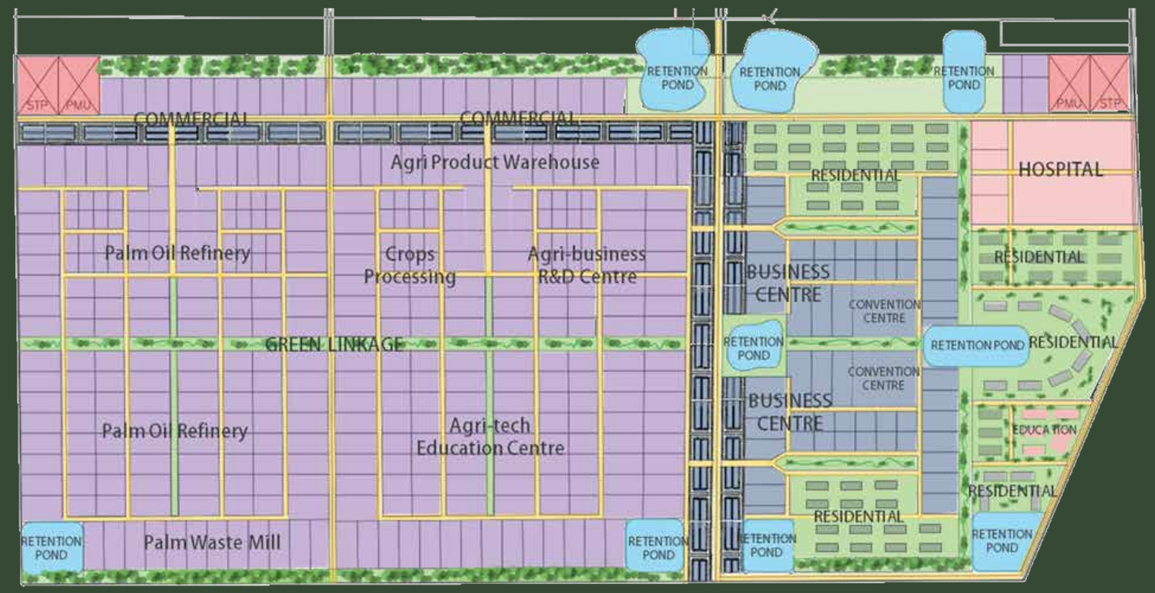
- Residential Area
- Educational Zone
- Healthcare Corridor

Business Hub

- Business Centre
- Convention Centre
- Shoplots

Agriculture Based Zone
Commercial Zone
Industrial Zone
Residential Zone
Public Amenities

AGRO-FOOD INDUSTRIAL PARK - CONCEPTUAL MASTER PLAN



1. LEADER IN SMART AGRICULTURE

Evolving approach to agricultural innovations and farming practices that help farmers increase efficiency and reduce the number of natural resources like water, land, and energy necessary to meet the world's food, fuel, and fiber needs. The agribusiness, intensive farming, organic farming, and sustainable agriculture are other names of modern agriculture.

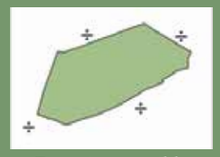
Vertical farming method addressing the water scarcity problem as it lowers the requirement of water up to 70%. Plus, by using growing shelves mounted vertically, indoor vertical farming significantly reduces the amount of land space needed to grow plants.

Automation give access to tools that can help farmers do all the farming work in less time, more efficiently, and for reduced costs. From robotics and drones to computer vision software that help automate the crop or livestock production cycle. Modern greenhouses are becoming increasingly tech-heavy using technologies such as LED lights or automated control systems to create the perfect conditions for food production. It minimize the risk of the negative impacts of weather. By protecting plants from freezing or being destroyed by heavy rainfall.

Integrating agriculture activities with technology, focuses on creating smart agriculture research, start ups and exhibition...

Reposition of modern agriculture

ZONE



From inaccessible production farmland

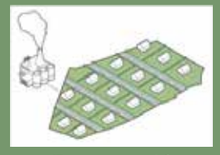
to integrated residential natural habitat

AGRICULTURE

From mono-cultural industrialized farm land

to permaculture, forest gardens and increased biodiversity

ENERGY



From on-grid

to off-grid

PLOT DIVISION

From sub-divided and isolated plot

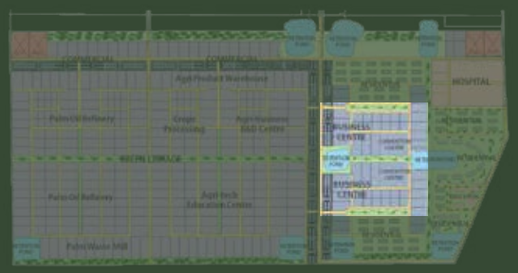
to social clusters

2. INTEGRATED R&D CORRIDOR

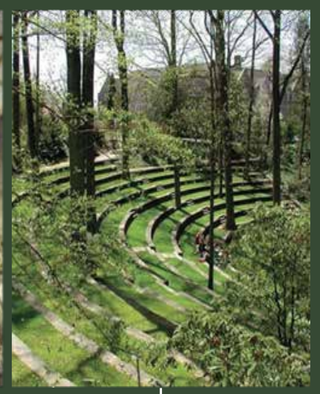
Investment in research and development (R&D) and innovation is vital for ongoing growth and improvement in the productivity, profitability, competitiveness and sustainability of agriculture, fisheries, forestry and food industries.

Defending the Future of Food –
Developing crop protection against pests, drought, extremes weather, and ever-evolving challenges without harming the environment. Actively discovering and bringing to market the next generation of crop-protection products using the power of biology. Using high throughput platform and industry-leading genomic library, developing solutions from the vast dark matter of protein diversity nature has to offer.

3. BUSINESS PARK & CONVENTION CENTRE



Strong streetscape designs will be implemented to ensure a truly cohesive Kalimantan Environment



Interactive Lighting
Promote life and vibrancy to public spaces by livening it up with street and floor lighting.

Outdoor Spaces
Allow the enjoyment of Kalimantan's existing greenspace by innovating the green spaces.

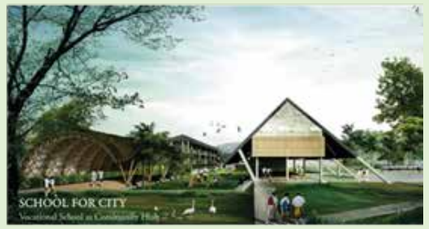
Shaded Social Spaces
Promote life and vibrancy to public spaces by livening it up with street and floor lighting.

4. LIVELY NEIGHBORHOOD EXPERIENCE

Residential Area

Healthcare Corridor

Educational Hub



PKNS Headquarters

Details of Client & Project Consultants

Client
Selangor state development corporation (PKNS) HQ

Architect
Veritas Architects Sdn Bhd

M & E Engineers
Arup Jururunding Sdn Bhd

C & S Engineersrup
Arup Jururunding Sdn Bhd

Projact Managers
Wan Muhd Hisham Wan Hawari

List of Awards

1. Green building certifications
2. PAM Awards 2017
3. Cityscape Global Award 2017

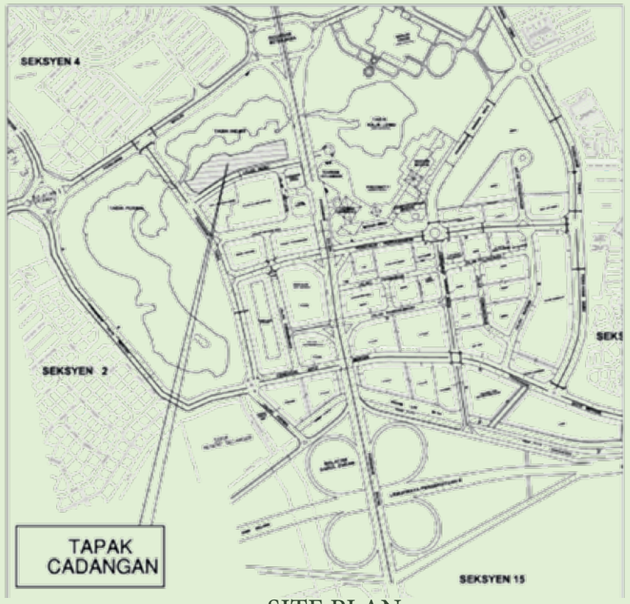
03 ARCHITECTURE

Aspired from Selangor State Development Corporations (PKNS) to have a new iconic and progressive new headquarters to reflect the dynamism of PKNS.

Element of Selangor cultural identity mixed with the latest trend of environmentally and sustainable architecture with signature Green Roof. PKNS located in the footprint area of 49,517sqm with a Gross Floor Area (GFA) of 29,948 sqm and Nett Lettable Area (NLA) Air Conditioning Area of 2120sqm.

PKNS

Project	: PKNS Headquarters
Certification	: GBI (Double Platinum)
Design Assessment	: Local GBI Ceritified
Awards	: PAM Awards 2017 (Gold) & Cityscape Global Awards 2017 (first prize for Commercial project and first prize for sustainability project)



SITE PLAN

Environmental Sustainability

1. Sustainable Construction
a) Conversation of existing structures & material reuse
b)Use of materials/ products with recycled content
c)Environmentally friendly products with green label certification
d)Good environmental management system during construction

2. Greenery
a)Restoration and conservation of existing trees
b)Vertical greenery
c)Roof gardens
d)Percentage of landscape areas over total site area

3. Provision Of Recycling Facilities
a)Storage, collection and disposal

4. Public Transport Accessibility
a)Two facilities for bus stand and taxi stand have been provided for staffs and public use with the service of 'free electric shuttle bus ' by PKNS.

5. Materials
a)Percentage of using local materials

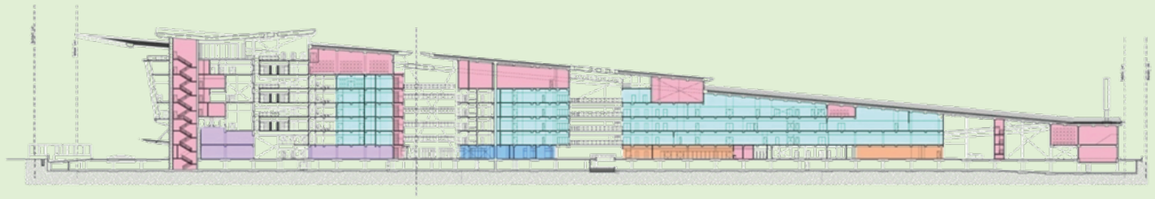
6. Sustainable Site
a)External environment

7. Barrier Free And Public Access

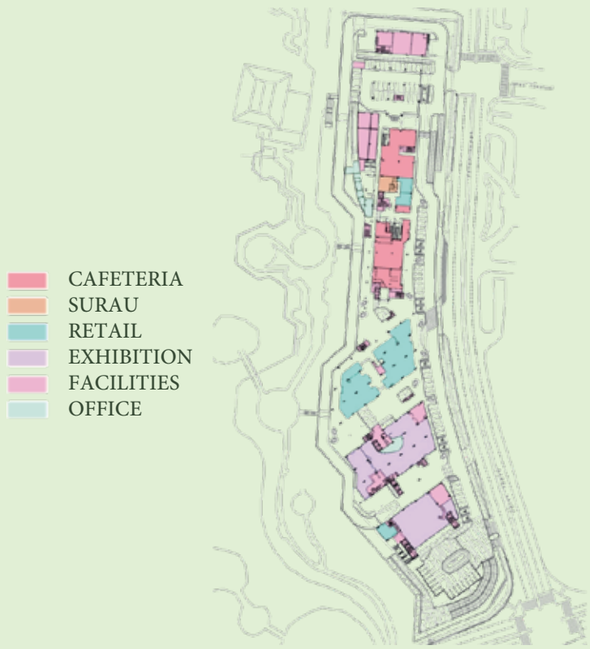
FRONT ELEVATION

LEFT ELEVATION

SECTION A-A



SECTION B-B



GROUND FLOOR 1ST FLOOR 2ND FLOOR 3RD FLOOR 4TH FLOOR 5TH FLOOR 6TH FLOOR

Building Details & Information

Physical Building Background
- Brief history: The building was built along the strips of Famous Shah Alam Lake garden

Plants And Landscape Design/ Wind And Natural Ventilation/ Water Features/ Day Lighting
- The explanation in Active and Passive Design

Facade And Shading Design
- Type of façade: Islamic pattern plays an important role in assuring the comfortless of the users from the heat and the ray of the sun.
- Colour of façadev: White
- Use of shading device: The building consumed series of curtain wall with highly specification DGU glasses and randomized sunscreen

Shape Of Building
- Building long block is segmented into 4 blocks with 3 'breezeway' plazas

Total Number Of Storeys The Building Contend Of 8 Floor

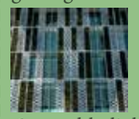
Ownership Of Building (Occupied By Owner(s), Renter(s), etc.) Occupied By Owner 2016

ENERGY EFFICIENCY - ACTIVE & PASSIVE DESIGN

Passive Design Concepts
Horizontal shadings
Double Glazed Units (DGU)

Window To Wall Ratio 53.58%

U Value & SC Value Of Fenestration, Including Shading Elements Of East & West Facade - 24mm clear low-E double glazing



DOUBLE GLAZING UNIT (D.G.U)

1.26	0.33	52	13	11

6mm thk light green tempered w/ heat soak test + 12mm air gap (argon or to specialist detail) + 6mm clear tempered w/heat soak test

Overall Heat Transfer Through Building Envelope
OTTV is about 24.13W/m²

Day Lighting
The ceiling along the facade perimeter designed with an angled slope to maximise the depth of natural light penetration to minimise the use of artificial lighting throughout the development.

Zoning For Integrated Lighting & Day Lighting
Lux sensors installed with peripheral lights
Visible Light Transmission (VLT) is 50% & above.

Natural Ventilation
3 'breezeway' plazas, gaps, open deck

Air-conditioned Area Over Gross Floor Area:
18,040.69 SQM

Other Passive Design Concepts: roof gardening, sky park

Air Conditioning: 0.65 KW/TON 150 W/M2

WATER EFFICIENCY

Use Of Water Efficient Fittings
Water efficient fittings designed to reduce 20% of the water usage. Dual flush WCs contribute to maximum water efficiency.

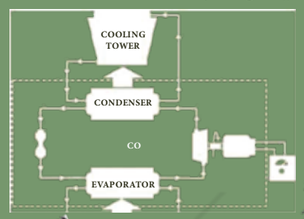
Use Of Non-potable Water For Irrigation
Rainwater and recycled grey water for all toilets and irrigation. No DCW is used for irrigation.

Use Of Water Efficient Irrigation System
Rain Water Harvesting System- toilet flushing and irrigation requirements. Grey water Harvesting System also harvest water from ACMV condensate from development, used water from basin taps to supplement irrigation requirements.

Use Of Non-potable Water For Cooling Tower And Other Purpose
Water consumption is reduced by over 60%, by using rainwater and recycled grey water for all toilets and irrigation. No DCW is used for irrigation.

Rainwater Harvesting & Percentage In Reduction Of Potable Water consumption

Water Treatment / Recycling Capacity



Provision Of Water Sub-metering And Leak Detection System (24 DWM)
Installation of water meters consisting of 2 sources of water to provide monitoring backup water supply if recycle water cannot give sufficient supply.

Grey Water Recycling System

INDOOR ENVIRONMENT QUALITY

Thermal Comfort
Design indoor temp & relative humidity

Number Of Ventilation Air Per Person
Variable Air Volume system. Floor areas divided by zones, the airflow rate depending on information provided by temperature sensors. Airflow (pressure) sensors in the ductwork will control fan speed while keeping the pressure constant thus making this system highly energy efficient

Description	ASHRAE 62.1:2007			UBBL 3rd Schedule Article 12(1)
	Combination of the following		Default Values	
	L/s/person	L/s/m²	L/s/person	L/s/person
Office space	2.5	0.3	8.5	2.33

Use Of Low Volatile Organic Compound (VOC) Paints, Coatings & Carpets
All adhesives & sealants used inside the building shall be low Volatile Organic Compounds

No formaldehyde Emission Products
All materials used inside the building shall not contain urea formaldehyde.

Use Of High Frequency Balast To Avoid Low Frequency Flickering
Ventilation noise control to ensure the retail areas will provide a comfortable acoustic environment for the occupants.

Pollution
Internal noise level for open-plan office does not exceed 45 dB(A)

Environmental Tobacco Smoke (ETS) & Smoke Control

Smoker Zone

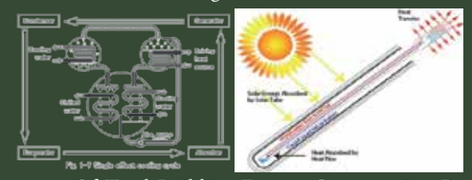
Lighting Ilumination
Illuminaire Types
Use of low frequency ballasts (eg T8) is NOT permitted in the Net Lettable Area

OPERATION & MAINTENANCE & OTHER GREEN FEATURES / INNOVATION

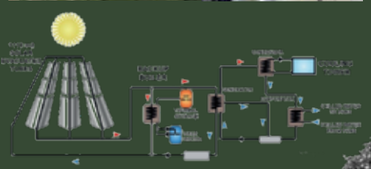
Any Other Feature With Positive Environmental Impact
Grass roof with its heat absorption properties also extrovertly reduce heat island effect towards the city.

Bio-climatic Architecture And Design
- Orientation
- Solar buffer
- Large roof cantilever
- 3 'breezeway' plazas
- Less glazing
- Sky Park
- Gaps between front cantilevered roof
- Horizontal shadings
- Narrow floor plan maximise
- Corridors in the office blocks becomes 'air lock buffer'
- Slope ceiling enhance
- Curtain wall with double-glazed low-e glass

Renewable Energy
Total renewable energy installed capacity and total energy generated (kWh) yearly
PKNS HQ is one of the building fully utilising the source of nature by using solar thermal air conditioning system and evacuated tube solar collectors which produce total energy generated (kWh) yearly - 75 RT 200 000 kWh (therm) for the building.



% Replacement Of Total Building Energy Consumption By Renewable Energy
10% of energy requirement for the air-conditioning system comes from renewable sources by an innovative cooling system powered by approximately 2120m2 of solar collector - firing up a 75 RT single effect LiBr/ H2O Absorption Chiller.



05 LANDSCAPE

Petronas Leadership Centre New Campus

VERITAS design group

Minconsult

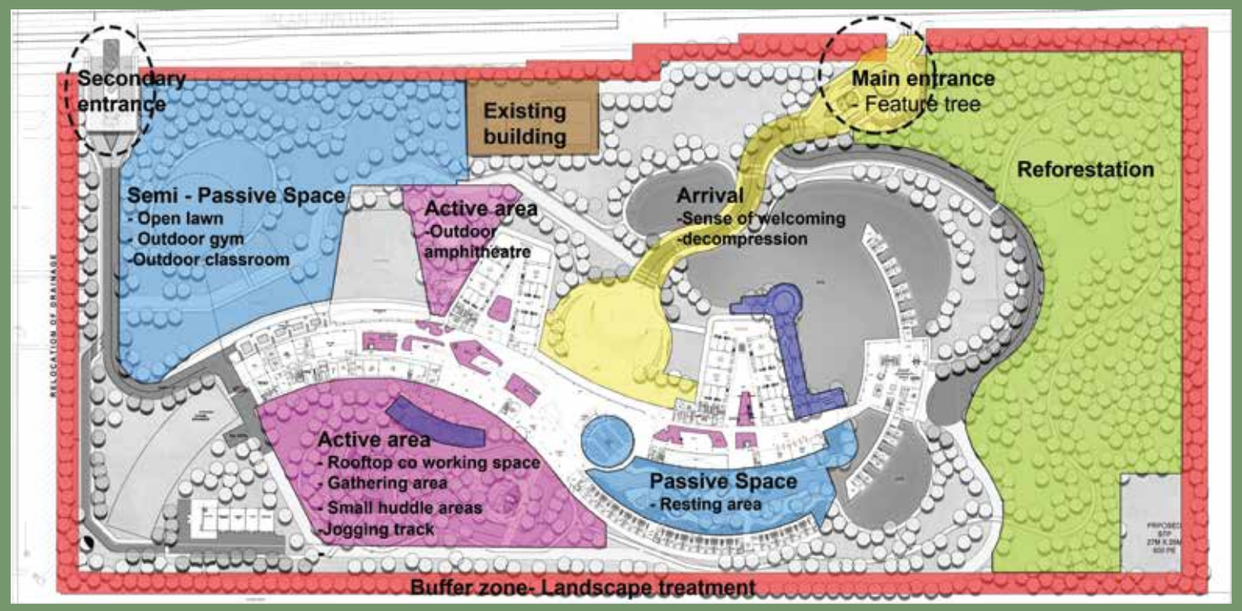
Introduction
The overall landscape design concept for the Petronas Leadership Centre new campus is aiming to provide a condusive environment to nestle the new Petronas Leadership Centre new building.

Objective
-To complement the Architecture design of the New building.
-To provide decompression experience at the very entrance and throughout the landscape
-Water elements in the form of lake and river surrounding the architectural building help incresing the comfort level physically and physcologically for the employers and residents.
-Providing functional outdoor spaces to cater for spill over activities and supporting outdoor classroom experience.
-Using Biophilic approach adapted throughout the landscape design cater for the basic human needs of relating living and nature.

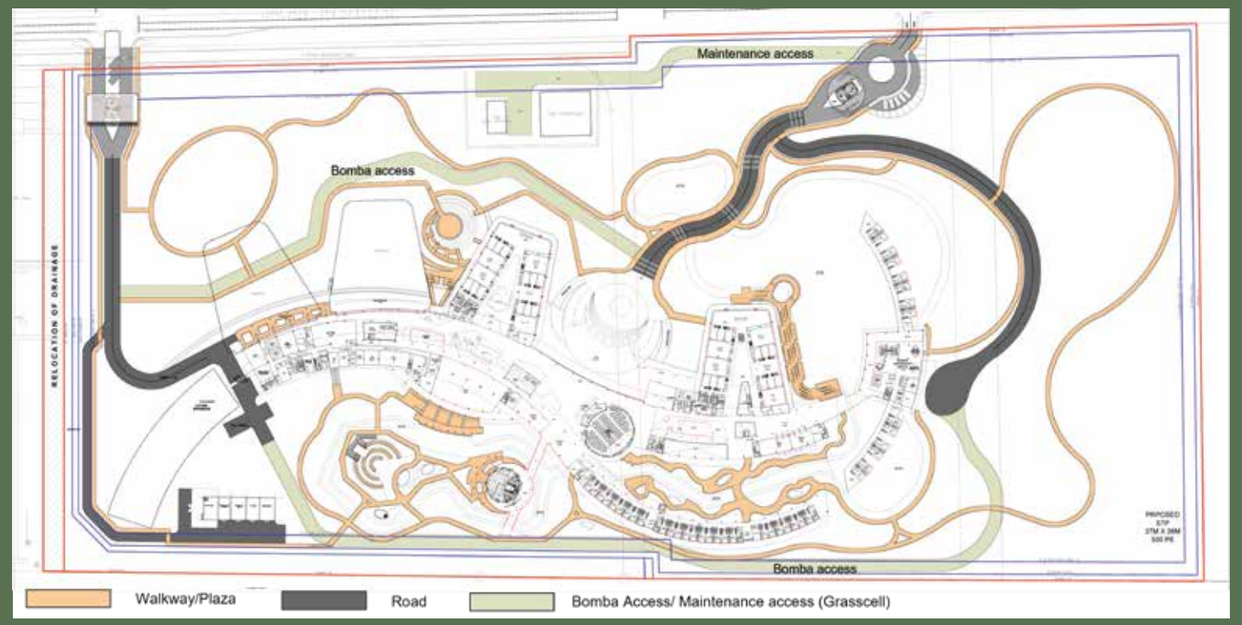
1. Conceptual

The landscape concept is based on the petronas "oil' that interprets energy of flowing landscape. The landscape emphasizes the fluidity of elements designed in the park. Natural landscape elements such as flowing water and sunken deck represent energy of Petronas concept.

2. Site Programming



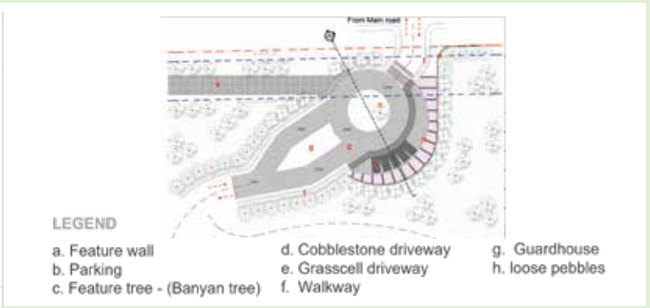
3. Landscape Circulation



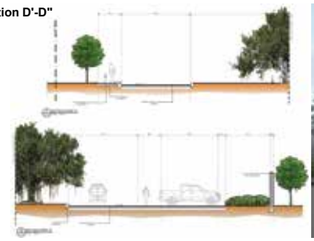
4. Master Plan - Ground Level

Legend
1. Main entrance
2. Secondary entrance
3. Lake
4. Oval lawn
5. Outdoor gym
6. Outdoor classroom
7. TNB screening
8. Outdoor Amphitheatre
9. Main drop-off
10. Terrace garden
11. Promenade A
12. Promenade B
13. Man-made island
14. Bomba access
15. Jogging track
16. Future development
17. Spine landscape
18. Nursery
19. Linear water graden
Emergency parking space

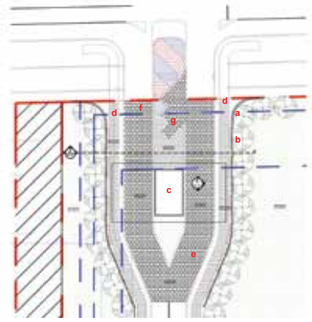
5. Main Entrance



Section D'-D"



6. Secondary Entrance



LEGEND

a. Feature wall
b. Anti theft fence
c. Guard house
d. Walkway
e. Driveway- cobblestone
g. Parking

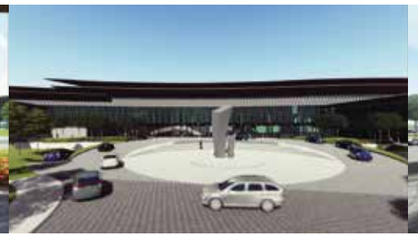
Section A-A"

Elevation B'-B"

7. Main Drop Area

LEGEND

a. Hedges
b. Seating

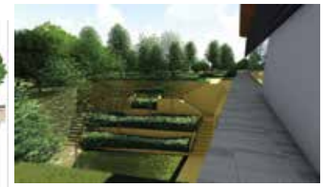


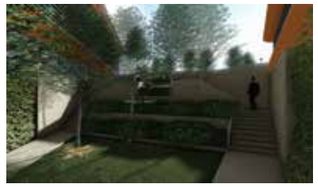
8. Outdoor Amphitheatre

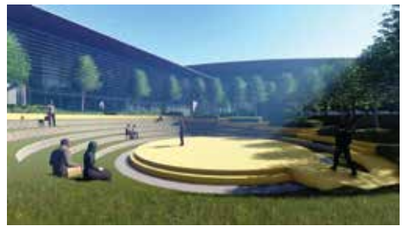
LEGEND

a. Stage
b. Seating
c. Ramp
d. Staircase/ Bench
e. Loose pebbles
f. Walkway

Section E'E"





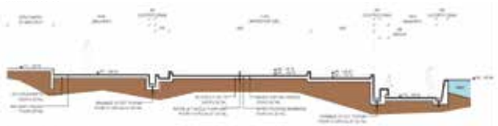


9. Promenade A

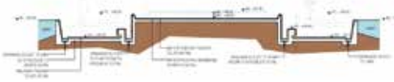
LEGEND

a. Feature sculpture &fountain
b. Sunken walkway
c. Seating
d. Steps
e. Hedges
f. Vertical lighting sculpture

Section A'-A"



Section B'-B"



Section C'-C"

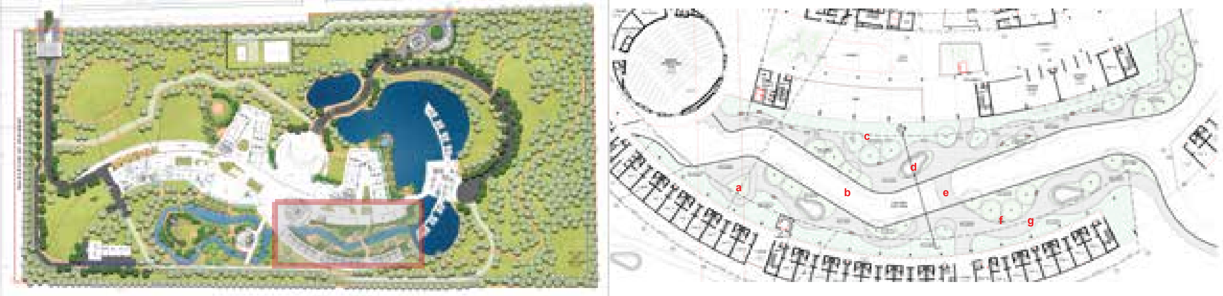
10. Promenade B

LEGEND
a. Steps
b. Lawn strip
c. Vertical lighting sculpture
d. Hedges
e. Ramp

11. Man Made Island

LEGEND
a. Pavilion
b. River
c. Outdoor amphitheater
d. Stage
e. Resting area
f. Oval platform
g. Hedge
h. Steps
i. Ramp
j. Bench
k. Bridge

12. Linear Water Garden



LEGEND
a. Sunken lawn lounge
b. River
c. hedges
d. Gazebo
e. Bridges
f. Bench
g. Walkway