GreenRE®

Developing A Greener Built Environment

CONTENTS

INTRODUCTION

Malaysia's Commitments – COP26 and COP27

Reduction of GHG Emissions

- Unconditionally reduce economy wide carbon intensity of 45% by 2030 compared to 2005 levels

Halt Deforestation

- Halt deforestation by 2030
- By 2025, at least 20% of terrestrial areas and inland waters, and 10% of coastal and marine areas are conserved

Voluntary Carbon Market

- Establish a Voluntary Carbon Market (VCM) and Domestic Emissions Trading Scheme in phases

Global Commitments

- Loss and damage - Developing countries to seek financial assistance for loss and damage.
- The 2015 Paris agreement contained two temperature goals – to keep the rise well below 2^0C above pre-indusrial levels. It was agreed in COP 26 to keep the increase to 1.5^0C.
- To boost low-emissions energy generation.
- Adaptation - building flood defences, preserving wetlands, restoring mangrove swamps and regrowing forests.

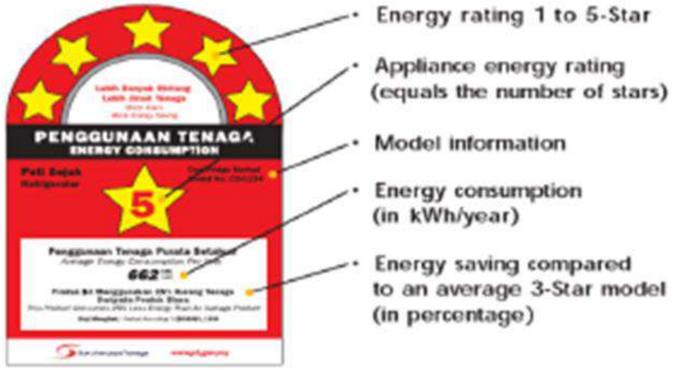
GreenRE®

Energy Efficiency – Low Hanging Fruit

Non energy efficient buildings are like a leaky bucket. We need to plug all the holes. 50% of final electricity consumption in Malaysia is by commercial and residential buildings.

Presents a "low hanging fruit" opportunity to optimize building operating costs and alleviate negative environmental impact.

- **Energy Efficiency and Conservation Act (2023)**
- **UBBL 38A**
- **National Energy Efficiency Action Plan (NEEAP 2016-2025)**
- **Malaysian Energy Performance Standards (MEPS)**
- **Efficient Management of Electrical Energy Regulations (EMEER 2008)**
- **MS 1525:2019 – Energy Efficiency and use of renewable energy for non-residential projects**
- **MS2680:2017 - Energy Efficiency and use of renewable energy for residential projects**



1. Air Conditioner
2. Refrigerator
3. Domestic Fan: MS 2574:2014
4. Lamps: MS 2598:2014
5. Television
6. Washing Machine
7. Microwave Oven
8. Electric Rice Cooker
9. Freezer

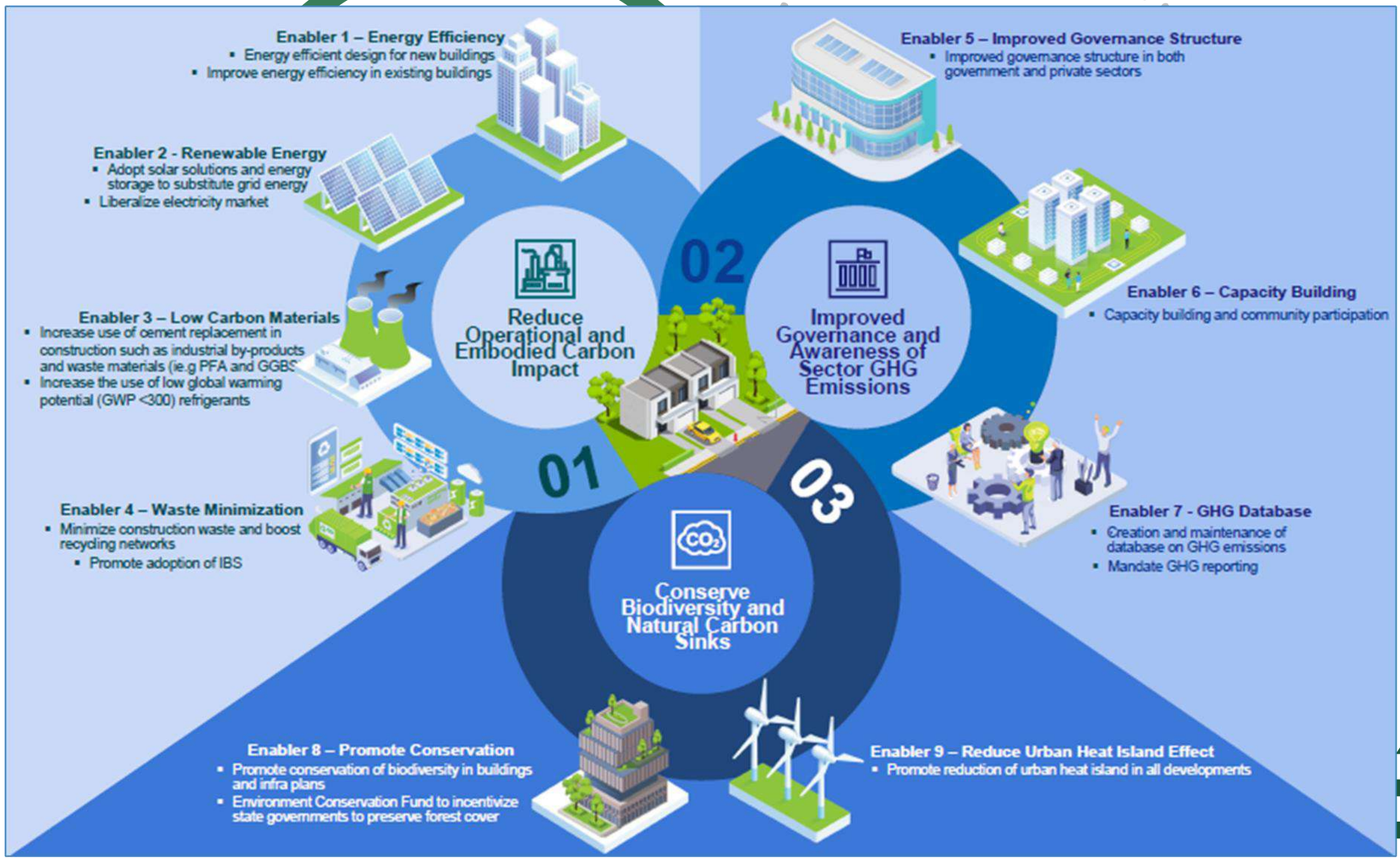
GreenRE®

National Low Carbon Cities Masterplan

Voluntary Process targeted at local authorities in Malaysia with Ministry of Natural Resources, Environment and Climate Change (NRECC) as PMO

Tax Incentives offered by Malaysian Investment Development Authority of Malaysia (MIDA) for owners and operators of green buildings (federal level).

Other incentives offered by selected local authorities such as plot ratio increase, development charge rebate etc for development of green buildings.



ESG Disclosure in Malaysia

FTSE4Good

GRESB

TCFD TASK FORCE ON CLIMATE-RELATED FINANCIAL DISCLOSURES

GRI STANDARDS

INTEGRATED REPORTING <IR>

BANK NEGARA MALAYSIA
CENTRAL BANK OF MALAYSIA

Climate Change and Principle-based Taxonomy

Applicable to:
1. Licensed banks
2. Licensed investment banks
3. Licensed international Islamic banks
4. Licensed Islamic banks
5. Licensed insurers
6. Licensed reinsurers
7. Licensed takaful operators
8. Licensed retakaful operators
9. Prescribed development financial institutions

Issued on: 30 April 2021

Table D: Classification of economic activities

Classification		Economic Activity (Transaction Level)		Overall Business	
		GP1 Climate Change Mitigation	GP2 Climate Change Adaptation	GP3 No Significant Harm to the Environment	GP4 Remedial Efforts to Promote Transition
Climate Supporting	C1	GP1 or GP2 or both		✓	
Transitioning	C2	GP1 or GP2 or both		✘	✓
	C3	✘		✘	✓
Watchlist	C4	GP1 or GP2 or both		✘	✘
	C5	✘		✘	✘

About Us: GreenRE (Green Real Estate)

REHDA

GreenRE

- **Fully endorsed by the Federal Government**
- **Aligned to all relevant government policies and best practice guidelines – Joint certification with MyCrest by CIDB**
- **Projects certified by GreenRE are eligible for MIDA tax incentives**
- **Recognized by several local authorities including Penang State, DBKL, MBPJ, MBSA and MBSJ**

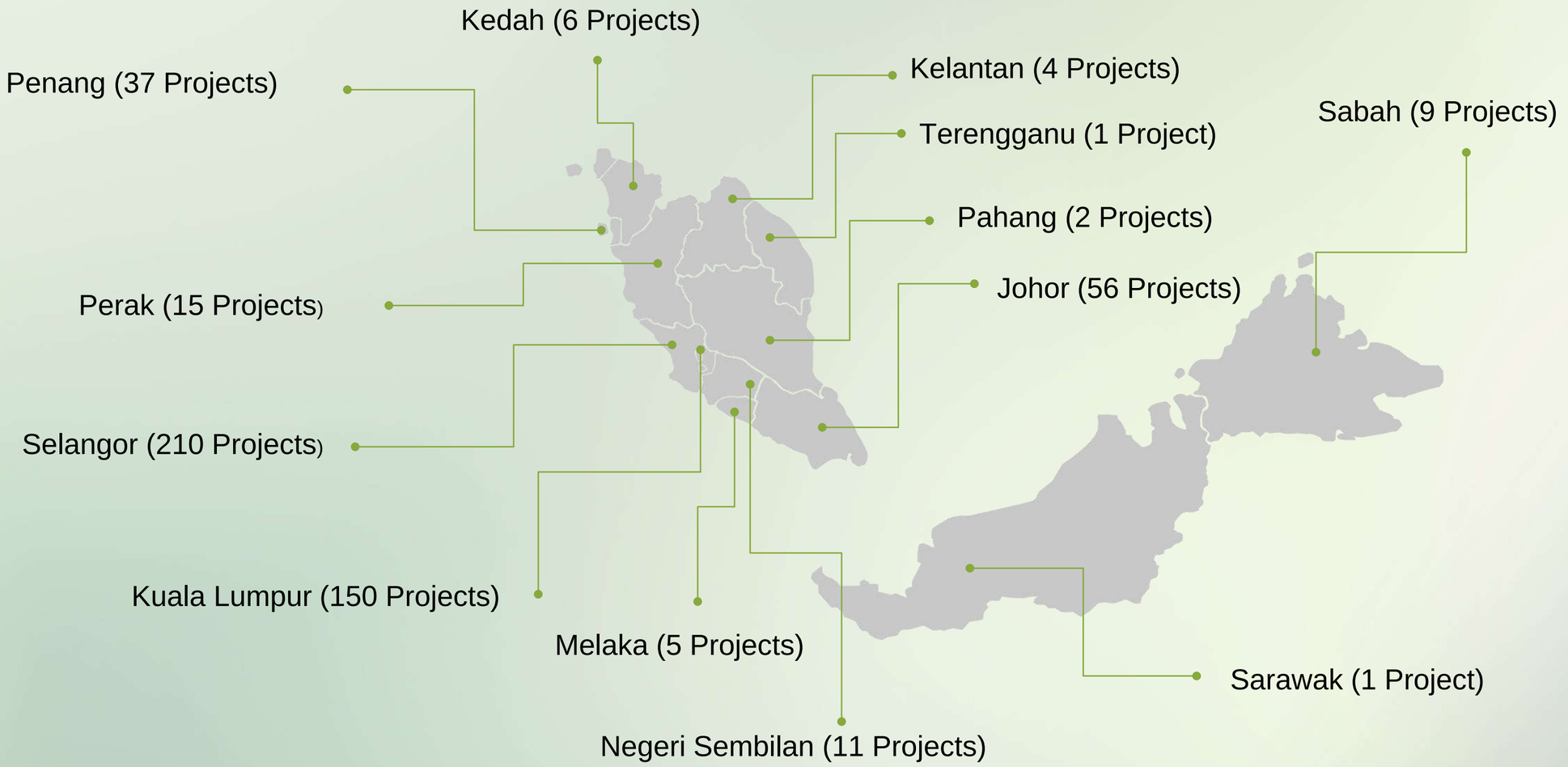
01 Green Building Certification

02 Training Programmes
- GREENREAP - GRETS
- Short Courses

03 Collaborations (R&D & Awareness Drives)

Registered Projects

Over 500 projects registered covering over 400 million ft²



GREENRE RATING TOOLS

What is Green / Sustainable Building Certification? (* Sourced from WGBC)

- Sustainable building certifications – also known as green building rating tools – are used to assess and recognise buildings which meet certain sustainability requirements or standards.
- Building certifications recognise and reward companies and organisations who build and operate greener buildings, thereby encouraging and incentivising them to push the boundaries on sustainability.
- They kick-start the market by setting standards that in turn elevate the ambition of government building codes and regulation, workforce training, and corporate strategies.
- Certifications vary in their approach and can be applied to the planning and design, construction, operation, maintenance, renovation, and eventual demolition phases of a building.
- Sustainable building certifications can also differ in the type of buildings they are applied to, with specific tools or subsets of tools used for different building types such as homes, commercial buildings, or even whole neighbourhoods.

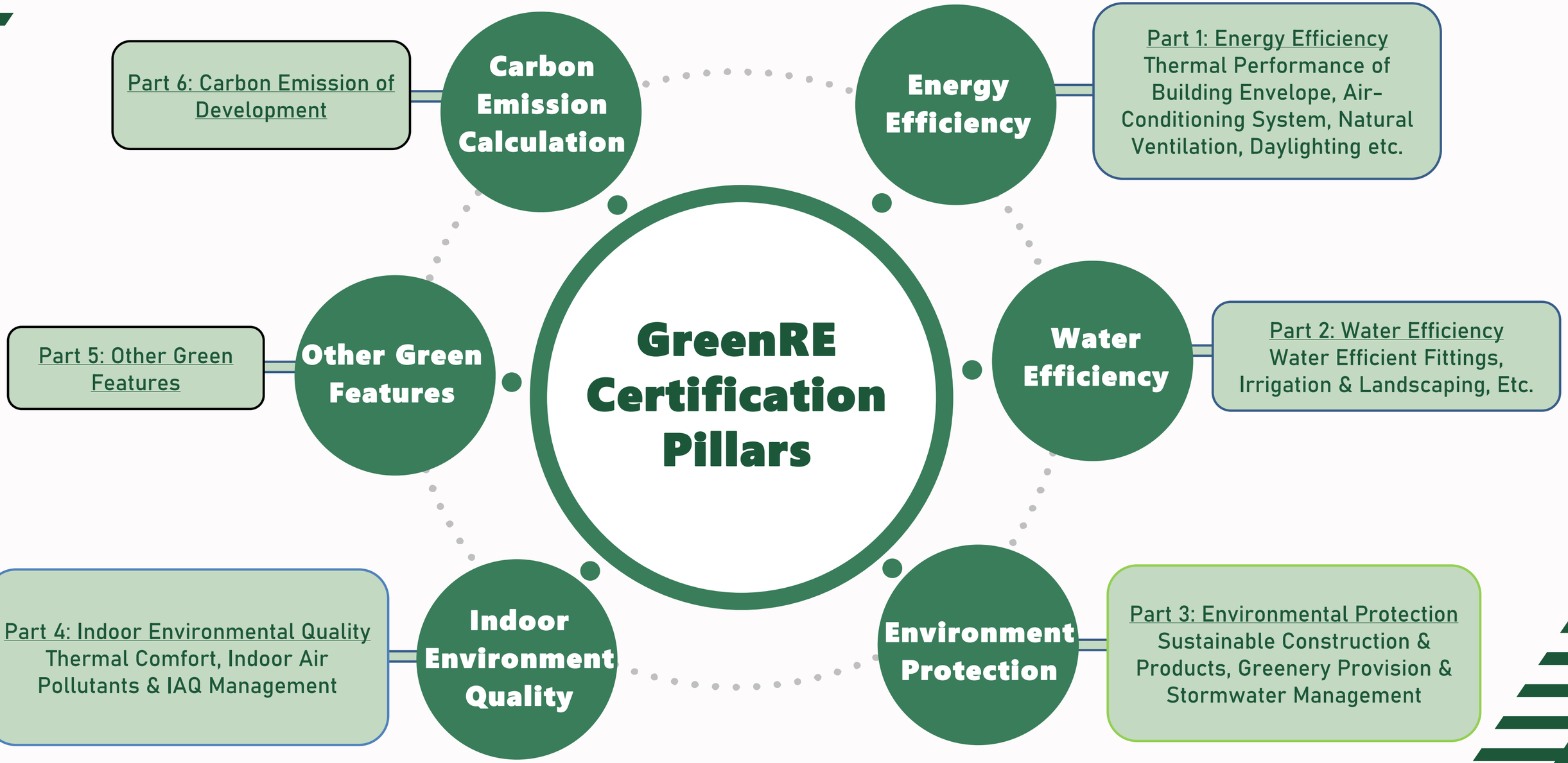
GreenRE Rating Tools

Score	Rating
91 and above	Platinum
86 to ≤ 90	Gold
76 to ≤ 85	Silver
50 to ≤ 75	Bronze

*** max 100 points**

Building Tools	▪ Residential Building & Landed Home ▪ Non-Residential Building ▪ Healthcare ▪ Industrial Facilities ▪ Office Interior ▪ Retail ▪ Data Centres
Township Tools	▪ Township (TS 1.0)
Infrastructure Tools	▪ Infrastructure (v1.0)

GreenRE Rating Pillars- Building



Green Township

A Green Township is designed to reduce impact to the environment and is resilient to emerging threats associated with climate change.

Part 1 – Energy Efficiency
- TS 1-1 Energy Efficiency for Infrastructure and Public Amenities
- TS 1-2 On-site Energy Generation
- TS 1-3 Site Planning and Building Orientation
- TS 1-4 Energy Management System
- TS 1-5 Minimise Energy Consumption during Off-Peak Hours

Part 2 - Water Management
- TS 2-1 Water Efficient Fittings for Infrastructure and Public Amenities
- TS 2-2 Stormwater Management
- TS 2-3 Alternative Water Sources
- TS 2-4 Water Efficient Landscaping
- TS 2-5 Water Efficiency Management

Part 3 – Material & Waste Management
- TS 3-1 Minimise Cut and Fill in Earthworks
- TS 3-2 Sustainable Construction for Infrastructure and Public Amenities
- TS 3-3 Sustainable Products for Infrastructure and Public Amenities
- TS 3-4 Waste Reduction
- TS 3-5 Waste Management and Segregation
- TS 3-6 Waste Conveyance
- TS 3-7 Waste Reuse and Processing

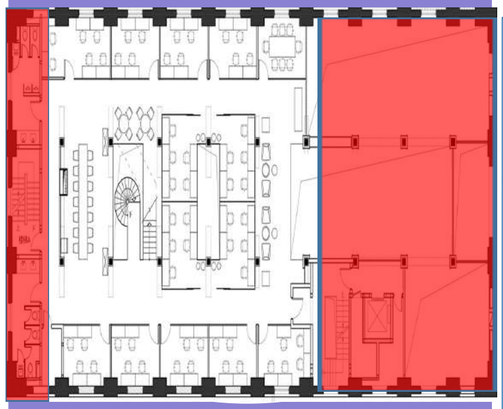
Part 4 - Environmental Planning
- TS 4-1 Self Sufficiency and Accessibility within Township
- TS 4-2 Green and Blue Spaces for the Public
- TS 4-3 Microclimate Optimisation
- TS 4-4 Outdoor Thermal Environment
- TS 4-5 Site Selection
- TS 4-6 Conservation and Integration of Existing Structures and Assets
- TS 4-7 Habitat Conservation and Restoration
- TS 4-8 Minimise Site Disturbance
- TS 4-9 Environmental Management System
- TS 4-10 Future Provision and Connections

Part 5 – Green Buildings and Green Transport
- TS 5-1 Green Building within Township
- TS 5-2 Green Urban Design Guidelines
- TS 5-3 Green Transportation

Part 6 – Community and Innovation
- TS 6-1 Stakeholder Engagement, Feedback and Evaluation
- TS 6-2 Public Awareness, Education and Community Involvement
- TS 6-3 Green Lease
- TS 6-4 Intelligent Infrastructure
- TS 6-5 Safe Environment
- TS 6-6 Light Pollution Reduction
- TS 6-7 Other Green Features and Innovation

PASSIVE AND ACTIVE DESIGN

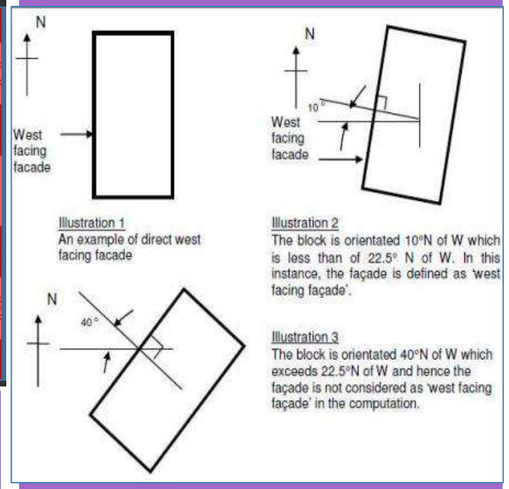
GreenRE®



1. Shift core / common areas to east and west side of building.

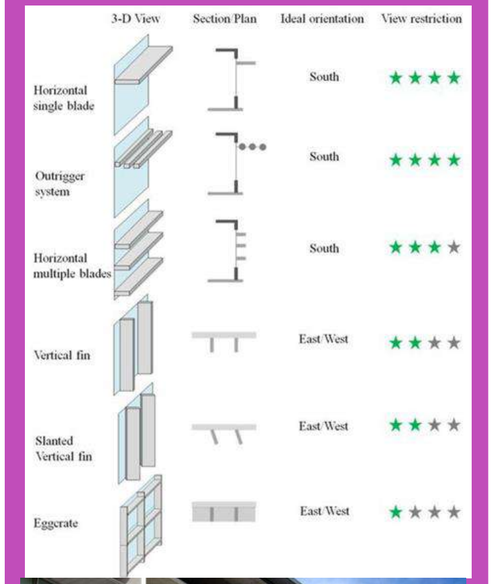
Figure shows all the building common areas located at west and east facing parameters. Retain same NLA

All the habitable spaces are located at the north and south building parameter.

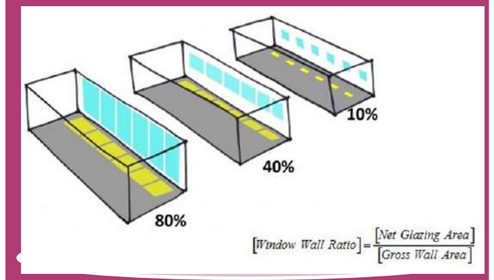


2. Reduce east & west orientation

Tilt building 22.5 degrees away from east or west orientation.



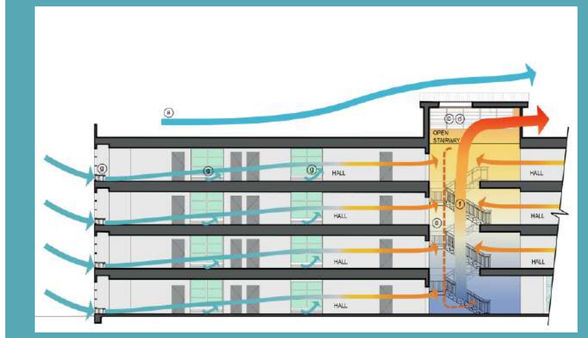
3. Apply external shading

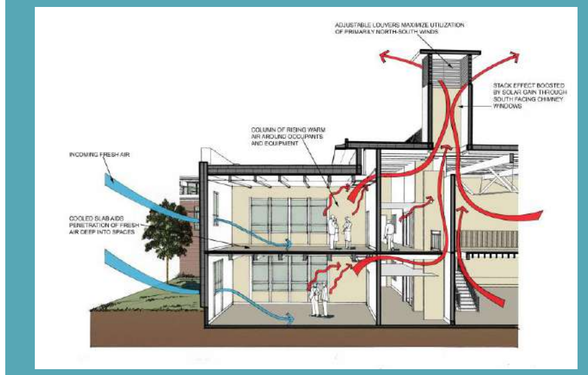


4. Reduce WWR (window to wall ratio) and / or use low-e glass

5. Use roof insulation

Strategies to Lower Thermal Transfer into Building (Reduced OTTV)





6. Optimize natural ventilation capture – openings to face N-S direction

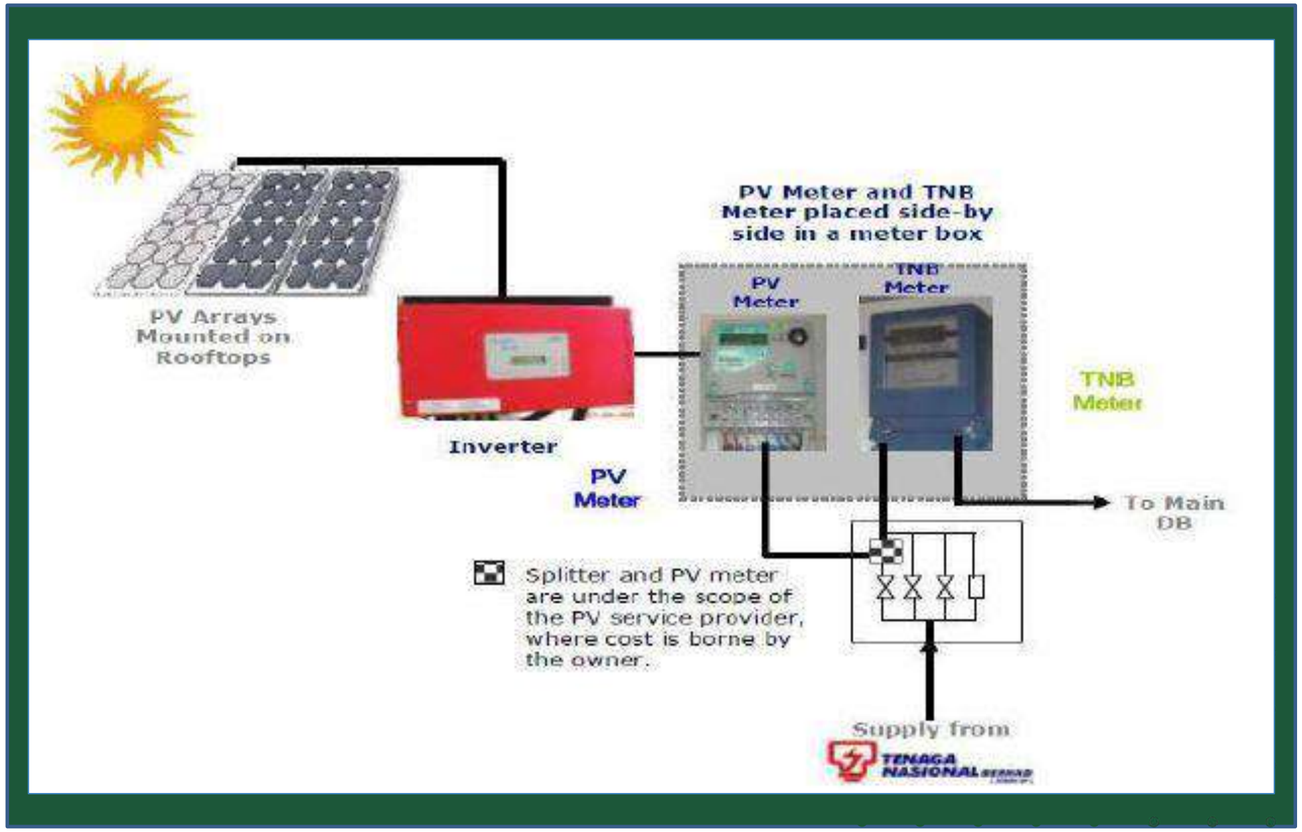
7. Harness Daylighting

8. Energy efficient air-conditioning

9. Energy efficient lighting

Strategies to Improve Energy Efficiency

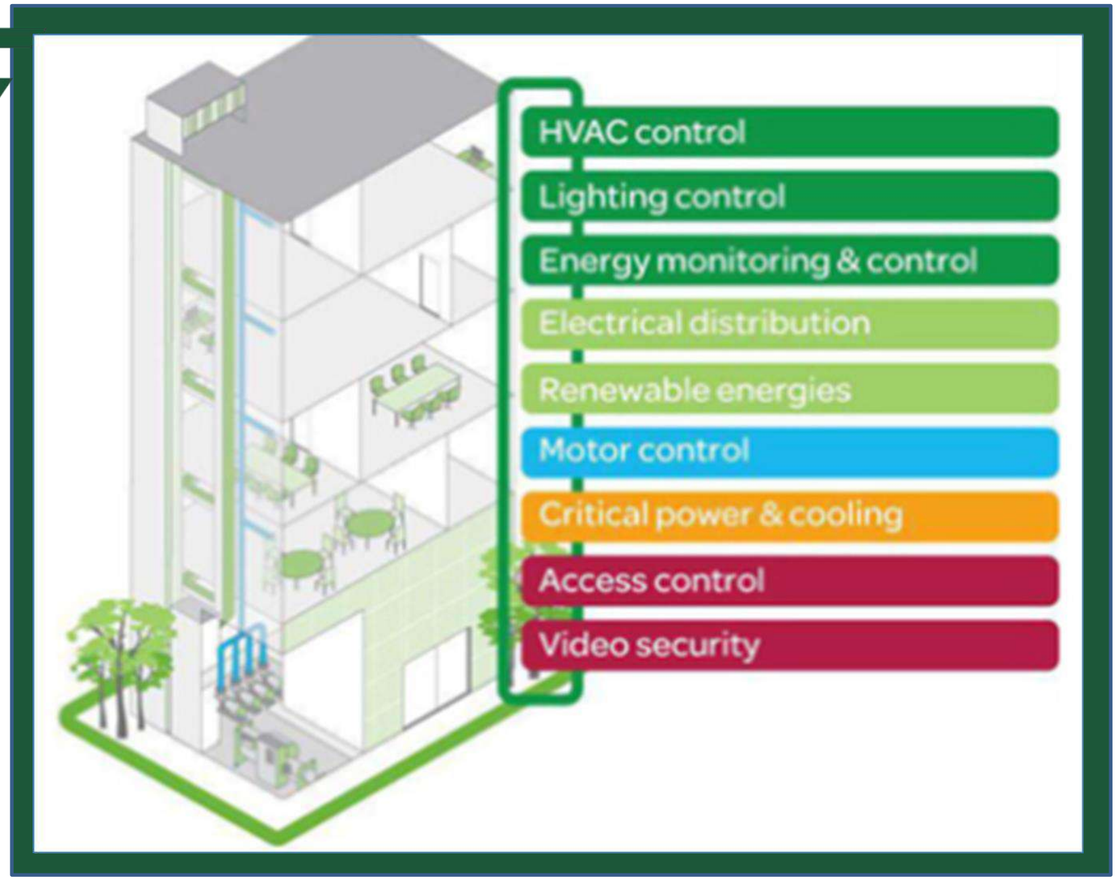
Renewable Energy – Solar PV



Installation cost of between RM2,000 – RM4,000 per kWp.

GreenRE®

Control System– Energy Management System (EMS)



The MS 1525 recommends that the EMS should be supplied with a full complement of energy management features including but not limited to:

a) Direct digital control algorithms
b) Starting and stopping of equipment based on a time schedule
c) Temporary override of the time schedules to accommodate changes in usage
d) Chilled water leaving and/or entering temperature reset algorithm
e) Control loop set point reset algorithm
f) Chiller sequencing and optimisation algorithm
g) Demand limiting algorithm
h) Duty cycling algorithm

Requirement in UBBL38A for air-conditioned buildings above 4000m2

GreenRE®

PROJECT CASE STUDIES

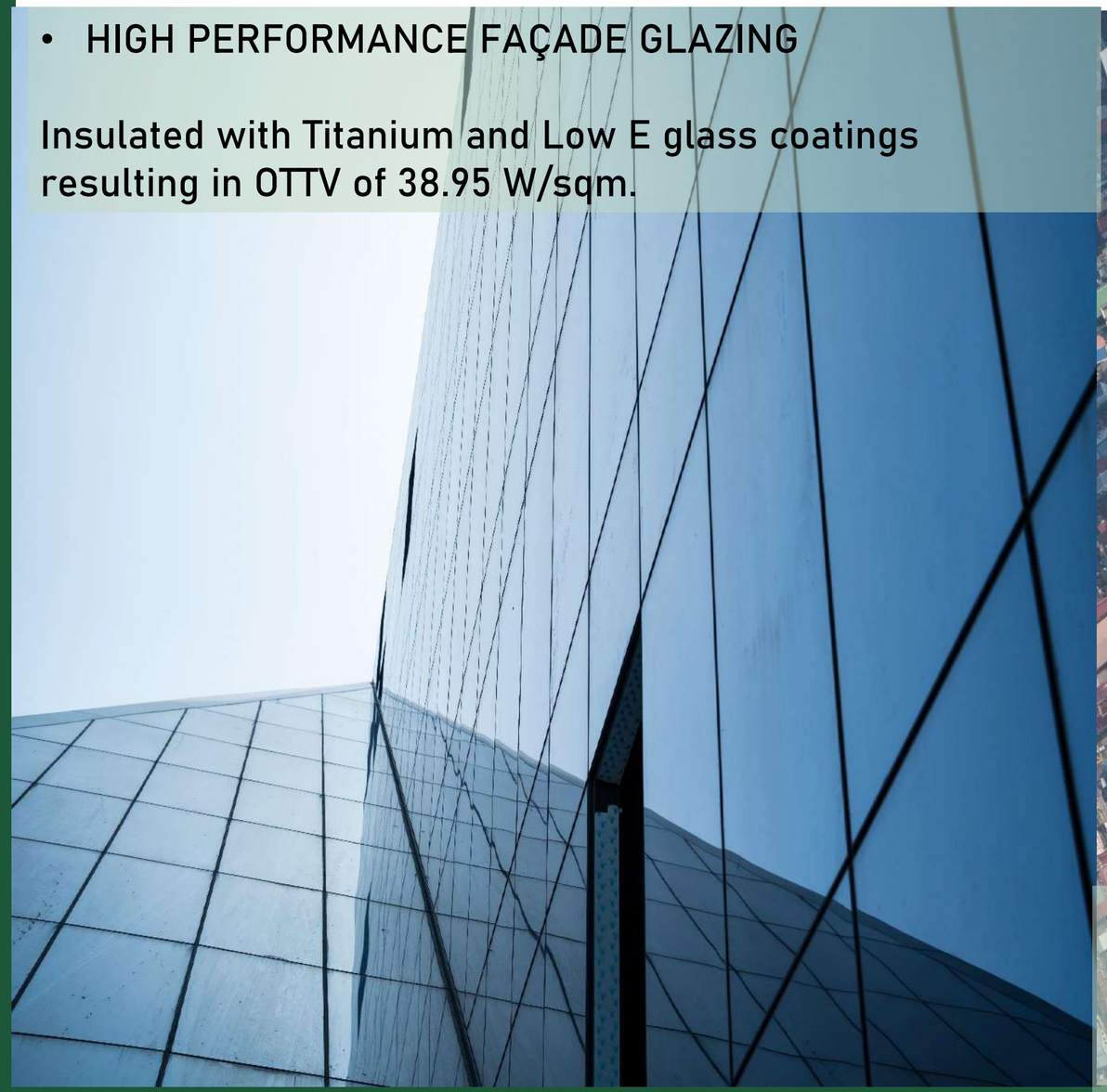
GreenRE®

MERDEKA 118|PLATINUM

GREEN FEATURES

- HIGH PERFORMANCE FAÇADE GLAZING

Insulated with Titanium and Low E glass coatings resulting in OTTV of 38.95 W/sqm.



- BUILDING INTERGRATED PHOTOVOLTAIC AND SOLAR THERMAL

Provision of renewable energy which can replace 4.5% of total energy consumption

GREEN FEATURES

- UNDERFLOOR AIR DISTRIBUTION

Underfloor air distribution provides enhanced air change effectiveness and improved cooling efficiency.

- ENERGY EFFICIENT LIGHTING

GREEN FEATURES

- CENTRALIZED PNEUMATIC WASTE MANAGEMENT SYSTEM

Efficient vacuum based pneumatic waste management system serving entire building.

- DISTRICT COOLING PLANT WITH THERMAL STORAGE

Provides off-peak central chilled water production and distribution.

- SITE WIDE MATERIAL RECYCLING

Construction waste management programs diverting a minimum 75% of construction waste from local landfills to recycling facilities.

- GREY WATER STORAGE AND REUSE

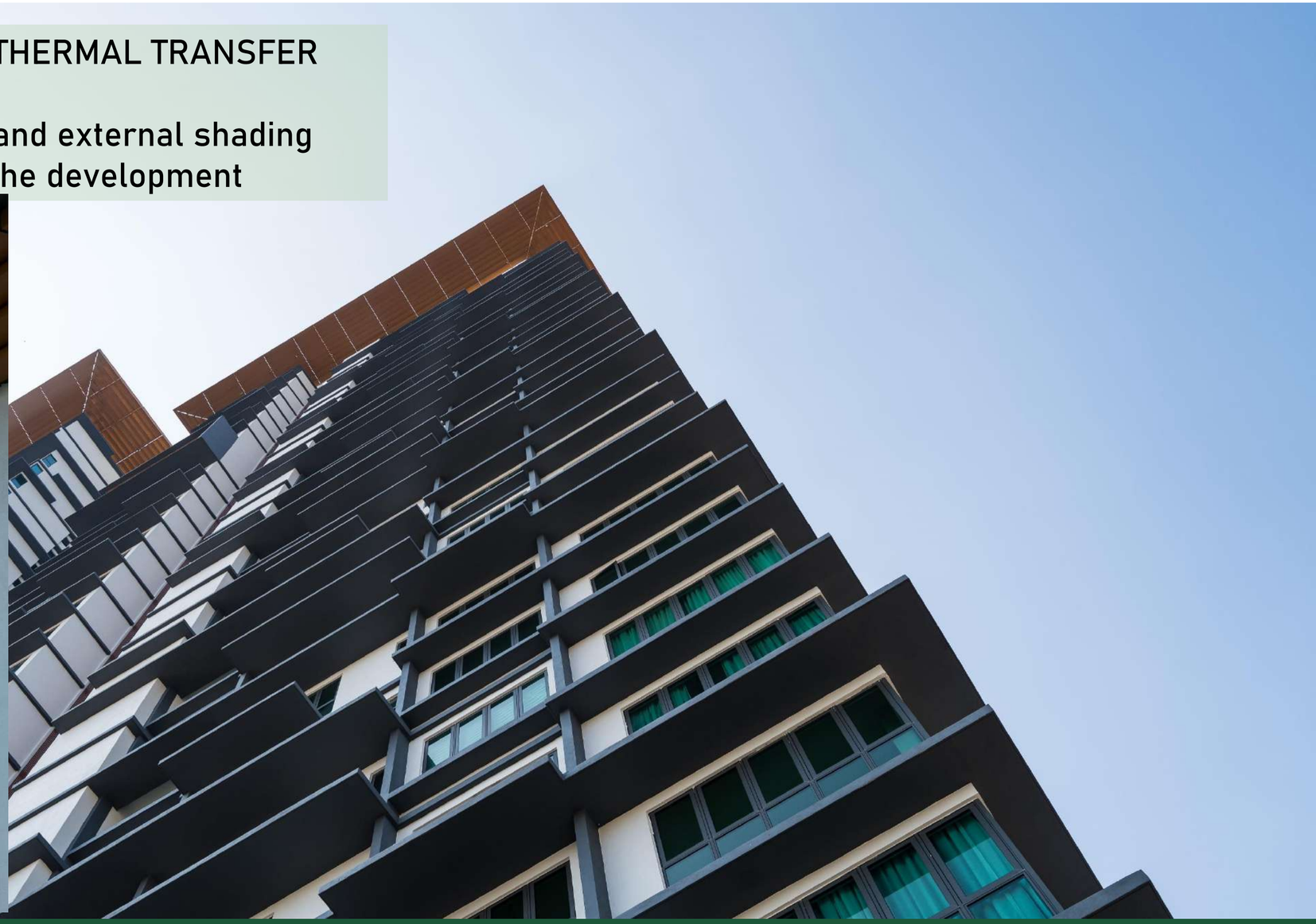
For toilet flushing and cooling, the water is partially supplied by grey water filtration and rain water harvesting.

MEGAH RISE RESIDENSI|GOLD

GREEN FEATURES

- LOW RESIDENTIAL ENVELOPE THERMAL TRANSFER VALUE

With better performance glazing and external shading device help to reduce the heat to the development

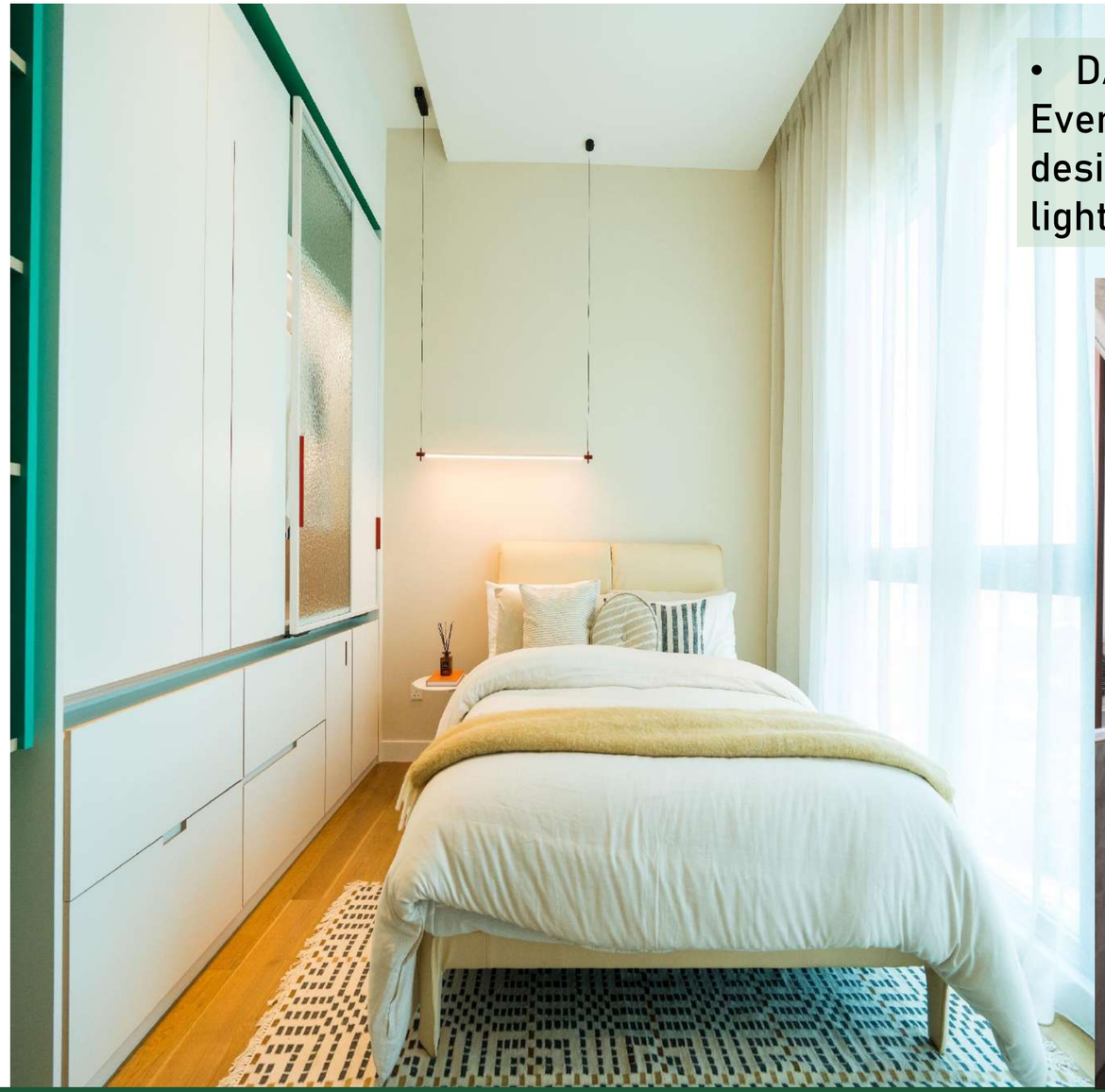


GREEN FEATURES

- 5 STAR AIR CONDITIONING

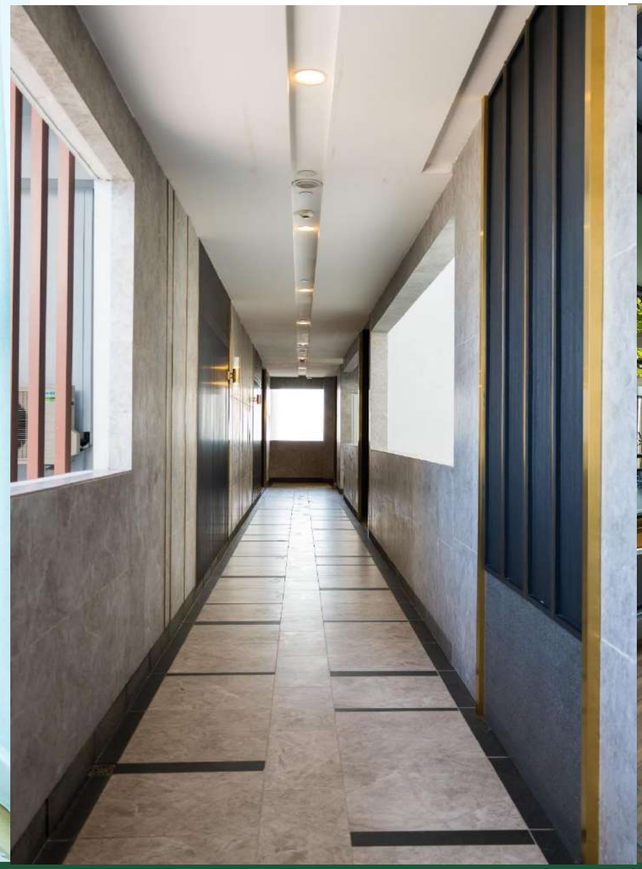
Energy efficient air conditioning system provided at the living and bedroom to minimize the electrical consumption

GREEN FEATURES

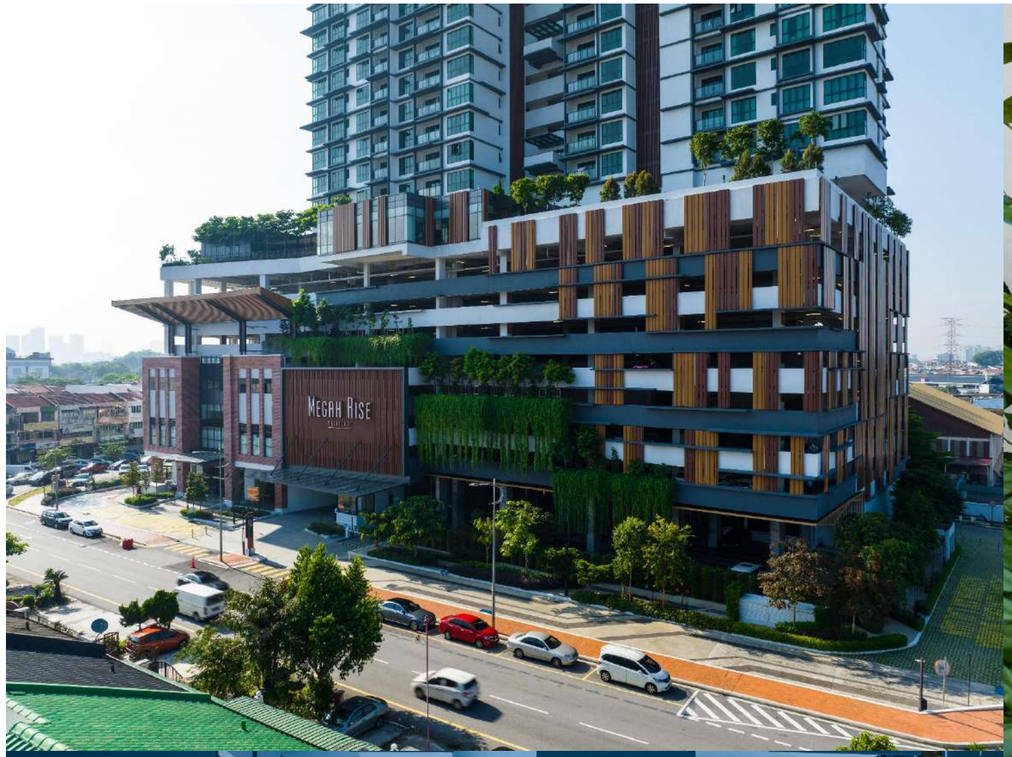


- DAYLIGHTING

Every space in the residential unit and common area was designed to harvest daylighting to reduce the electrical lighting consumption



GREEN FEATURES



- LUSH GREENERY & HERB GARDEN

Greenery includes vertical greenery was provided to reduce the heat island effect to the building . Herbs garden also been provided to the resident.

GREEN FEATURES

- COMPOST BIN

2 set of compost bins available to do the composting from the greenery waste

- EV PARKING AND EV CHARGER

MENARA 1 POWERHOUSE |GOLD

GREEN FEATURES

- HIGH PERFORMANCE FAÇADE DESIGN

Low E glazing to minimize the heat into the building

GREEN FEATURES

- CHILLED WATER STORAGE TANK

To reduce operating cost

GREEN FEATURES

- CONNECTIVITY WITH PUBLIC TRANSPORT

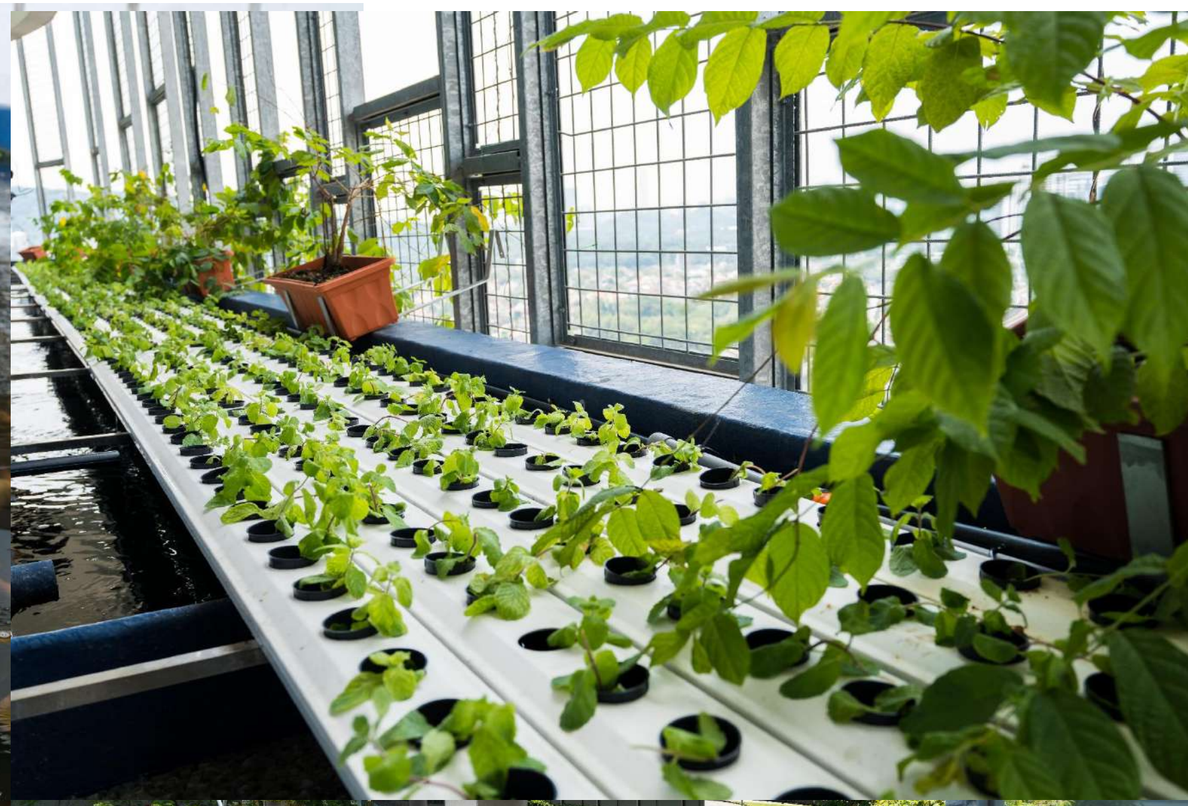
With covered walkway to the MRT Station and Bus Station

GREEN FEATURES

- LOWER EMBODIED CARBON

Usage of 40% green cement and lower concrete usage with CUI =0.36 m3/m2

GREEN FEATURES

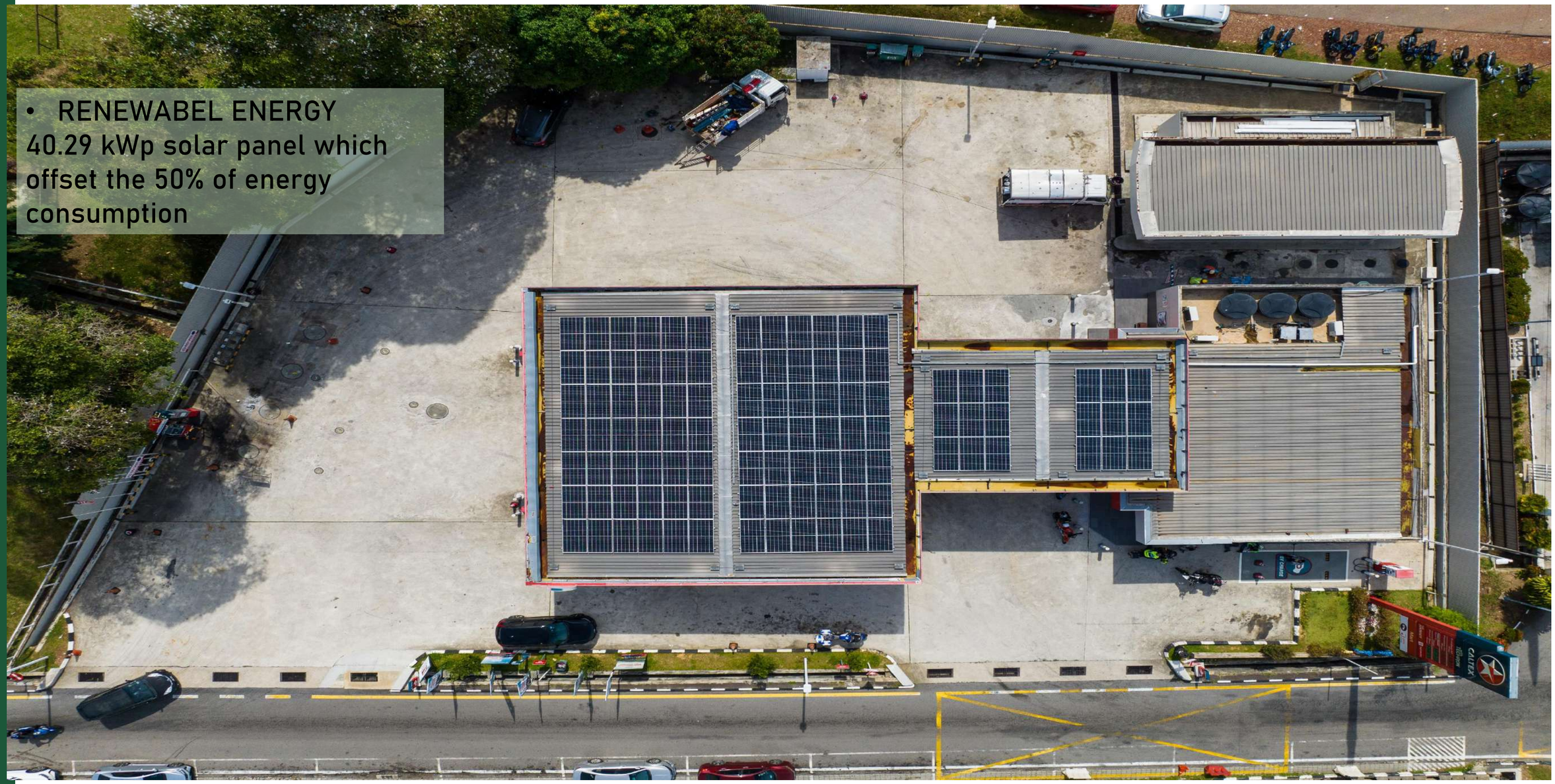


- FISH FARMING AND URBAN FARMING

CALTEX SERVICE STATION |PLATINUM

GREEN FEATURES

- RENEWABEL ENERGY
40.29 kWp solar panel which offset the 50% of energy consumption



GREEN FEATURES

- EV CHARGER

GREEN FEATURES

- LED LIGHTINGS

- ENERGY EFFICIENT AIR CONDITIONING

To lower the energy consumption

GREEN FEATURES

- RECYCLE BINS

- WEPLS RATED WATER FITTINGS

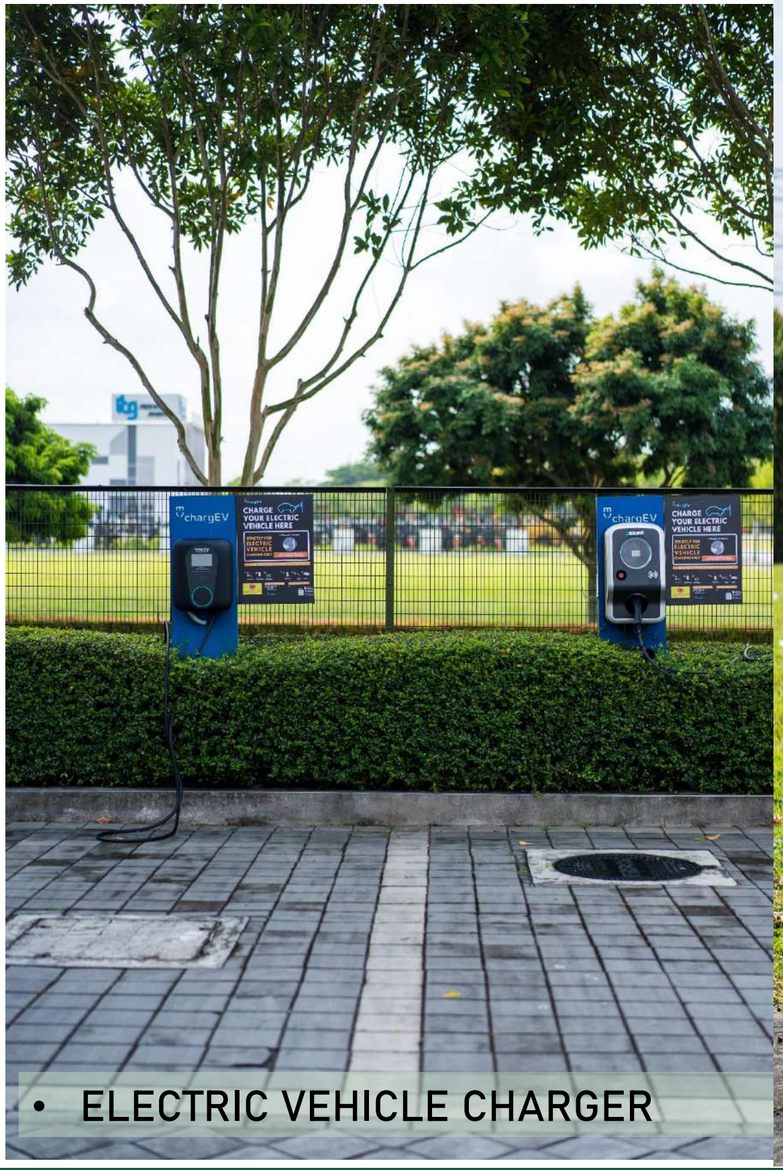
ECO BUSINESS PARK 1|BRONZE

GREEN FEATURES

- WALKABLE TOWNSHIP

Dedicated jogging, pedestrians and bicycle laned in the township

GREEN FEATURES

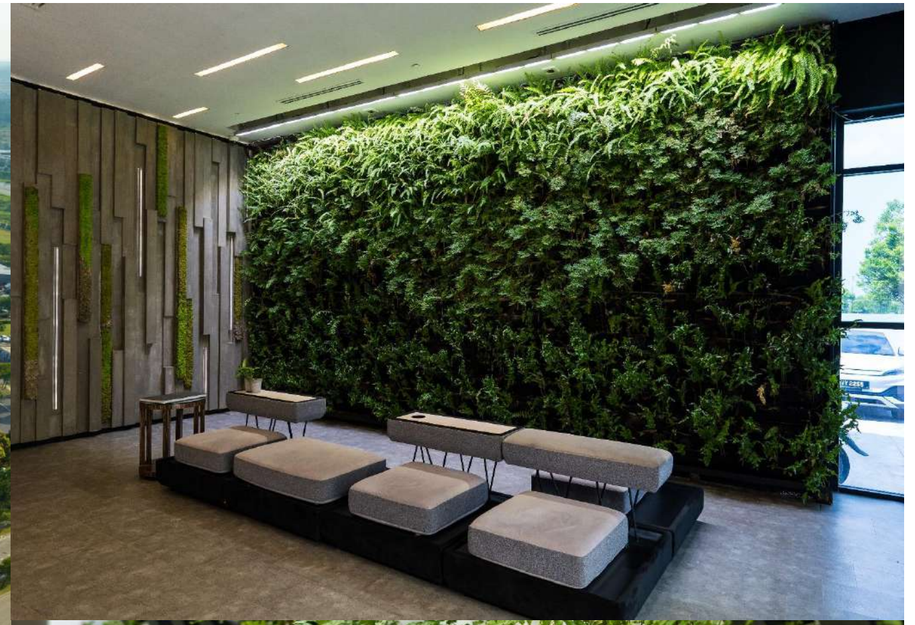


- ELECTRIC VEHICLE CHARGER

- RECYCLE BINS

Provision of recycle bin to encourage recycling activities within the township

GREEN FEATURES



- INDUSTRIAL PARK WITH GREENERY

Extensive of greenery provided includes the vertical greenery and herb gardens

GREEN FEATURES

- BUILDING ORIENTATION TO REDUCE THERMAL HEAT GAIN

GREEN FEATURES

- ENERGY EFFICIENT PUBLIC BUILDINGS

Equipped with LED lighting and energy efficient air conditionings

GREENRE ASSESSMENT PROCESS

GREENRE ASSESSMENT PROCESS

INTERNAL REVIEW

Registration

Pre-Assessment (PA)

Actual Assessment (AA)

Provisional Certificate

Site Verification (SVA)

Final Certification

EXTERNAL REVIEW

BENEFITS OF GREEN BUILDINGS

GreenRE®

Benefits of Green Buildings

CORE PRINCIPLES

- Conserve natural resources – energy and water (operational carbon).
- Reduce environmental impact – materials and site selection (embodied carbon).
- Improve social wellbeing – healthier working and living environment.

ECONOMIC ADVANTAGES

- Cost Savings in the Long Term.
- Enhanced quality of building and productivity of occupants.
- Tax Incentives by MIDA.
- Alignment to sustainable reporting requirements. Greater appeal to selective investors.

RISK MANAGEMENT

- Future-proofing buildings for impending green building and energy efficiency regulations.
- Improved climate resilience.

GreenRE®

Green Buildings: Impact to Wider Economy

Why Green the Property & Construction Sector?

- To improve quality of life and social wellbeing of society.
- To reduce overall green house gas (GHG) emissions.
- To create economies of scale for high technology products.
- To encourage higher value services and create more job openings.
- To improve the nations competitiveness. Reduced energy, water and waste per capita.
- To alleviate the threats of climate changes. Improved resilience of infrastructure.
- Encourage sustainable business decision making. Consider overall life cycle and adopt the circular economy.

GreenRE®


CLIMATE
SUMMIT
WHAT IF IT'S A BIG HOAX AND WE CREATE A BETTER WORLD FOR NOTHING?
• ENERGY INDEPENDENCE
• PRESERVE RAINFORESTS
• SUSTAINABILITY
• GREEN JOBS
• LIVABLE CITIES
• RENEWABLES
• CLEAN WATER, AIR
• HEALTHY CHILDREN
• ETC. ETC.
12/7/19 USATODAY
JOEL PETT

GreenRE®

THANK YOU