GreenRE Bulletin

ISSUE 12 | JULY 2024 - DECEMBER 2024

FEATURED PROJECT

GREENRE'S FIRST CERTIFIED PROJECT IN VIETNAM

GreenRE has certified over 300 Million Square Feet Building Projects

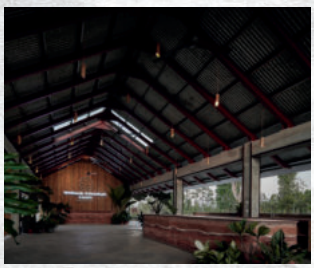
EVENT HIGHLIGHTS

FEATURED ARTICLES

FEATURED PROJECTS

GREENRE ENERGY CERTIFICATE PILOT PROJECTS

- Quayside Mall by Gamuda Land



- Wetlands Arboretum Centre by Gamuda Land

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GreenRE 10 YEARS DRIVING SUSTAINABLE REAL ESTATE

GreenRE Bulletin

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FOREWORD.

Datuk Seri FD Iskandar

GreenRE Chairman

Dear Readers,

As we reflect on the developments of 2024, I am pleased to present this foreword for the latest edition of the GreenRE Bulletin. This year has been pivotal for GreenRE, marked by significant advancements in our mission to promote sustainable real estate development in Malaysia and beyond.

2024 Developments by GreenRE

In the second half of 2024, GreenRE has seen remarkable growth, with our certification portfolio expanding to over 800 projects, encompassing more than 500 million square feet. Of this figure, we have certified over 300 million square feet of buildings. This milestone highlights our commitment to providing an objective and internationally recognized rating system for environmentally sustainable real estate projects. The continued recognition of our certification by the Malaysian Government and local authorities reinforces our leadership position in green building certification.

Expansion of Certification

This year, we launched the GreenRE Energy Certificate, designed to complement the Energy Efficiency and Conservation Act (EECA). This new certification serves as a vital tool for assessing and promoting energy-efficient practices in buildings across Malaysia. We look forward to working closely with the government to raise the bar of high-performance buildings in the country.

Collaboration and Partnerships

This year, we launched the GreenRE Energy Certificate, designed to complement the Energy Efficiency and Conservation Act (EECA). This new certification serves as a vital tool for assessing and promoting energy-efficient practices in buildings across Malaysia. We look forward to working closely with the government to raise the bar of high-performance buildings in the country.

Appreciation of Partners

We extend our sincere gratitude to all our partners who have contributed to these achievements. Your unwavering support and collaboration have been instrumental in driving our initiatives forward. Together, we are not just building structures; we are fostering communities that prioritize environmental responsibility.

Moving Forward

As we look ahead, we remain dedicated to enhancing our services and expanding our reach. We will continue to engage with stakeholders across the industry, promoting a culture of sustainability and innovation. Your feedback is invaluable as we strive for excellence in all that we do. Thank you for your continued engagement with GreenRE. Together, let us pave the way for a greener future in real estate development.

GREENRE SUSTAINABLE DEVELOPMENT AWARDS 2024

GreenRE's Sustainable Development Awards (SDA) 2023/2024 was held in conjunction with the REHDA Annual Dinner 2024 on 22 November 2024 at Sime Darby Convention Centre Kuala Lumpur. The SDA celebrated green real estate excellence and honour projects that have achieved outstanding sustainability performance in the preceding year. There were **eight (8) project category** awards capped off by a best master developer award.

THE WINNERS

The winning projects are projects that showcase the 6 elements of a high-performing green building, ie. Environmental Quality, Environmental Protection, Green Innovation and Carbon Emission and Resource Management. These buildings and facilities applied passive design and energy efficient strategies resulting in significant reduction in energy consumption. The utilisation of green concrete and effective construction management, in turn, optimises resources and reduces the carbon impact of these developments. Additionally, building occupants wellbeing is addressed, with biophilic design features, greenery provision and natural daylighting and ventilation.

GreenRE Sustainable Development Awards 2024 Winners with Datuk Seri FD Iskandar GreenRE Chairman and Datuk Ho Han San, REHDA President

JUDGING PANEL

THE JUDGING CRITERIA

The judging criteria for project awards was objectively based on highest GreenRE points scored during certification and was independently reviewed by a panel of judges made up of experts in the green building sector. Projects must have achieved a GreenRE Gold or Platinum Rating, be completed and in operation.

The best master developer award is based on total number of GreenRE projects certified with a higher weightage for Gold and Platinum ratings. In addition, other qualitative criteria were considered encompassing how deeply ingrained sustainability is within the developer's long-term strategy and operations.

MENARA BAC BY BRICKFIELDS ASIA COLLEGE SDN BHD

The award was received by Mr. Nadarajah Thiagendran, Head of Facilities & Management, BAC Education.

Menara BAC stands as an exemplary 19-storey private hostel development, strategically located in the heart of Petaling Jaya, Selangor. With a QLASSIC score of 76%, Menara BAC features solar panels for renewable energy, a rainwater harvesting system for non-potable use, and a rooftop garden. The building's façade optimizes natural lighting and minimizes heat gain, while energy-efficient lifts and a mechanical carpark system maximize space and resource efficiency. Our commitment to sustainability and innovation in Menara BAC reflects our mission to provide students with a holistic environment where they can learn, play, and thrive, preparing them to become resilient, future-ready leaders.". Mr. Raja Singham, Chief Future Officer, BAC Education

Menara Brickfields Asia College. The building utilizes green concrete, replacing at least 30% of Ordinary Portland Cement (OPC) with Pulverized Fuel Ash (PFA)

Key Features

Mechanical carpark system for space optimization

35% of the roof is dedicated to a rooftop garden.

Façade with a low window-to-wall ratio of 0.17

Variable refrigerant flow (VRF) system

Rainwater harvesting

Solar Panel System . Solar energy supplements up to 2.61% of the building's energy needs.

SUNWAY RESORT HOTEL BY SUNWAY REIT

The award was received by Mr. Colin Yeoh, Chief Operating Officer of Sunway Hospitality Group.

Sunway Resort Hotel, a flagship five-star establishment in Sunway City, offers modern amenities and world-class service with a focus on sustainability. Key green features include a low OTTV, energy-efficient air conditioning and lighting, natural ventilation in select areas, water sub-meters, and an alternative water supply sourced from the Sunway Water Treatment Plant. Additionally, the hotel incorporates extensive greenery, rooftop urban farming, a food waste composting machine, and a ticketless smart parking system to reduce its environmental impact.

Sunway Resort Hotel

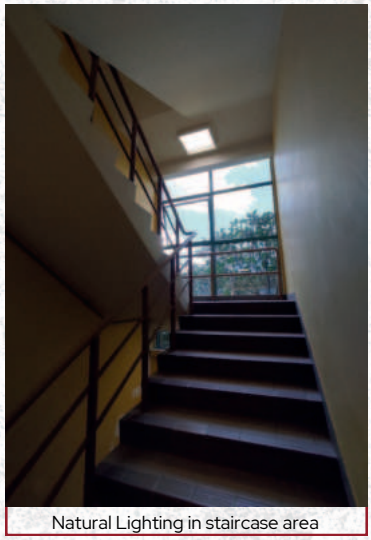
Key Features

Rooftop urban farming

Natural ventilation in selected areas

Various recycling efforts

Food waste composting machine



Natural Lighting in staircase area

MENARA KWSP @ KWASA DAMANSARA BY KWASA UTAMA SDN BHD

The award was received by Mr Mohamad Hafiz Kassim, Chief Financial Officer of KWSP

Menara KWSP @Kwasa Damansara is a 12-storey building with 3 parking levels, an elevated central garden with a Green Plot Ratio of 7.69,

Menara KWSP, the Employees Provident Fund's new headquarters in Kwasa Damansara, is a landmark of sustainability and progress. Housing over 2,200 staff, its iconic stacked-cube design and glass façade blend seamlessly with the natural surroundings, symbolizing strength, unity, and EPF's commitment to stability and resilience. More than a workplace, it reflects a vision of sustainability and prosperity, inspiring hope for Malaysia's brighter future.

Key Features

EV Chargers

Installation of 419 kWp Solar Panel

Natural Ventilation System. AHU and FCU reducing energy use by 54% and 65%

Rainwater Harvesting Tank for irrigation

Natural Daylighting System. Lighting power consumption improved by 50% (7.24 W/m²)

SUNWAY PUTRA MALL BY SUNWAY REIT

The award was received by Mr. Danny Lee, Senior General Manager of Corporate Strategy & Development, Sunway Malls

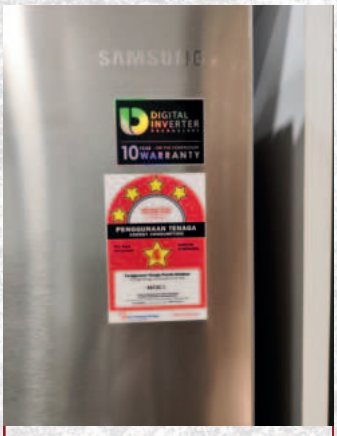
Sunway Putra Mall, a self-sustained integrated development at the heart of the Diamond Triangle, is one of the most vibrant business hubs and residential districts in downtown Kuala Lumpur. An iconic landmark with more than three decades of history, the complex was extensively refurbished and reopened in 2015 with a completely new modern architectural design and a revamped interior layout. Connected to nearby LRT and KTM stations via covered pedestrian walkways, the mall enjoys superb access and connectivity, hosting local and international brands across nine levels of retail podiums.

Sunway Putra Mall runs a Green Lease Partnership Programme

Key Features

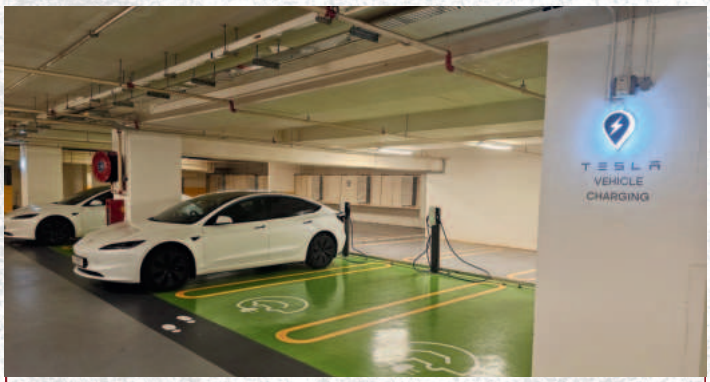
Solar Panel System

Recycle Bins Provided



Energy star-rated products

Covered walkway to LRT and KTM



EV Charger Stations

ARUP KUALA LUMPUR OFFICE BY ARUP JURURUNDING SDN BHD

The award was received by Ir. Fazidin Faisal, Property, Science and Industry Group Leader Arup Jururunding Sdn Bhd

Arup Kuala Lumpur Office is designed to cater for future expansion, the workplace can fit more than 400 members in ABW work settings

Arup Kuala Lumpur office is located in 1 Powerhouse – a Grade A, MSC-status landscaped green tower with a GreenRE Gold rating, in a suburb within the city of Petaling Jaya.

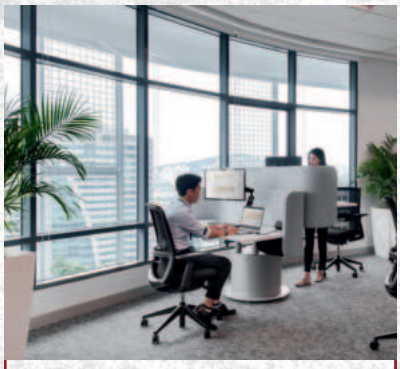
ACo-designed with Hassell, Arup's consultants contributed to the sophisticated look and operations of the office with environmentally sustainable design, lighting, acoustic and audio-visual systems, and mechanical and electrical engineering. One of the key drivers of the design is about bringing in community, engagement and innovation, understanding that Activity Based Working (ABW) needs diverse settings that make sense for the culture and business.

The office features energy-saving technologies such as LED lighting with occupancy sensors, high-efficiency chillers, water-efficient fittings, and carbon footprint reduction strategies, including convenient access to public transport.

The office is the first in Malaysia to target the highest possible green performance rating of GreenRE Platinum for Office Interior designs

Key Features

Acoustically treated rooms, height adjustable desks and ergonomic chairs



Natural Daylighting System

Greenery within Office Space. Biophilic design elements are incorporated to make this a healthy place to work

Occupancy Sensors and Dimmers to Regulate Office Lighting

BEST RESIDENTIAL DEVELOPMENT (HIGH RISE)

RESIDENSI SUASANA @ DAMAI BY MEDAN PRESTASI SDN BHD
(a subsidiary of MK Land Holdings Berhad)

The award was received by En. Ahmad Soalahuddin Al-Thani bin Ahmad Terizi, Group Chief Operating Officer at MK Land Holdings Berhad.

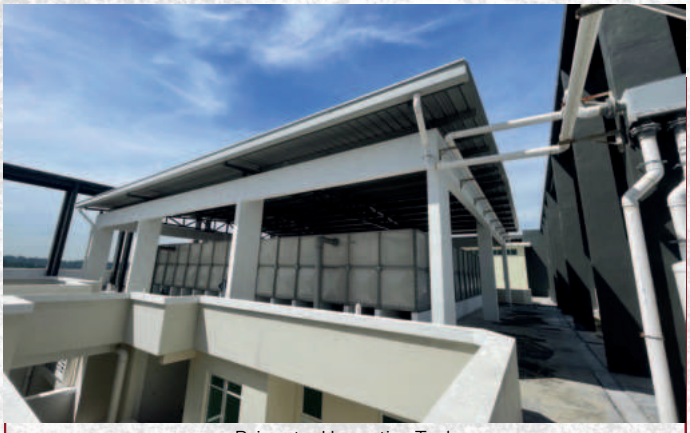
Residensi Suasana in Damansara Damai offers modern living with easy access to public transport and strategic urban connectivity. Key green features include low thermal transfer materials, cross-ventilated units, daylight-maximizing residential designs, eco-friendly landscaping with drought-tolerant plants, Green Label-certified paints, energy-efficient lifts, and a cool roof system for improved energy conservation.

Residensi@Suasana Damai is a thoughtfully planned green development blending sustainability with modern convenience

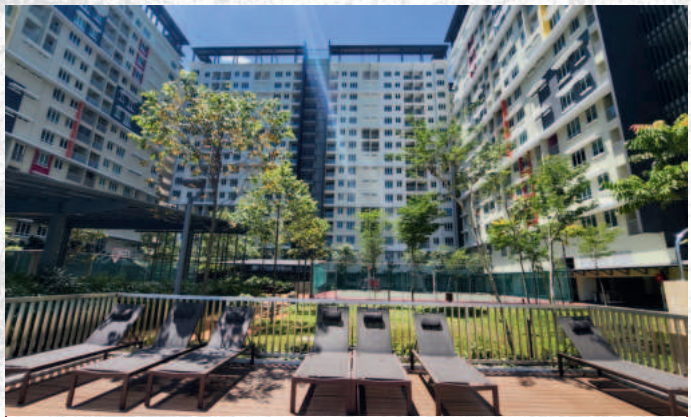
Key Features

Daylight and Natural Ventilation common areas

Drought tolerant plants make up 90% of the landscaping



Rainwater Harvesting Tank



Eco-friendly materials are used, including a sustainable pool deck, Green Label-certified exterior paints, and air conditioning units with green refrigerants.

SPECTRUM HOUSE BY TKCA ARCHITECTS SDN BHD

The award was received by Ar. Rien Tan Kwon Chong, Director, and Ar. Howie Lam Chee Hau, Associate Architect of TKCA Architects Sdn Bhd

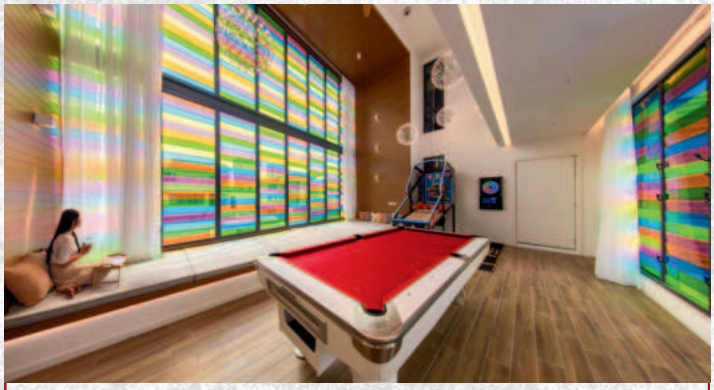
Spectrum House seamlessly integrates green sustainability into its design, fostering a harmonious coexistence with the environment. From low-e glazing to capture natural light while minimizing heat transmission to the strategic orientation of windows, solar heating, rainwater harvesting, and green-certified materials—the residence stands as a beacon of eco-conscious living. The incorporation of smart home systems, low-VOC paints, and efficient water fittings further underscores its commitment to a sustainable lifestyle. Spectrum House not only redefines family-centric design but also serves as a testament to a thoughtful and environmentally conscious approach to modern living.

Spectrum House. 53 % of the existing structure was preserved to minimise construction waste, reducing environmental impact

Key Features

Utilisation of green certified green cement

47.47 kWp photovoltaic (PV) system with 101 units is integrated to reduce electricity consumption



Low-e glass to all exterior glazing

Utilising natural lighting while successfully achieving a RETV value of 18.46 W/m

GRM Biowood panels enhance durability and weather resistance, with louver windows promoting cross ventilation

99 SPEEDMART SUSTAINABLE OUTLETS PILOT PROGRAM BY 99 SPEEDMART RETAIL HOLDINGS BERHAD

The award was received by Mr. Albert Lee Yan Zhong, Director of Optimisation and Sustainability, 99 Speedmart Retail Holdings Berhad

99 Speedmart Sustainable Outlets Pilot Program

Redefining sustainability in retail, 99 Speedmart leads by example with its green transformation across ten key outlets (including 1617-Daya Meru, 1008-Klang Utama, 1497-Jln Kapar Batu 13, 1012-Bukit Kapar, 1066-Sultan Sulaiman, 1414-Jalan Tepi Sungai, 1529-Pelangi Seri Alam, 2809-Taman Sri Cahaya, 1637-Taman Bahagia Morib , and 2586-NS Springhill 2).

From energy-efficient 4-star air-conditioning systems and solar-powered operations to innovative refrigerator display cabinets, each outlet reflects a commitment to minimizing environmental impact. Water efficiency, low VOC materials, and stringent indoor air quality audits further underline its dedication to sustainable practices.

By championing reusable bags, recycling programs, and green procurement, 99 Speedmart empowers customers and communities to embrace eco-conscious lifestyles. As a trailblazer in the retail sector, it showcases a holistic approach to sustainability, setting a benchmark for environmentally responsible operations.

Key Features

Use of Air Curtains and ST 4 Star Rated Air-Conditioning Systems

Refrigerator display cabinets, equipped with non-heated doors and LED lighting

Solar PV Panels System to replace at least 20% of total energy consumption

99 Speedmart Reusable Bag Campaign

Recycling Bins

SUNWAY PROPERTY

The award was received by Shereen Heng, Finance Director of Sunway Property

SUNWAY PROPERTY
Master Community Developer

As a Master Community Developer, Sunway Property has built a legacy of sustainable and innovative developments across residential, commercial, and retail properties. Their journey began by transforming Sunway City Kuala Lumpur from a tin-mining wasteland into the smart, sustainable wonderland it is today. Since then, they have continued to shape vibrant communities, aligning closely with the United Nations Sustainable Development Goals, especially Goal 11: Sustainable Cities and Communities. Guided by the Sunway Design and Development Architecture (SDDA), they emphasize Sustainability, Innovation, Health and Wellness, and Lifestyle and New Experiences in each project, particularly in their Signature Homes, to create exceptional environments for generations to thrive.

Sunway Property Team

Sunway Property is committed to transforming their portfolio to low carbon sustainable cities. The company's sustainability strategy and vision translate to its commitment towards producing high performing, resource efficient buildings and townships. **Sunway Property has registered close to 30 projects with GreenRE in period 2023-2024 including 11 Gold and 4 Platinum certified projects**. Sunway is the first developer in Malaysia to introduce an internal carbon pricing to drive sustainability across their supply chain.

Congratulations Datin Paduka Sarena Cheah Yean on your conferment by Sultan Sharafuddin Idris Shah of Selangor for your stalwart leadership of Sunway Group as ED and MD - Property Division

TARUMT STUDENT AND SME INNOVATION CENTRE

YAB Dato' Sri Haji Fadillah bin Haji Yusof, DPM witnessed the certificate presentation to Datuk Seri Yew Teong Look, Member of Board of Trustee, TARC Education Foundation, Chairman, Land and Development Committee, TARUMT.

TAR Student and SME Innovation Centre by Tunku Abdul Rahman University of Management And Technology (TARUMT) was recognized as the first recipient for this joint certification scheme introduced between GreenRE and MyCREST. The certificate was presented by Datuk Seri FD Iskandar, GreenRE Chairman, REHDA President Datuk Ho Han San, and CIDB representatives, Puan Zainora Zainal, Deputy Chief Executive II and Mohd Faizal Hamid, General Manager.

On 24 June 2023, GreenRE Sdn Bhd and the Construction Research Institute of Malaysia (CREAM) under the Construction Industry Development Board (CIDB), launched a joint certification framework for their rating tools, GreenRE Rating Tools and MyCREST.

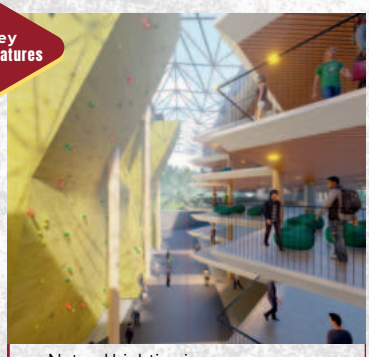
Under the framework, GreenRE will act as lead certifier for private sector projects through its GreenRE Non-Residential Building (NRB) v4.0 rating tool while CREAM will lead certification for government sector projects through MyCREST v2.0 Design and Construction rating tool.

With the joint certification, both rating tools aim to achieve similar carbon reduction score to each other, while all pre-requisites covering high impact areas to reduce embodied and operational carbon will be mutually adopted. The first stage will cover new non-residential building projects only, while other categories such as existing non-residential, residential, industrial and healthcare projects will follow suit in later stages.

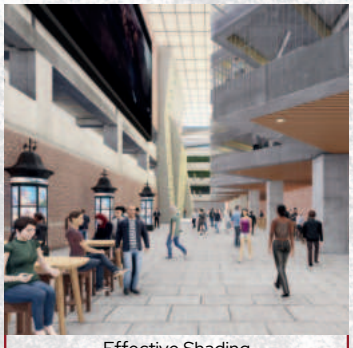
TARUMT Student and SME Innovation Centre

The TARUMT Student and SME Innovation Centre rises as a six-storey landmark within the university, offering 1.5 million square feet of space that blends academic purpose with entrepreneurial spirit. Designed to enrich the student experience, it also fosters collaboration between academia and small to medium-sized enterprises (SMEs). With its GreenRE-MyCREST Dual Certificate Platinum rating, the building embraces a holistic approach to sustainability, incorporating passive design strategies, advanced energy solutions, and water conservation measures. Its eco-conscious construction and forward-thinking design create an environment that nurtures creativity, innovation, and environmental stewardship.

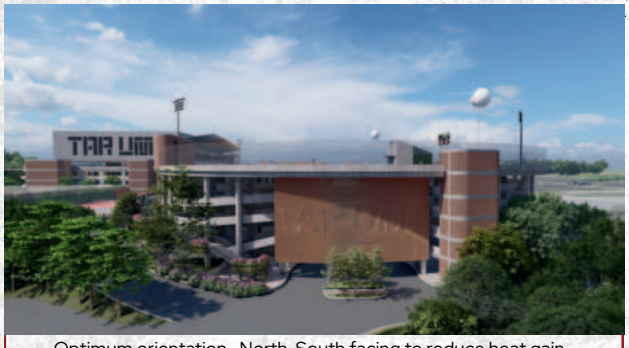
Key Features



Natural Lighting in common areas



Effective Shading



Optimum orientation- North-South facing to reduce heat gain

QUAYSIDE MALL & WETLANDS ARBORETUM CENTRE

The certificate was received by Roger Ko, General Manager, Retail Malls, Gamuda Parks, and LAr. Khariza Abd Khalid, Executive Director, Gamuda Parks.

The GreenRE Energy Certificate evaluates the energy efficiency of existing non-residential buildings. This certification scheme was developed in alignment with the recently introduced Energy Efficiency and Conservation Act and aims to drive the performance of existing buildings towards super low energy. Buildings that successfully obtain the GreenRE Energy Certificate in Malaysia will be eligible for the Energy Commission's Building Energy Label (BELS).

Two Gamuda Land Projects, Quayside Mall (QSM) and Wetlands Arboretum Centre both by Gamuda Land successfully achieved GreenRE Energy Certificate category at the 4th GreenRE Sustainable Development Awards.

Quayside Mall

Nestled in the heart of Gamuda Land's vibrant twentyfive7 township, **Quayside Mall** redefines suburban retail experiences with its seamless integration of convenience and community. Quayside Mall integrates sustainable design elements, including a solar photovoltaic system on the rooftop, significantly reducing its electricity consumption. The mall is equipped with an energy-efficient water-cooled chiller system, optimizing cooling with advanced variable speed drive technology. Expansive naturally ventilated areas enhance comfort, while LED lighting throughout common spaces surpasses energy efficiency standards. The building's thermal performance is further bolstered by a low OTTV, and mechanically ventilated car parks with CO sensors ensure both air quality and energy savings.

Aeriel view of Quayside Mall

Key Features

Solar Panel Systems

Naturally ventilated corridors

LED lightings

GREENRE ENERGY CERTIFICATE- PILOT PROJECT

Gamuda Project Team at REHDA Annual Dinner 2024

Wetlands Arboretum

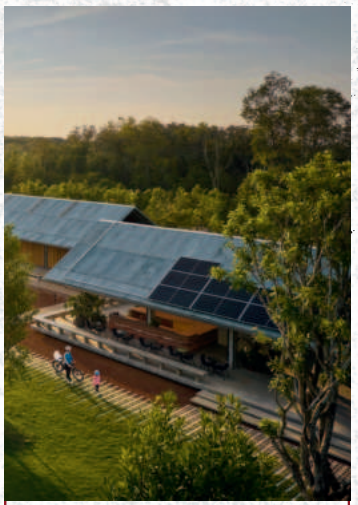
Located within the expansive 90-acre **Wetlands Arboretum** at Gamuda Cove, the Wetlands Arboretum Centre stands as a leading institution focused on plant research, biodiversity conservation, and eco-education. Serving as a plant resource hub, a living tree museum, and a knowledge centre, its mission is to become Malaysia's foremost Edu-eco Tourism destination. Positioned adjacent to the Paya Indah Discovery Wetlands, the Centre is not only a key site for preserving wetlands trees but also acts as a biodiversity sanctuary, offering a natural refuge for wildlife and a space for fostering environmental awareness. With its innovative approach to conservation, the Wetlands Arboretum Centre is poised as a model of ecological stewardship and sustainable tourism in the region.

Wetlands Arboretum at Gamuda Cove

Key Features

Solar Panel System

LED lighting



Naturally ventilated corridors

NS ecoCrete

NS ecoCrete LH

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Established in 1972, CIMA is the trusted partner for cement and ready-mix products and solutions, both within Malaysia and beyond its borders. Our track record shines through iconic projects such as expressways, bridges, and railroads.

Focused on ESG, we lead with innovative, transformative, and sustainable products. Over 50 years strong, we continue to drive impact and growth with our partners.

CIMA is committed to progress. Together, let's build a more sustainable future.

Additional information is available at **www.cima.com.my**

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4TH INTERNATIONAL GREEN BUILD CONFERENCE 2024

GreenRE Management Committee and REHDA Institute with YB Nik Nazmi Nik Ahmad, Minister of Natural Resources and Environmental Sustainability (NRES)

GreenRE and REHDA Institute co-hosted the 4th International Green Build Conference (IGBC) 2024, held on 23 July 2024 at One World Hotel, Petaling Jaya Malaysia. With the theme, 'Building for the Future', the conference was attended by over 500 participants from the building sector and featured panel discussions, presentations and talks by Malaysian and international speakers.

In his opening speech, GreenRE chairman Datuk Seri FD Iskandar said that

To drive sustainable development in real estate, the government and industry stakeholders must collaborate on transparent access to data, establish common baselines for greenhouse gas reporting, and incentivize low-carbon innovations across the supply chain. The transition must also address existing building upgrades and align policies to reduce energy consumption while fostering accountability and innovation to meet climate goals.

GreenRE Chairman, Datuk Seri FD Iskandar, delivered the opening speech

YB Nik Nazmi Nik Ahmad, Minister of Natural Resources and Environmental Sustainability (NRES), officiated the conference

Endorsing the IGBC 2024, Ministry of Natural Resources and Environmental Sustainability (NRES) YB Nik Nazmi Nik Ahmad said the conference showcased the industry's commitment towards advancing sustainable real estate in the country.

The Malaysian Government is committed to advancing sustainability in the real estate sector through strategic initiatives like the National Energy Transition Roadmap (NETR) and the Energy Efficiency and Conservation Act (EECA). Collaboration between the government and the real estate industry is crucial to achieve ambitious targets, including a 70% renewable energy capacity by 2050. GreenRE plays a pivotal role in this effort by introducing tropical-centric certifications that align with national sustainability goals. Conferences like IGBC 2024 offer a platform for industry players to exchange ideas, share innovations, and collectively shape strategies to drive sustainable growth and decarbonization.

GBC 2024 Partners

Strategic Event Partner

PROGRESSTURE SOLAR

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PANEL 1

One of the standout sessions at the IGBC 2024 was **Panel 1: Transitioning Malaysia's Energy Sector**, which addressed the challenges and opportunities within Malaysia's journey toward a sustainable and resilient energy future. Moderated by **Rosman Hamzah, Managing Director of Rosenergy Consulting**, the panel reinforced the importance of unified action in tackling energy challenges and provided attendees with actionable insights to drive sustainable energy initiatives in Malaysia and the broader ASEAN region.

Speakers and Topics

Ir. Hamdan Ali, representing **TNB (Tenaga Nasional Berhad)**, kicked off the panel with his insightful presentation on "Cross-Border Collaborations to Strengthen the ASEAN Power Grid Vision". Ir. Hamdan emphasized the critical need for unified energy efforts across ASEAN, underscoring how cross-border electricity trading and grid interconnectivity could optimize resource utilization while enhancing energy security across member nations.

Dr. Kim Jeng Won, of **NUS (National University of Singapore)**, provided an analytical overview on "Energy Transition in ASEAN Member States: Status and Policies". Her talk highlighted the varying stages of energy transformation across ASEAN countries, delving into successful policy interventions and the pressing need for harmonized energy strategies to meet regional decarbonization goals.

Ng Yew Weng, the **co-founder of Progressture Solar,** concluded the panel with an engaging presentation on "The Rising Importance of Solar in Malaysia's Energy Grid Mix". He discussed the untapped potential of solar power in decarbonizing the national grid and the importance of government incentives to drive adoption.

PANEL 2

'A Scorecard on ESG Reporting & Benchmarking', brought together esteemed experts to discuss Malaysia's ESG progress, corporate climate action, and effective sustainability benchmarking.

Moderated by Datuk NK Tong, the President of REHDA Malaysia, the panel underscored the importance of collaboration between stakeholders in improving ESG standards, reporting frameworks, and climate action strategies in Malaysia.

Speakers and Topics

Datin Seri Sunita Rajakumar, representing **CGM (Climate Governance Malaysia)**, delivered a thought-provoking presentation titled "Malaysia's Comparative ESG Review: Where Are We Now?". She analyzed Malaysia's current standing in ESG adoption compared to its regional and global counterparts, highlighting successes and areas requiring improvement, particularly in corporate transparency and the adoption of sustainable practices.

Shahril Azuar Jimin, of Maybank, presented on "Maybank's Approach to Climate Action and Client Engagement". He detailed Maybank's pioneering efforts in sustainable financing, their role in fostering climate resilience, and the bank's commitment to engaging clients in adopting ESG-compliant business models, emphasizing the critical role of financial institutions in climate action.

Dr. Hezri Adnan, representing **Bursa Malaysia**, provided an insightful discussion on ESG reporting frameworks, focusing on how they align with global best practices. His presentation examined the challenges and opportunities businesses face in ESG reporting and highlighted Bursa Malaysia's initiatives to strengthen corporate governance and accountability in the Malaysian market.

PANEL 3

The final session of the day, **'Case Studies on Sustainable Practices in Construction and Design'**, showcased innovative approaches to retrofitting, from material innovation to energy-efficient design, the session demonstrated how sustainable practices can be effectively integrated into the construction sector to address both environmental challenges and economic imperatives.

Speakers and Topics

Case Studies: Energy Efficient Buildings Retrofittings And Design In Thailand : Akin Woraphongsathorn, and **Nong Toontam Sukosit, of EM Group Thailand**, shared insights into energy-efficient retrofitting projects in Thailand. They presented case studies illustrating how innovative designs have improved building performance, reduced energy costs, and contributed to Thailand's sustainability goals.

Implementation of Greener Alternatives to Reinforced Steel: Huang Mei Si, of **CRT Manufacturing Sdn. Bhd.**, discussed pioneering efforts to integrate greener alternatives to reinforced steel in construction. Her case studies highlighted the environmental and economic benefits of these alternatives.

Re-Building from Waste: The Indonesia Experience: Ovy Sabrina, of **Rebricks Indonesia**, presented on innovative solutions for reusing waste materials in construction. Rebricks' transformative approach to repurposing non-recyclable plastics into building materials offers a scalable solution to waste management challenges in Indonesia and beyond.

Lessons and Experience Sharing from Singapore on Optimizing Energy Efficiency: Vincent Low, of **G-Energy Holdings Pte. Ltd.**, shared Singapore's experiences optimizing energy efficiency in urban settings. His presentation detailed best practices in energy management and highlighted case studies demonstrating how technology and design can drive energy savings.

As we look forward to the 5th International Green Build Conference in 2025, anticipation is building around further advancements in green building practices. The next conference promises to continue fostering dialogue on sustainable development, showcasing innovative solutions and best practices from industry leaders across Asia. The IGBC 2024 set a strong foundation for continued progress in green building initiatives, positioning the 5th conference as a pivotal event for stakeholders aiming to contribute to a greener future.

GREENRE LAUNCHES THE ENERGY CERTIFICATE

Launch of GreenRE's Energy Certificate at IGBC 2024, officiated by YB Nik Nazmi Nik Ahmad alongside GreenRE Chairman, REHDA Selangor and REHDA Institute leaders.

GreenRE, recently launched its new Energy Certificate during the 4th International Green Build Conference (IGBC) 2024, held at One World Hotel on July 23, 2024. This initiative aims to enhance energy efficiency practices across existing non-residential buildings, including hotels, offices, malls, schools, and healthcare facilities.

Buildings that achieve certification will be eligible for the Energy Commission's building energy label and can access an investment tax allowance scheme managed by the Malaysian Green Technology and Climate Change Corporation. This aligns with the upcoming Energy Efficiency and Conservation Act (EECA), which aims to bolster energy efficiency across the sector.

The introduction of GreenRE's Energy Certificate marks a significant step towards promoting sustainability in Malaysia's real estate sector. By establishing clear criteria and incentives for energy efficiency, GreenRE aims to foster a culture of sustainability that not only benefits individual buildings but also contributes to broader environmental goals.

Key Features of the Energy Certificate:

- **Thermal performance of building envelopes**
- **Natural and mechanical ventilation systems**
- **Integration of renewable energy sources**
- **Adoption of energy-efficient practices and technologies**
- **Renewable Energy**

GreenRE Energy Certificate Rating Tiers

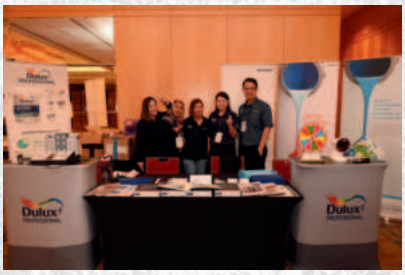
GREENRE SUPPORTS CAMBODIA'S GREEN BUILDING JOURNEY

During the opening ceremony of the 4th IGBC 2024, GreenRE demonstrated its commitment to regional sustainability by presenting a cheque of USD 10,000.00 to the Cambodia Green Building Council (CamGBC).

This contribution will bolster CamGBC's efforts to establish its foundation and advance green certification and training programs in Cambodia. Earlier this year, GreenRE signed a Memorandum of Understanding (MoU) with CamGBC to offer support and expertise in green building practices. This collaboration reinforces GreenRE's dedication to fostering sustainable practices and advancing green building efforts across the region. GreenRE is also a CamGBC Strategic Partner.

The cheque was presented by Datuk Seri FD Iskandar to Mr. Chea Bun Seang, President of CamGBC, witnessed by YB Nik Nazmi, Minister of Natural Resources, Environment, and Climate Change (NRES).

IGBC 2024



INTERNATIONAL GREEN BUILDING CONFERENCE PARTNERS

CONSTRUCTION INDONESIA 2024 JAKARTA & MEETING WITH GREEN BUILDING COUNCIL INDONESIA

By Ts. Siti Radhiah Md Merzuki | Assessor, GreenRE Sdn Bhd

Construction Indonesia 2024 by PT Pamerindo Indonesia, took place at the **Jakarta International Expo Kemayoran** from **11 to 14 September 2024. As the largest and longest-running exhibition in Indonesia's construction industry,** it served as an empowering platform where professionals from the construction and concrete sectors united to share knowledge, foster collaboration, and drive progress toward a brighter and more sustainable future for Indonesia's construction industry.

The Malaysian Delegation with CIDB Deputy Chief Executive II, Puan Zainora Zainal.

GreenRE was among **12 Malaysian construction industry delegations under the CIDB Pavilion**, proudly showcasing our expertise and strengths while fostering valuable business networking with international players, particularly in Indonesia. The pavilion offered a unique opportunity for Malaysian companies to showcase their innovative solutions and technological advancements to a broader international audience, particularly from Indonesia. Throughout the event, the delegations engaged in meaningful discussions, explored potential collaborations, and strengthened business ties. The platform also allowed exhibitors to gain insights into emerging trends in the construction industry, share best practices, and identify new opportunities for growth in the regional market.

Furthermore, the event acted as a key networking hub, offering valuable perspectives on Indonesia's rapidly evolving construction landscape. It emphasized the importance of sustainable construction practices and provided a space for industry leaders to exchange knowledge on improving efficiency and adopting greener building solutions.

Thank you, CIDB Malaysia & team, for the opportunity to bring GreenRE to Indonesia. Congratulations on a well-organized CIDB pavilion!

GreenRE received an Award of Appreciation for participating in CIDB's 3rd Indonesia-Malaysia Construction Innovation Business Hub 2024, held during the Construction Indonesia Convention & Exhibition 2024

GreenRE Team with CIDB Deputy Chief Executive II, Puan Zainora Zainal.

GreenRE visited the outdoor construction exhibition

GreenRE representatives took the opportunity to highlight the potential for collaboration and emphasized how the organization's sustainable building practices can foster growth in sustainability within Indonesia. By partnering with GreenRE, industry stakeholders can actively contribute to a more sustainable future, enhancing energy efficiency, reducing environmental impacts, and promoting green building practices throughout the region.

Juanita Lourdes, GreenRE's Sales & Marketing Manager, was invited as one of the featured podcasters in the Indonesia Energy & Engineering (IEE) Series Week 2024.

Colin Santhakumar, GreenRE's Senior Assessor, presented at CIDB's Business Networking event, where he introduced GreenRE and engaged with key Indonesian industry players. He also highlighted opportunities for collaboration on sustainable building practices, underscoring GreenRE's dedication to helping businesses adopt greener solutions.

GreenRE with Green Building Council Indonesia (GBCI)

GreenRE met the **Indonesian Green Building Council (GBCI)** at the Building Climate Festival (BCF) 2024, held at the well-preserved mangrove conservation site, Taman Wisata Alam Angke Kapuk, Jakarta. GreenRE strives to **collaborate with organisations** in the region towards a common goal of driving green development in the region.

The 4 day expo also presented an opportunity for GreenRE to expand its green certification into the Indonesian market, encouraging the growth of sustainable development in the region.

DRIVING SUSTAINABILITY FORWARD: INSIGHTS FROM THE 3RD GRESB REGIONAL INSIGHTS MALAYSIA 2024

GreenRE in collaboration with GRESB and Zerin Habitat hosted the 3rd GRESB Regional Insights Malaysia, as part of GRESB's Regional Insights 2024 events series on 21 November 2024 at Wisma REHDA, Petaling Jaya.

Themed **"Building a Green Future: Exploring Sustainable Loans, Green Ratings, and Regulatory Frameworks"**, the event featured presentations by CIMB, Suruhanjaya Tenaga (ST), Sunway REIT, Zerin Habitat, GRESB and an opening note by GreenRE's Executive Director Ir Ashwin Thurairajah.

GreenRE Executive Director, Ir. Ashwin Thurairajah, delivered the welcome note

Panel discussion on sustainability and green financing at the 3rd GRESB Regional Insights Malaysia 2024

Here are the key-takeaways:

- Trey Archer, Business Development Director of Asia at GRESB, introduced findings from the 2024 Results. Malaysia is the fastest-growing country in all of Asia, with an 80% increase in participation, while Asia leads as the fastest-growing region globally, with 15% growth overall.
- Daniel Siew Meng Kit, Head of Sustainable Finance Business Development at CIMB announced plans to adopt GRESB as a framework for issuing sustainability-linked loans (SLLs). With Asia's SLL market poised for rapid growth, this is a transformative step for green financing in the region.
- Clement Chen, CEO at Sunway REIT, and Jasmine Loo, Head of Investor Relations at CapitaLand Malaysia, shared their journeys as top GRESB performers. They highlighted the tangible financial and environmental benefits that sustainability leadership has delivered to their organizations.
- Raja Mohd Fadhil Raja Hasan, Assistant Director at Suruhanjaya Tenaga (Energy Commission), spoke in detail about the upcoming EECA, and how companies will need to place greater emphasis on energy conservation.
- Roja Rani, Head of Research and Consultancy at Zerin Properties, along with the other panelists, did a deep dive into the details of green financing, sustainability-linked loans, evolving regulations, and the challenges and opportunities that sustainability presents.

1 JULY 2024

Technical Advisory Committee for A Comprehensive National Energy Efficiency Benchmarking Study for Building Sector

GreenRE was part of the Technical Advisory Committee for A Comprehensive National Energy Efficiency Benchmarking Study for the Building Sector, organised by the Ministry of Energy Transition and Water Transformation (PETRA) in collaboration with Energy Commission (ST), with Universiti Teknologi Malaysia (UTM) and Malaysia Association of Energy Service Companies (MAESCO) serving as consultants.

MGBC's Leadership in Sustainablity Awards 2024 Judging Panel

2 JULY 2024

Malaysia Green Building Council (MGBC) Annual Dinner 2024

GreenRE proudly served as a dinner sponsor for the Malaysia Green Building Council (MGBC) Annual Dinner 2024, held on July 2nd at the Sheraton Hotel, Petaling Jaya. Additionally, Executive Director Ir. Ashwin Thurairajah was part of the judging panel for MGBC's prestigious Leadership in Sustainability Awards.

3 JULY 2024

GreenRE Team Building Activity

The team had an amazing time at our recent company bowling outing! From impressive strikes to hilarious gutter balls, it was an evening filled with fun, laughter, and team spirit

MIM & KAS Malaysia 's ESG Conference & Masterclass

10 JULY 2024

Malaysian Institute of Management (MIM)'s ESG Conference & Masterclass

The Malaysian Institute of Management (MIM) in collaboration with Konrad-Adenauer-Stiftung, Team Asien und Pazifik (KAS) Malaysia hosted the ESG Conference and Masterclass of 'Shared Responsibility, Shared Future: Uniting Stakeholders to Co-Create a Greener Malaysia'.

GreenRE's Executive Director, Ir Ashwin Thurairajah moderated the session on 'Resilient Cities, Resilient Futures: Building Climate-Resilient Communities' at the conference.

15 JULY 2024

First City University Students Study Tour of Wisma REHDA

A group of 4 lecturers and 26 Bachelor of Interior Architecture and Design students from First City University College (@firstcityuniversitycollege) visited Wisma REHDA. The aim of this tour is to provide students with an enhanced perspective and comprehension of building design and services, along with familiarity with both new and old construction materials that are frequently utilised in the industry. Green feature highlights from the tour included water conservation systems, photovoltaic (PV) panels on the roof, passive and active cooling components, etc. which are installed in Wisma REHDA

GreenRE Chairman Datuk Seri FD Iskandar and GreenRE Directors with IGBC 2024 Speakers

22 JULY 2024

Annual IGBC 2024 Pre-Conference Dinner and Networking session

GreenRE hosted an IGBC 2024 Pre-Conference Dinner and Networking session for IGBC 2024 Speakers and partners. The Pre-Conference Dinner provided an excellent opportunity to connect with fellow speakers, GreenRE and REHDA Institute Management and event partners.

21 AUGUST 2024

IJM Corporation Berhad (IJM Industry)'s Green Horizon (Advancing Sustainable Construction Forum)

GreenRE participated in IJM Corporation Berhad's (IJM Industry) Green Horizon: Advancing Sustainable Construction Forum.

Moderated by IJM's Shane Thakurta, the panel also featured Ar. Abu Zarim Abu Bakar (AZ Rekatelier) and Clarisse Loh (YTL Cement). The session highlighted the vital importance of sustainable sourcing, innovative materials, and responsible supply chain management in minimizing the construction industry's environmental footprint.

GreenRE Executive Director, Ir. Ashwin Thurairajah, was part of the panel discussion titled "Greening the Supply Chain: Navigating Sustainable Construction Materials for a Greener Future". He presented on "Reducing Embodied Carbon in Building Construction through GreenRE Green Building Certification".

22 AUGUST 2024

MP Setiu visit to Wisma REHDA

Representatives from MP Setiu toured Wisma REHDA with GreenRE to explore its sustainable features, including naturally ventilated, daylight-lit spaces, a double-skin facade, self-cleaning glass, an edible garden, and a water-efficient drip irrigation system. The tour also highlighted energy and cost savings achieved through reduced cooling loads, occupancy sensors, and PV solar panels.

6-8 SEPTEMBER 2024

SHEDA Property Kuching Expo 2024 (Expo & Presenters)

GreenRE participated in SHEDA's 2024 Property Expo at Borneo Convention Centre Kuching. The 3-day expo was officiated by Deputy Premier Datuk Amar Dr Sim Kui Hian on behalf of Sarawak Premier Datuk Patinggi Tan Sri Abang Johari Tun Openg. The expo feature a series of pocket talks, where GreenRE Senior Manager Ts Nurfateha Jamaluddin and Marketing Manager, Juanita Lourdes gave talks on Energy Efficient Homes and Sustainable Living respectively. GreenRE is ready to work together with the Sarawak real estate sector to drive sustainable development in Sarawak.

Deputy Premier Datuk Amar Dr Sim Kui Hian with Datuk Seri Michael Yam, GreenRE Director, at the SHEDA 2024 Property Expo

(L-R) Mitch Gelber, CEO MGBC, session moderator, with Panel Speakers, Ibsen Barlongay (Carbon Care Technologies Inc.),, S.Ramesh (IJM Corporation Berhad) and Gregers Reimann (IEN Consultants)

10 SEPTEMBER 2024

15th International Conference on World Class Sustainable Cities (WCSC 2024)

GreenRE was part of REHDA Wilayah's 5th International Conference on World Class Sustainable Cities (WCSC 2024), held at M Resort & Hotel in Kuala Lumpur.

CIMB IOI City Mall branch is the first bank branch in Malaysia to obtain GreenRE Office Interior Category certification.

10-12 SEPTEMBER 2024

CGM's National Climate Governance Summit (NCGS), Sasana Kijang

The National Climate Governance Summit (NCGS) returns as the flagship event of Climate Governance Malaysia (CGM) for its second year. GreenRE in collaboration with the Malaysian Green Building Council (MGBC) curated the a Masterclass on Property and Construction Sector-Green Building Best Practices held on Day-3 of the summit. The panel discussion featured Case studies on industry best practices, circularity in construction, disruptive technology in the construction and real estate industries and increasing regulatory compliance.

11 SEPTEMBER 2024

CIMB's IOI City Mall Branch achieves GreenRE Silver

Menara CIMB-In conjunction with CIMB's The Cooler Earth Series-2nd Forum. CIMB Bank Berhad launched their 'From Blueprint to Greenprint: Advancing Sustainable House Development' seminar where GreenRE Director Ir. Ashwin Thurairajah presented on 'Preparing for the Next Green Wave'. The event also witnessed the GreenRE plaque handover for CIMB IOI City Mall branch, the first bank branch in Malaysia to be GreenRE certified under the GreenRE Office Interior Category.

18-21 SEPTEMBER 2024

Engineer MARVEX 2024

GreenRE participated in the 4-day annual Engineering and Air-Conditioning, Mechanical Ventilation & Refrigeration exhibition and conference (Engineer MARVEX 2024) held at KL Convention Centre.

Our Executive Director, Ir. Ashwin Thurairajah was part of the thought-provoking panel on 'Advancing ESG in the Built Environment: Innovations and Best Practices' in the PowerTalk Industry series.

2 OCTOBER 2024

Public Bank's Southern Region Green Real Estate Seminar

GreenRE's Executive Director, Ir. Ashwin Thurairajah, was a speaker at Public Bank's green real estate seminar held at the Renaissance Johor Bahru Hotel. The seminar, part of the "Embracing Sustainable Development: The Way Forward for SME Developers" series, attracted over 200 participants from Johor, Melaka, Negeri Sembilan, Pahang, and Kelantan. The seminar highlighted critical insights into sustainable development practices and green building certification, emphasizing the need for SME developers to adopt sustainable strategies. We look forward to working together with banks in Malaysia to support the transition towards a low carbon economy.

4 OCTOBER 2024

Malaysia Strata Conference & Exhibition 2024 & National ESG Summit

GreenRE Executive Director, Ir. Ashwin Thurairajah, delivered a presentation on "Embracing ESG in Strata Developments" at the The National ESG Summit. From energy efficiency to waste management, the integration of ESG principles into strata property planning and management, Ir. Ashwin shared practical strategies to enhance the sustainability and liveability of strata developments.

REHDA Perak Deputy Chairman Ms May Ang Chan and GreenRE Assessor, Ts. Siti Radhiah Md Merzuki

4-6 OCTOBER 2024

Perak Property Expo (MAPEX 2024)

GreenRE was invited to participated in the Perak Property Expo (MAPEX 2024), held from 4th to 6th October 2024 at Ipoh Parade Mall. GreenRE assessor, Ts. Siti Radhiah Md Merzuki, delivered a presentation on "The Silent Energy Thieves: Understanding and Eliminating Home Energy Vampires." The session provided valuable insights into identifying hidden energy inefficiencies in residential properties and actionable strategies for reducing energy consumption, enhancing sustainability, and lowering home owners' electricity cost.

10 OCTOBER 2024

3rd REHDA Selangor Housing Convention 2024

GreenRE was a sponsor and exhibitor at the 3rd REHDA Selangor Housing Convention 2024, held on 10 October 2024 at Setia City Convention Centre. The event brought together over 250 industry leaders, developers, and policymakers to discuss transformative solutions for Selangor's housing sector, with a focus on sustainability, smart technologies, and affordability.

Y.B. Datuk Borhan bin Aman Shah, The Selangor State Housing and Culture Exco, visited the GreenRE Booth

Visitors at GreenRE Booth, students from the International Islamic University Malaysia and Dwi Emas International School.

9-11 OCTOBER 2024

International Greentech & Eco Products Exhibition and Conference Malaysia (IGEM) 2024

GreenRE participated in the International Greentech & Eco Products Exhibition and Conference Malaysia, held from 9-11 October at the Kuala Lumpur Convention Centre (KLCC). GreenRE Graduate Assessor, Ms. Bhavani Ravichanthar, delivered a presentation during IGEM's Powertalk, titled 'Rooted in Sustainability: Green Strategies for Dwelling Spaces'.

22-24 OCTOBER 2024

Future Cities Summit in conjunction with the International Construction Week (ICW) 2024 at MITEC

GreenRE participated in the International Construction Week (ICW) 2024, 22-24 October 2024 at the Malaysia International Trade and Exhibition Centre (MITEC), Kuala Lumpur. GreenRE Executive Director, Ir. Ashwin Thurairajah also presented at the Future Cities Summit 2024, 'Implementing Green Spaces in Urban Environments and Exploring the Benefits of Green Building Certification.'

Green Building in Cambodia Seminar speakers at Norton University Campus Phnom Penh

25 OCTOBER 2024

Green Building in Cambodia Seminar by Norton University Cambodia, Phnom Penh

GreenRE in collaboration with the Cambodia Green Building Council (CamGBC), hosted the Public Seminar Green Building in Cambodia at Norton University on 25 October 2024. This event gathered over 330 participants, including students and industry leaders to explore sustainable design and development, green financing, construction waste management, and the latest innovations in energy efficiency. The seminar included a keynote by Prof. Chan Sok Khieng, Rector of Norton University, who emphasized Cambodia's commitment to green building practices. As part of the seminar's distinguished lineup, GreenRE's Executive Director, Ir. Ashwin Thurairajah, presented on "What is a Green Building?", providing insights into the core principles of sustainable architecture and its role in building a resilient future.

6 NOVEMBER 2024

APESG's 2024 Asia-Pacific Carbon Summit and the 26th World Low Carbon Cities Alliance Forum, Hengqin, China

GreenRE's Executive Director Ir Ashwin Thurairajah was part of the roundtable panel discussion at APESG's 2024 Asia-Pacific Carbon Summit and the 26th World Low Carbon Cities Alliance Forum. With the theme 'Co-creating a Green future: Reinventing Global Competitiveness for Businesses' the forum brought together international Industry leaders and policymakers who engaged in in- depth discussions on the development trends, policy directions, and future blueprints of the carbon market.

The GreenRE award was presented to Ms. Joanne Lee, Deputy Group Chief Executive Officer AYER Holdings Berhad witnessed by Tuan Yang Di Pertua of Majlis Perbandaran Sepang, YBhg. Dato' Hj. Abd. Hamid Bin Hussain.

16 NOVEMBER 2024

Erica Residence Plaque Handover Ceremony, first landed property in Malaysia to receive the Platinum GreenRE certification (Provisional)

Congratulations to AYER Holdings Berhad for making history with Erica Residence in Bandar Bukit Puchong, the first landed property in Malaysia to receive the Platinum GreenRE certification (provisional).

This milestone highlights their dedication to sustainable development, incorporating features like solar water heating, enhanced glazing, roof insulation, and daylight harvesting. The certification was presented by GreenRE's Executive Director, Ir. Ashwin Thurairajah, during a ceremony attended by key stakeholders.

16 & 17 NOVEMBER 2024

Penang Green Expo 2024 by Penang Green Council (Panel & Expo)

GreenRE is proud to have participated in the Penang International Green Conference and Exhibition (PGIGCE) 2024, an influential platform for promoting sustainability.

GreenRE Executive Director, Ir. Ashwin Thurairajah, shared insights during the Panel Discussion on Green Buildings, highlighting key challenges in certifying a building and ensuring its long-term sustainability and how GreenRE is constantly evolving to meet increasingly stringent environmental sustainability standards.

GreenRE at the expo and a visit from YAB Chow Kon Yeow, Chief Minister of Penang.

3 DECEMBER 2024

Institution of Civil Engineers (ICE) Sustainability Conference (Expo)

GreenRE participated as a Bronze Sponsor and Exhibitor at the ICE Malaysia 2024 Conference on 3 December 2024 at Le Meridien, Petaling Jaya.

With the theme "Reaching Net Zero Emissions by 2050," the event underscored engineering's role in sustainable and resilient infrastructure. Ir. Ashwin Thurairajah, GreenRE's Executive Director, presented on "Bringing Embodied Carbon Upfront" and joined a panel discussion on sustainable infrastructure.

GREENRE ACCREDITED PROFESSIONAL'S COURSE NO. 36 (Johor Bahru-Online) 37 (Petaling Jaya-Online) 38 (Penang-Online)

In the second half of 2024, GreenREAP's Course held three additional intakes, with about 105 participants completing the three-day course.

Intake No. 36 took place at Sunway Big Box Hotel, Johor Bahru, attracting around 40 participants, primarily from Sunway Southern Management. GreenRE aims to hold this course annually in Johor Bahru due to strong regional interest.

The second intake was held at Wisma REHDA, Kelana Jaya, with 50 participants.

The second intake was held at Wisma REHDA, Kelana Jaya, with 50 participants.
The final intake of 2024 was at AC Hotel by Marriott, Penang. It aimed to raise awareness of GreenRE requirements among northern region stakeholders. Participants included consultants, developers such as Sunway Integrated Properties and Gamuda Land, universities, and local authorities.

Throughout these sessions, participants explored all aspects of green building certification, including best practices and case studies, green building theory, and emerging technologies. The GreenREAP courses served as an excellent platform for knowledge sharing, skill enhancement, and networking. Modules covered in the courses included GreenRE Rating tools and processes, Overall Thermal Transfer Value (OTTV), Residential Envelope Transmittance Value (RETV), Sustainable Construction and Green Products, Passive Design for Buildings, Energy Modelling and Computational Fluid Dynamics, Efficient Air-Conditioning, Daylighting and Artificial Lighting, Water Efficiency, Green Plot Ratio, Rainwater Harvesting, Solar Photovoltaic for Buildings and Townships, among others.

Participants came from diverse backgrounds, including engineers, architects, facility managers, project managers, green consultants, and academicians. This training course provided a valuable opportunity for members to enhance their skills, broaden their perspectives, and connect with like-minded individuals within the community.

The GreenREAPs' Courses are also applicable for CPD points from Suruhanjaya Tenaga, Institute of Engineering Malaysia (IEM), Lembaga Arkitek Malaysia (LAM), Lembaga Penilai dan Pentaksir Malaysia (LPPEH), Malaysian Board of Technologist (MBOT), and GreenRE.

Expert trainers—including Ar. Dr. Joseph Kong (DME Solutions), Mr. S. Ramesh (IJM), Mr. Ken Po (BSD Singapore), Mr. Gregers Reimann (IEN Consultants), Mr. Christophe Inglin (Energetix Pte Ltd), and Mr. Choong Chow Neng (G-Energy)—shared their extensive knowledge and experience, fostering a dynamic learning environment.

Five intakes of GreenREAP Courses are planned for **2025**. Contact **training@greenre.org** to book your seat.

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UPCOMING TRAINING

REGISTER NOW

ELYSIAN

By Gamuda Land

Spanning 3 hectares, the mindful designed masterplan incorporates lush greenery, pocket sky gardens, and energy-efficient homes, fostering a deeper connection between residents and nature

ELYSIAN: REDEFINING GREEN URBAN LIVING

Situated in the heart of Thu Duc City, Ho Chi Minh City, Vietnam, Elysian by regional property developer Gamuda Land stands as a testament to sustainable design and a harmonious connection with nature. Drawing inspiration from biophilic principles and the tropical rainforests, this development seamlessly integrates eco-conscious living with modern comforts, creating a sanctuary where urban life coexists with nature.

NATURE-FIRST DESIGN

Elysian's commitment to sustainability is woven into every aspect of its biophilic design philosophy. It dedicates 51% of its total area to landscaping, amenities, and green spaces, ensuring nature is not just a feature but an intrinsic part of the development. The integration of green balconies, living facades, and pocket sky gardens transforms vertical spaces into lush ecosystems, enhancing biodiversity and offering residents tranquil retreats.

SETTING NEW STANDARDS IN GREEN EXCELLENCE

Elysian sets a new benchmark for sustainable living through its energy-efficient architecture. It prioritises natural light and ventilation, significantly reducing reliance on artificial lighting and cooling. Apartments feature large windows and multifunctional balconies that invite sunlight and fresh air, creating open, airy interiors that connect residents to the outdoors. Select units include Lanai-inspired terraces, designed as outdoor living rooms with adjustable slatted screens. These versatile spaces not only enhance the homes' aesthetic appeal but also contribute to energy efficiency, offering residents comfort while reducing environmental impact.

Over 40 thoughtfully designed amenities are seamlessly integrated within the natural landscapes of the development, encouraging recreation and fostering connections among neighbours.

A total of 44 species of native plants, including jasmine, pomelo, and ferns, are cultivated using the innovative Miyawaki planting technique, a sustainable approach to landscaping that accelerates plant growth by creating competitive environments. This method mimics the multi-layered vegetation of natural forests, encouraging the development of self-sustaining green spaces that require minimal maintenance after the first three years. By fostering shade, reducing urban heat, improving air quality, and supporting urban wildlife, this technique provides a long-term solution for enhancing biodiversity and ecological balance in urban settings.

PIONEERING SUSTAINABILITY WITH GREENRE

The development's green credentials are underscored by its status as the first development in Vietnam to achieve both GreenRE Bronze and LOTUS Certified awards. This recognition reflects Gamuda Land's dedication to sustainable urban development. Elysian's energy-efficient design features an RETV of 15.68 W/m², achieved through solar control glazing and Autoclaved Aerated Concrete (AAC) walls. The use of low-VOC materials ensures healthier indoor air quality, while green concrete, made by replacing at least 10% of cement with fly ash, reduces carbon emissions. The air-conditioning system in common areas meets the 5-star energy efficiency standard in Vietnam, and the lighting in common areas uses 42% less energy than the Vietnam standard, which further demonstrates the development's focus on reducing its environmental footprint while enhancing the comfort of its residents.

These efforts align with Gamuda Land's ambitious Gamuda Green Plan, which targets a targets a 40% reduction in carbon emissions compared to BAU by 2030 for its developments

Elysian represents a bold vision for the future of urban living in Vietnam. By advancing sustainable planning and design, it sets a new standard for developments in rapidly growing cities. This innovative project goes beyond creating homes; it ensures families thrive in a thoughtfully crafted environment designed for meaningful connections with nature. Through its seamless integration of eco-design and community-centric planning, Elysian redefines modern living while deepening its commitment to reducing carbon emissions and fostering sustainability.

SITE AREA
28,412 m2

TOTAL UNITS
1,406 units

MASTERPLAN
4 apartments blocks on 2 podiums

STORIES
21 stories & 1 underground parking lot

ESD CONSULTANT
Ardor Green (for LOTUS Vietnam) & Gamuda Land Sustainability Team (for GreenRE Malaysia)

M&E ENGINEER
ASP Design Consultant

STRUCTURAL ENGINEER
TW-Asia Consultants

ARCHITECTURE
Ag Ingo Design Studio

LANDSCAPE CONSULTANT
Land Sculptor Studio

GREENRE CERTIFICATE HANDOVER FOR GAMUDA LAND'S ELYSIAN IN HO CHI MINH, VIETNAM

The GreenRE Award was presented by GreenRE Chairman, Datuk Seri FD Iskandar, and GreenRE Director, Datuk Seri Dr. Michael Yam, to Mr. Angus Liew, Chairman of Vietnam Operations, Gamuda Land and Mr. Gim Teck Yew, Deputy Chairman of Vietnam Operations, Gamuda Land, and was witnessed by H.E. Datuk Tan Yang Thai, the Malaysian Ambassador to Vietnam.

GreenRE is proud to announce our first GreenRE Certified Project in Vietnam. The Elysian by Gamuda Land was awarded GreenRE Bronze Certification (Provisional) on 14 November 2024 in Ho Chi Minh, Vietnam.

The GreenRE Award was presented by GreenRE Chairman, Datuk Seri FD Iskandar, and GreenRE Director, Datuk Seri Dr. Michael Yam, to Mr. Gim Teck Yew, Deputy Chairman of Vietnam Operations, Gamuda Land, and was witnessed by H.E. Datuk Tan Yang Thai, the Malaysian Ambassador to Vietnam.

QUAYSIDE MALL

By Gamuda Land

> Quayside Mall exemplifies Gamuda Land's commitment to sustainability, with innovative post-occupancy upgrades like a 1,192 kWp solar PV system and optimized ACMV operations, highlighting our dedication to responsible and eco-friendly development.
>
> Jess Teng (Chief Operating Officer)

ESD CONSULTANT
Gamuda Land Sustainability Team

M&E ENGINEER
J. Roger Preston (Malaysia)

STRUCTURAL ENGINEER
YSL Consultant

ARCHITECT
SAA Architects

LANDSCAPE CONSULTANT
PTA Design

QUAYSIDE MALL AS A SUSTAINABILITY-DRIVEN COMMUNITY HUB

Located in the thriving growth corridor south of Kota Kemuning, the established Quayside Mall is an integral part of the masterplan for twentyfive7 township, designed to seamlessly blend convenience alongside eco-conscious practices. This thoughtfully curated mall situated in the heart of twentyfive7 serves as a vibrant hub for the nearby communities of Kota Kemuning, Bandar Rimbayu, and Bandar Saujana Putra.

Attracting an impressive 600,000 visitors monthly, it offers a diverse array of offerings including over 100 F&B outlets, waterfront alfresco dining, and renowned lifestyle retail brands such as Jaya Grocer and Harvey Norman.

Quayside Mall situated in the heart of twentyfive7 is a vibrant hub for the immediate and surrounding communities

PIONEERING GREEN INITIATIVES

As the first retail mall in Malaysia to receive the prestigious GreenRE Energy Certificate Silver Energy, Quayside Mall exemplifies a strong commitment to sustainability and innovation in urban development.

Among its groundbreaking green initiatives is a rooftop solar photovoltaic (PV) system, covering over 61,000 sqft—nearly 60% of the mall's roof area. This system offsets approximately 9% of the mall's electricity usage, reducing reliance on non-renewable energy sources.

Over 2,200 solar PV panels have been installed on the rooftop of Quayside Mall, representing Gamuda Land's largest solar rooftop feat to date

The mall's energy efficiency is further underscored by its Building Energy Intensity (BEI) rating of 261.41 kWh/m²/year, a remarkable achievement that exceeds the GreenRE Silver benchmark by 17%. Its energy-efficient infrastructure includes an efficient water-cooled chiller system and strategically designed natural ventilation in alfresco dining areas, which offer visitors stunning views of the township's park and lake. Moreover, the use of LED lighting throughout all common areas enhances energy efficiency, contributing to significant reductions in overall power consumption.

A MODEL FOR SUSTAINABLE DEVELOPMENT

Cycling and walking paths are thoughtfully integrated throughout the township, including within Quayside Mall, to promote green mobility and reduce carbon emissions

Quayside Mall is more than just a retail and dining destination; it has evolved into a vibrant community-centric hub that exemplifies sustainable modern living. Its significance within the twentyfive7 township will soon be elevated with the completion of Quay District, a mixed-used waterfront development which will introduce residential spaces, shop offices, serene green areas, and pedestrianised areas with alfresco shops. Seamlessly integrated with Quayside Mall, Quay District enriches the township's vibrant lifestyle offerings, creating a harmonious blend of commerce, community, and natural beauty. Reflecting the township's commitment to holistic and self-sufficient living, Quay District is poised to elevate the area's appeal while enabling Quayside Mall to set a new standard for retail spaces, inspiring the next generation of eco-conscious developments.

WETLANDS ARBORETUM CENTRE

By Gamuda Land

> The Wetlands Arboretum Centre, Malaysia's first EDGE Advanced (Zero Carbon Ready) and GreenRE-certified Super Low Energy building, showcases Gamuda Land's commitment to sustainability, positive energy operations, biodiversity conservation, and climate adaptation strategies.
>
> Jess Teng (Chief Operating Officer)

ESD CONSULTANT
Gamuda Land Sustainability Team & Blue Snow Consulting & Engineering

M&E ENGINEER
Alliance MEP

STRUCTURAL ENGINEER
Sepakat Setia Perunding

ARCHITECT
OBS Architect

LANDSCAPE CONSULTANT
SD2

PIONEERING SUSTAINABILITY AND CONSERVATION AT THE WETLANDS ARBORETUM, GAMUDA COVE

Spanning 90 acres within Gamuda Cove, the Wetlands Arboretum exemplifies ecological stewardship, combining biodiversity conservation, sustainability, and education. When fully completed, it will be home to over 300 species of flora and fauna, playing a vital ecological role while raising public awareness about the importance of protecting natural resources. At its heart lies the Wetlands Arboretum Centre, Malaysia's first net-zero building certified under the EDGE Advanced programme. This landmark facility embodies Gamuda Land's commitment to sustainable development, serving as a plant resource hub, living tree museum, and knowledge centre.

The arboretum is a wetland ecosystem that enhances the site's natural beauty and serves as critical stormwater management tools. They promote aquatic biodiversity, regulate water flow, and act as natural cooling agents, fostering a tranquil environment ideal for recreation and education while connecting the community to nature.

The Wetlands Arboretum Centre represents Gamuda Land's vision of sustainable development, where architecture not only respects but also replenishes the environment.

Recently, the centre became the first building in Malaysia to receive the GreenRE Energy Certificate Super Low Energy (Positive Energy Building) under the pilot programme. This milestone solidifies its position as a model for net-zero sustainability and an iconic hub for conservation, nature retreat, and social value.

The 90-acre Wetlands Arboretum is built with the surrounding environment in mind

Powered by 100% solar energy and built using environmentally sustainable materials

The centre provides employment for Orang Asli communities and raises public awareness on sustainability

INNOVATING FOR SUSTAINABILITY

The Wetlands Arboretum Centre is a pioneering example of sustainable architecture. It operates on Positive Energy, generating 189% of its electricity needs with a 71 kWp photovoltaic (PV) system paired with a Battery Energy Storage System (BESS) that stores two days' worth of energy. The building achieves exceptional energy efficiency, setting a national benchmark for super low energy buildings. Additional green features include efficient air-conditioning units, natural ventilation covering 93% of the facility, and energy-saving LED lighting that exceeds national standards by 73%. These advancements reflect Gamuda Land's unwavering commitment to reducing carbon emissions and promoting eco-conscious living.

BIODIVERSITY AND COMMUNITY IMPACT

Adjacent to the 1,111-acre Paya Indah Discovery Wetlands, the arboretum is a sanctuary for wildlife and wetlands tree conservation. This proximity enriches its biodiversity credentials, allowing visitors to experience nature firsthand while learning about conservation and climate adaptation. Educational programmes and interactive exhibits further empower communities to embrace sustainability and environmental stewardship alongside providing employment opportunities to the indigenous community through roles as rangers and cultural ambassadors, while supporting indigenous handicraft production.

COLLABORATIONS (2024)

GreenRE, is in collaboration with developers and green service providers through Memorandum of Understanding/ Collaborations including Cambodia Green Building Council (CamGBC), Radium Development Bhd, Imasa Dinasti, Tropicana Corporation, MES, i-Carbon, Baretto, among others . These collaborations aim to enhance the integration of green building practices across multiple projects, thereby advancing Malaysia's green agenda. The MOUs signed by GreenRE emphasize a shared commitment among stakeholders to foster sustainable development practices.

GreenRE's initiatives align with Malaysia's broader goals of achieving carbon neutrality by 2050, reflecting a proactive approach towards environmental responsibility within the real estate sector. As these collaborations unfold, they are expected to create lasting impacts on both the industry and the communities they serve.

RADIUM DEVELOPMENT

On November 28, 2024, Radium Development Bhd signed an MOU with GreenRE to incorporate sustainable building practices into its developments. This partnership will leverage GreenRE's expertise in sustainable design and certification, ensuring that Radium's projects meet stringent environmental standards. Radium's commitment to sustainability is reflected in its ongoing projects, which have already achieved provisional GreenRE certifications

TROPICANA CORPORATION

Earlier in September 2024, Tropicana Corporation Bhd entered into an MOU with GreenRE to reinforce its commitment to sustainable property development. With 17 of its projects already certified by GreenRE, Tropicana aims to further reduce its carbon footprint and promote eco-friendly living. The collaboration will facilitate the certification of upcoming projects, including Avisa Residences and Twin Pines serviced suite

CAMBODIA GREEN BUILDING COUNCIL

GreenRE signed a Memorandum of Understanding (MoU) with the Cambodia Green Building Council (CamGBC) to provide support and knowledge related to green buildings. Additionally, GreenRE as a CAMGBC strategic partner will assist CamGBC to develop its own local green certification tool (CAMEEL), developing human capital through training and learning development activities as well as to drive further membership into the council.

IMASA DINASTI (SARAWAK)

GreenRE signed a Memorandum of Collaboration with Imasa Dinasti ((a subsidiary of TAK Group of Companies) in conjunction with the Kenyalang Smart City (KSC) summit on 29 May 2024 in Miri, Sarawak. The summit witnessed the signing of seven memoranda of understanding (MoUs) between Imasa Dinasti and its strategic partners, aimed at propelling the development of KSC.

EVOLUTION OF GREEN BUILDING STANDARDS: THE MALAYSIAN PERSPECTIVE

Prepared by

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The topic of climate change needs no introduction. The science is clear: Human-induced greenhouse gas (GHG) emissions have led to adverse climatic events. While the world struggles to mitigate emissions, we must equally plan for adaptation and resilience. Temperature rise scenarios put forward by the United Nations cannot even conclude with certainty that we have not crossed the point of no return!

As we struggle to balance the competing forces of politics, economics and science, we must keep a firm eye on the co-benefits of dealing with climate change. Environmental sustainability is not a new concept; it is aligned to our basic societal aims to improve our quality of living, generation upon generation.

The real estate sector, in particular, stands at a crucial juncture. The built environment is a major contributor to not only GHG emissions but also to environmental degradation. Globally, it is responsible for approximately 40% of energy and process-related CO2 emissions, 50% of all extracted materials, 33% of water consumption and 35% of generated waste[1].

Other environmental impacts include resource depletion, air, water/land pollution and biodiversity loss. In the local construction sector, GHG emissions is driven by material selection, in particular concrete and steel, which make up more than 80% of "upfront" carbon emissions[2]. Real estate in use, comprising industrial, commercial and residential buildings, consume almost all electricity generated in the country[3].

The real estate sector has the opportunity – and responsibility – to lead the charge toward greener, more sustainable practices. By embracing green building principles, it can transform the built environment and drive significant progress in the fight against climate change. The World Green Building Council is a global network of national Green Building Councils (GBCs) which promote sustainable building practices and advocates for objective and transparent transition through the development of voluntary, region specific green building standards. Compliance to these standards is verified through certification which leads to the development of green building certification bodies across the world.

Building Research Establishment Environmental Assessment Method (BREEAM), the world's first green building certification system, was introduced in 1990 in the United Kingdom. In 1993, Leadership in Energy & Environmental Design (LEED) was developed in the United States and quickly became the most popular global green building rating system. These systems have not only raised awareness about the importance of sustainable building design and construction but have also pushed governments and industries worldwide to adopt more stringent regulations and incentives to promote green building practices.

Global Perspective: Evolution of Green Building Standards

The term "green building" is broadly defined as a structure with efficient resources utilisation and is conscious towards the environment throughout its lifecycle, from planning and design to construction, operation and demolition. Green buildings also enable occupants to make use of space in a comfortable and healthy manner by providing an improved indoor environmental quality.

GREENRE BUILDING CRITERIA

GreenRE Building & Township Certification Award Pillars

Asian Perspective: Sustainable real estate practices traditions and values, which can shape sustainable design approaches. For example, Feng Shui principles in Chinese architecture emphasise harmony with nature and the environment, leading to the incorporation of natural elements and orientation strategies to optimise energy efficiency and to promote well-being.

Rapid urbanisation and population growth in many Asian cities present unique challenges. Sustainable urban planning strategies, including compact development, mixed land use and efficient public transportation systems are essential to mitigate the negative impacts of urbanisation and to promote sustainable living. In addition, initiatives such as vertical greening, rooftop gardens and green infrastructure are increasingly being adopted to enhance urban biodiversity, mitigate heat island effects and improve air quality in densely populated cities.

Recognising the unique demands of a tropical climate and a burgeoning population, Singapore's Building & Construction Authority (BCA) was the first in South-East Asia to introduce a green building certification scheme, Green Mark, in 2005. The early adoption and comprehensive approach of the certification scheme is instrumental in shaping the understanding of sustainable building practices in Asia and has become a standard for reference and influencing many other countries in the region to develop their own similar initiatives.

GreenRE, Malaysia's Leading Green Building Certification Body: In Malaysia, the Green Real Estate (GreenRE) certification scheme was established as a leading standard for sustainable buildings. Developed in 2013 by the Real Estate & Housing Developers' Association (REHDA) in collaboration with the Construction Industry Development Board (CIDB) and Singapore's BCA, GreenRE was designed specifically to cater to the unique demands of the real estate sector here.

It was launched as an independent body, governed by professionals, to drive a broad based impact across all types of buildings in the country. Closely aligned with the Green Mark, GreenRE standards have a strong focus on carbon emissions reduction, with stringent requirements for material selection and energy efficiency. The standards were developed to be in step with market capability and evolved over time to be aspirational. A green building is not static. It is a dynamic facility that prioritises continuous environmental performance improvement. Hence, a renewal process was developed to ensure alignment to design goals over the life-cycle of the building.

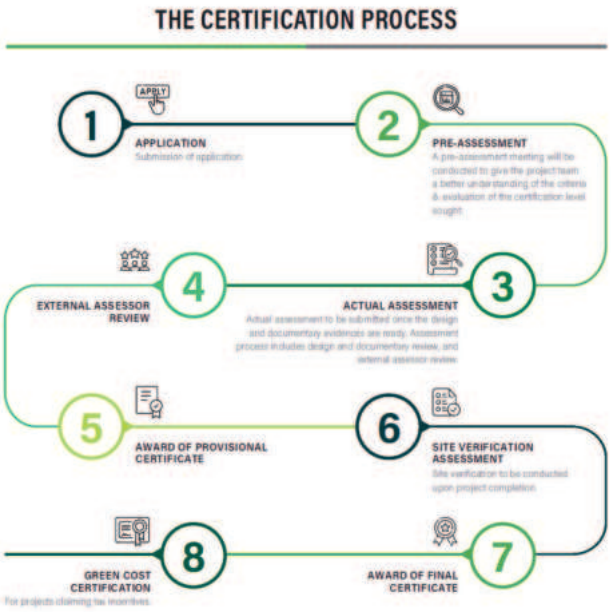
GreenRE strives to be at the forefront in the mission to green Malaysia's built environment. Not only does it align with the World Green Building Council's quality assurance requirements and to the UN's Sustainable Development Goals but it is also ISO certified, ensuring credibility and global recognition. GreenRE also actively fosters a culture of sustainability by offering training programmes and funding research at local universities. This holistic approach helps build a foundation of knowledge and innovation.

GreenRE Building & Township Certification Award Ratings

GreenRE evaluates building design and functionality across 6 key categories: Energy efficiency, water efficiency, environmental protection, indoor environmental quality, carbon emissions and green features. Projects are graded on a four-tier scale (Bronze, Silver, Gold and Platinum) which can be applied to buildings from residential apartments to industrial complexes.

The parameters and indicators established in GreenRE standards guide the design, construction and operations of buildings. The standards comprise prescriptive, performance-based and outcome-based requirements.

For new buildings, a Provisional Certificate is issued once design compliance is met. The submission for this stage is termed Actual Assessment (AA) and is ideally done once detailed design is completed and the necessary drawings and documentations are available. Once construction is completed, documentation for Site Verification Assessment (SVA) can be submitted and must be performed within a maximum period of one year after CCC (new buildings).

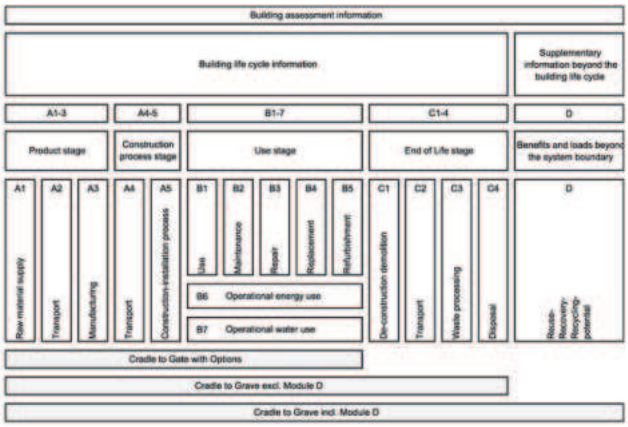


Site verification is done to confirm conformance to design commitments before a Final Certificate is issued. This is valid for only 3 years. After this period, the Renewal process should commence to validate the performance of the building, the key to outcome-based evaluation as by then, the occupancy and operating profiles will have settled. GreenRE emphasises clarity of completion of these stages. All projects are listed on its website for transparent access to certification data[4].

GreenRE Pre-Requisties: Key to Effective Green Building Rating Sysytem

GreenRE has adopted EN 15978 for assessing the environmental performance of buildings throughout their life-cycle[5]. This whole life carbon assessment (WLCA) assumes an operational lifetime of 60 years and comprises 4 stages: Product Stage (A1-A3), Construction stage (A4-A5), Use stage (B1-B7) and End of Life Stage (C1-C4). This framework allows accurate benchmarking of the carbon impact of the building at the design stage[6].

The upfront carbon in a building project comprises material selection, transport to site and construction[7,8]. This also represents approximately 25% of the carbon impact of a project across its lifetime[9]. A comprehensive report by CIDB, Technical Publication 207, performed in 2019, concluded that material selection was the governing component for embodied carbon representing almost 90% of upfront carbon emission[10]. Of this, concrete and steel were the leading contributors. To address this issue, GreenRE has stringent pre-requisites for concrete use index (CUI) and green concrete provision in a project.



EN 15978 Framework

$$\text{Concrete Usage Index} = \frac{\text{Concrete Volume in m}^3}{\text{Constructed Floor Area in m}^2}$$

Project CUI (m³/m²)	Credits Allocation
≤ 0.70	1
≤ 0.60	2
≤ 0.50	3
≤ 0.40	4
≤ 0.35	5

Table 1: Credits allocation for project CUI

Replacement of Ordinary Portland Cement (OPC) by approved industrial by-products (%)	Credits Allocation
10	1
20	2
30	3
40	4
> 50	5

Table 2: Credits allocation according to replacement percentage

The operational phase impacts approximately 75% of a building's life-cycle emissions[11]. In a tropical context, the leading contributor is energy used to cool a building[12]. GreenRE has stringent requirements for the measurement and verification (M&V) devices and performance of air-conditioning systems[13]. It also aligns with energy standards of the American Society of Heating, Refrigerating & Air-Conditioning Engineers (ASHRAE).

Buildings with a centralised cooling system must provide permanent measuring instruments to monitor the efficiency of both water-cooled and air-cooled chilled water systems. The instrumentation must be capable of calculating the operating efficiency (kW/RT) with an accuracy within 5% of its true value, in line with ASHRAE Guide 22 and AHRI 550/590. A heat balance test is also mandatory for water-cooled systems to verify the accuracy of the M&V instruments.

For buildings where the cooling load exceeds 500RT, the use of air-cooled systems is generally discouraged for GreenRE Gold and Platinum ratings. If air-cooled central chilled water systems or unitary air-conditioners are used, their performance must match the efficiency levels typically expected of water-cooled systems. For air-cooled systems in stratified or multi-block developments, the system efficiency will be assessed on a case-to-case basis to ensure compliance with GreenRE's stringent energy performance standards. Minimum Design System Efficiency/ Operating System Efficiency (DSE/OSE) are as follows:

- For buildings using Water-Cooled Chilled Water Plant

GreenRE Rating	Building Cooling Load	
	< 500	≥ 500
	Efficiency (kW/RT)	
Bronze	0.85	0.75
Silver	0.80	0.70
Gold	0.75	0.68
Platinum	0.70	0.65

- For buildings using Air-Cooled Chilled Water Plant or Unitary Air-Conditioner

GreenRE Rating	Building Cooling Load	
	< 500	≥ 500
	Efficiency (kW/RT)	
Bronze	1.1	1.0
Silver	1.0	1.0
Gold	0.85	Case by case
Platinum	0.78	

Energy Efficiency: The Low Hanging Fruit

The government recently introduced the Energy Efficiency & Conservation Act (EECA), aimed at institutionalising energy management practices for both thermal and electrical energy covering the industrial, commercial and residential sectors. It mandates energy audits and sets energy performance standards for appliances and equipment.

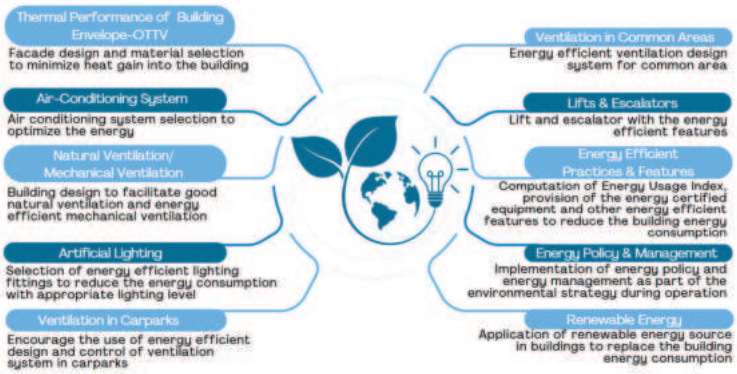
The National Energy Transition Roadmap, released in August 2023, had set a target of 23% energy savings for industrial and commercial sectors and 20% for residential sector by 2050.

Final electricity consumption is distributed fairly evenly across the industrial, commercial and residential segments. The industrial and commercial segment offers the biggest opportunity for savings as consumption is concentrated in fewer buildings. But many remain unaware of the benefits of energy efficiency or lack the knowledge to implement effective measures. The upfront cost of energy-efficient technologies and infrastructure upgrades can be prohibitive for some small and medium enterprises. However, these also present opportunities for innovation and collaboration.

Beyond the optimal specification of design and equipment, operation and maintenance are equally important. Much like a fuel-efficient vehicle that needs to be driven right, the building occupants play a crucial role in energy efficiency. Smart technologies, such as AI-based building management systems which monitor active systems like air-conditioning and lighting and switch them off when not in use, can further assist. Measurement and and verification instrumentation can be used to monitor the efficiency of large air-conditioning systems and offer a suitable predictive and preventive maintenance regimen. Real-time monitoring of energy use through smart meters provide up-to-date information and help consumers and utilities understand consumption patterns better.

With liberalisation of the energy sector proposed as part of the Malaysian Electricity Supply Industry 2.0 (MESI 2.0), time-of-use pricing may be made available to a broader segment of consumers, encouraging shifting energy intensive activities to off-peak hours when electricity rates are lower, thereby reducing peak energy demand. Once the necessary energy efficiency enhancements are deployed, on-site renewable energy solutions such as rooftop solar can be incorporated. It is important to approach this sequentially as it will be a waste of resources to implement on-site renewable energy in an energy inefficient building.

GreenRE has developed an energy performance certificate scheme for existing buildings to set a standard for high performance buildings and to appropriately benchmark energy efficiency based on local and international best practices[14].



GreenRE Energy Certificate Rating Pillars

GreenRE Energy Certificate Award Ratings

Conclusion

Green buildings can help combat climate change and promote environmental sustainability and the government will play a critical role in promoting sustainable building practices through regulations and incentives. Green building certification helps kick-start private sector efforts by setting standards that in turn, elevate the ambition of government building codes and regulation, corporate ESG strategies and workforce training.

GreenRE rating tools will continue to push the boundaries by driving integrated design, modular construction, biophilic design and smart building technologies. By recognising and rewarding companies and organisations which operate high performance buildings, we hope to see a greater pull factor towards these goals. Through collective action and unwavering commitment, Malaysia can lead by example in the global transition towards a low-carbon and resilient built environment.

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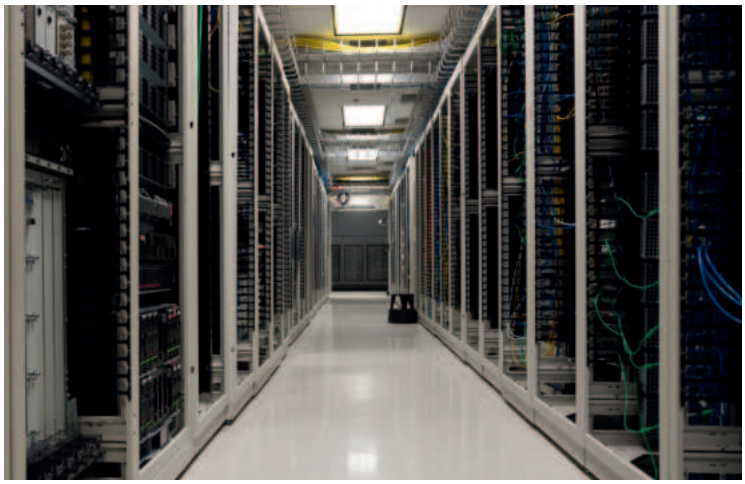
A DIGITAL APPETITE: POWERING THE INTERNET'S THIRST

By Colin Timothy Santhakumar | Assessor, GreenRE Sdn Bhd



Data centers power the internet, but sustainability is key to reducing their massive energy footprint

The Energy Challenges and Innovations of Data Centers

Ever wondered where all those cat videos and online games come from? It's all thanks to data centers, the hidden powerhouses of the internet. These massive computer hubs store, process, and distribute the vast amounts of data that fuel our digital world.

But here's the catch: data centers are energy-hungry beasts. They consume massive amounts of electricity to power their servers and keep them cool, consuming up to 1000 times the energy of a similar size office space. To put that into perspective, the average Malaysian consumed 4,877kWh in the year 2019 (Malaysia Energy Statistics Handbook 2021). A large data center consumes up to 100MW of power; which translates to 876,000 MWh per year nearly making up the energy consumption of 180,000 Malaysians per year.

This is where Power Usage Effectiveness (PUE) comes into play. PUE measures how efficiently a data center uses energy. A lower PUE means it's using less electricity to do more work. Ideally, we want a PUE of 1, indicating 100% efficiency, but in reality, most data centers operate between 1.3 and 1.7, where an additional 30% to70% of the IT equipment's energy is utilized for other means, primarily cooling. The most common method for cooling is air-conditioning and this is done using various technologies and equipment; some more efficient than others. From unitary and variable refrigerant volume (VRV) systems, to chillers either air-cooled or water-cooled chillers. All these systems accomplish the goal of cooling the same way, by cooling the air around the equipment. Among these space cooling methods, the water-cooled chiller is conventionally accepted as the most energy efficient, using water as the primary heat exchange medium whereas unitary systems utilize only a refrigerant cycle for heat transfer.

So, how are data centers getting greener?

- **Leveraging Natural Cooling**: Companies like Facebook have built data centers in cold climates like Sweden's Luleå. This allows them to use cold outdoor air for cooling, significantly reducing energy consumption and achieving impressive PUEs of as low as 1.04.
- **Liquid Cooling**: This method provides cooling using more of a "direct contact" approach. Heat from the equipment is absorbed and channelled away by liquid coming in physical contact with dedicated components. The main 2 methods of liquid cooling are Direct-to-chip liquid cooling and Immersion cooling.
- **Clean Energy**: Many data center operators are turning to renewable energy sources like solar and wind power to reduce their carbon footprint. Some larger data center operators are considering the use of on-site nuclear power as a clean energy alternative.

Why Malaysia?

You might wonder why a tropical country like Malaysia would be a good location for data centers. While the hot and humid climate might seem challenging, Malaysia's abundant freshwater supply makes it ideal for any form of cooling. The demand of freshwater for the extensive cooling operation can be a limiting factor in many cooler climate countries. Huge advancements in cooling technologies can significantly improve the energy efficiency of data centers, making them a viable option in tropical regions water is readily available and a relatively cheap commodity.

However just cause water is cheap, it does not mean it is not important to approach it through a sustainability lens. Which is why Water Usage Effectiveness (WUE) is another critical metric, particularly important in water-scarce regions. It measures the amount of water used per unit of IT equipment energy consumed. By minimizing water usage, data centers can reduce their environmental impact. However, even for a country like Malaysia where freshwater is readily available and decently cheap, it is important to keep in mind the negative impact irresponsible use of water can have on the environment even though the cost of saving water is negligible when compared to the cost of electricity saved by having a low PUE data center.

> **Greener data centers are essential for a sustainable digital future**

What it takes to be a green data center?

Given the diverse range of building types, being more than just walls and a roof. The key factor in determining the type of building is the function of the building. Therefore, this one-size-fits-all approach such as "A green building MUST have..." completely disregards crucial contextual factors and nuances. The main occupants of a typical building are human, for data centers its mostly machines. Certainly shoehorning a building into a rating tool not designed for it would be counter-productive. This is where GreenRE bridges the gap. Being the leading green building certification body in Malaysia, GreenRE developed and launched a specialized tool for data centers that encompasses everything needed for an efficiently designed or green data center.

To be considered a green data center, it is more than good PUEs and WUEs. Just like any other building there are multiple design and operational aspects that plays a role to improve it's efficiency. It is not enough to ensure the data centers are designed to be green on paper, proper commissioning of energy systems is just as important. Commissioning verifies that the data centre's energy related systems are installed, calibrated and perform according to the owner's project requirements, basis of design, construction documents and that they meet the minimum requirements of GreenRE.

Subsequent to commissioning, diligent operation and maintenance is paramount. Apart from proper upkeep of equipment to ensure it's reliability and availability, the performance of the system should be tracked to reconcile the actual data centre energy consumption over time with the design performance

GreenRE also places an emphasis on choosing low Global Warming Potential (GWP) refrigerants and ensuring proper leak detection mechanisms are in place. The most commonly used refrigerants in the market have GWPs of 600-1000 times the potency of carbon dioxide!

To promote a circular economy, the use of eco-friendly construction material such as green concrete and recycled steel is strongly encouraged. Further, proper handling of waste especially e-waste to prevent contamination in landfills is monitored. The data centre operator will need to establish a policy to promote waste sorting, collecting, quantifying, monitoring and recycling of the full range of waste generated in-house.

Optimizing the energy demand and carbon footprint of data centres through careful design and material selection can only go so far. Consequently, it's imperative to augment the energy grid with clean energy sources like solar, hydro, or nuclear to power data centres if they are going to be "popping up like mushrooms after rain".

This holistic approach by GreenRE emphasizes on continuous improvements and a commitment to ongoing optimization. This means it reaches beyond the facility itself and take into account all stakeholders and all stages of the supply chain, ensuring all aspects undergo sustainable considerations.

Ultimately by adopting the innovative strategies prescribed by GreenRE, data centers can continue to power our digital world while minimizing their negative environmental impact.

CLIMATE ASIA

a subsidiary of BSD

ABOUT OUR BUSINESS

Climate Asia, a subsidiary of Building System and Diagnostics (BSD), is a sustainability expert driving the built environment towards net zero carbon. With a strong track record of over 600 ESD projects, they develop practical tools and training to help organizations reduce their carbon footprint. From carbon accounting and reporting to roadmap creation and sustainability reporting, Climate Asia supports businesses in achieving their environmental goals. They actively engage in industry initiatives and knowledge sharing to accelerate the transition to a low-carbon future.

INDUSTRY CREDENTIALS

- USGBC Accredited Education Provider
- LEED Accredited Professional
- ISO 14001 Environmental Management System Certified
- Singapore Green Building Council (SGBC) Committee Member
- Green Mark Advanced Accredited Professional
- International WELL Building Institute (IWBI), WELL Faculty, WELL Advisor, WELL AP
- SmartScore AP, WiredScore AP
- EarthCheck Independent Assessor and Design Accredited Professional

OUR SERVICES

- Zero Carbon Certification
- Carbon Neutral Event
- Decarbonization Roadmap
- ESG Reporting
- Science Based Targets Initiative
- Corporate Carbon Accounting and Reporting
- Whole Life Carbon Assessment
- Carbon Footprint of Products
- Environmental Product of Declaration

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GREEN HOMES INITIATIVE: DESIGNING AN ENERGY PERFORMANCE BENCHMARKING (EPB) TOOL FOR MALAYSIAN RESIDENTIAL BUILDINGS, WITH EMPHASIS ON LANDED HOUSES

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Deputy Dean (Development)
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Universiti Malaya

1. SUMMARY OF FINDINGS

To develop an Energy Performance Assessment Checklist for the GreenRE Auditor as the initial aim of this research, a preliminary review of the characteristics of a total of 40 Energy Performance Benchmarking (EPB) tools from 20 countries was conducted. EPB tools were classified into 4 categories, i.e., Country, Target Audience, Calculation Method, and EE Measures. Findings showed that 6 out of 40 studied EPB tools were designed particularly for the energy Auditors; the scope of this research. The majority of the energy Auditors employ Empirical Data-Driven method (4 tools), followed by the Pre-Simulated databases method (2 tools). EE measures used by these tools for retrofit assessment were explored under 6 major categories and are illustrated in Figure 1. Of the 6 measures, the Building Envelope measure has been employed the most, and the Occupant Behaviour the least.

According to the findings of the milestone 01 and milestone 02 of this research work and discussions with the GreenRE Research Team, 2 out of 6 studied benchmarking tools were determined as the successful sample models. They embody the most amenability criteria to be further investigated and breakdown the EE measures to indigenize the assessment tool based on the research aim and the tropical climate of Malaysia. Accordingly, a list of EE retrofit measures was derived and proposed as follows to generate the EE Assessment Checklist for GreenRE Auditor in compliance with the GreenRE (2021) ***'Design Reference Guide – Residential Building & Landed Home – Version 3.2' and the Malaysia Standard (MS2680, 2017) 'Energy efficiency and use of renewable energy for residential buildings – Code of practice – clause 5':***

1. Building envelope
2. Electric lighting (Artificial lighting system)
3. EE equipment for cooling (Cooling system)
4. EE equipment for hot water (Hot water system)
5. Renewable energy

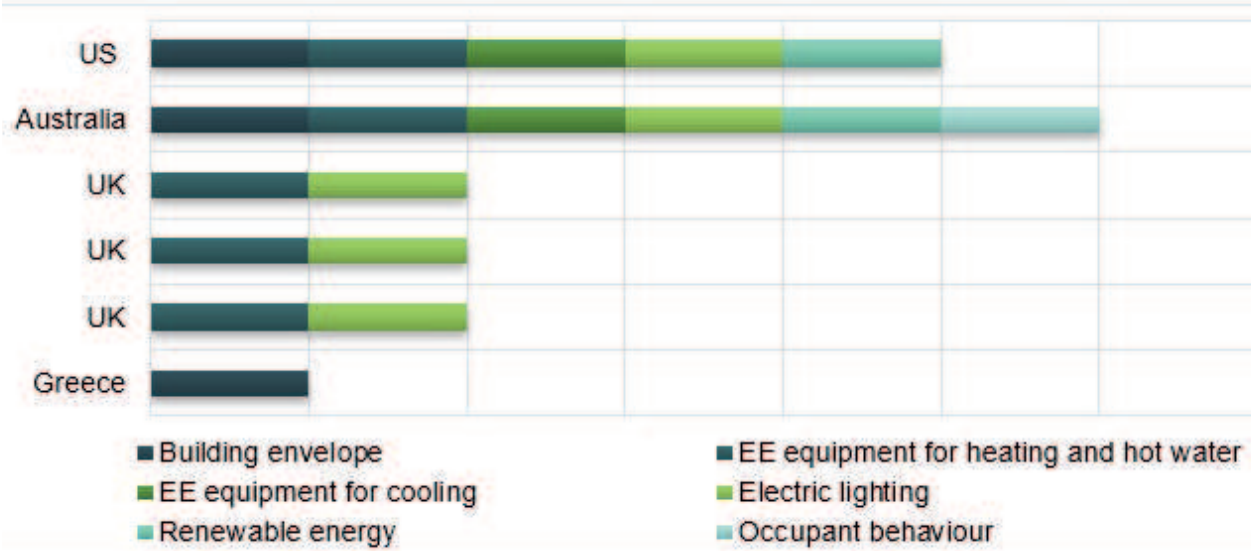

Figure 1. EE measures of EPB tools for the energy Auditors

2. EE ASSESSMENT CHECKLIST FOR GREENRE AUDITOR

The checklist design is based on the simplifying the data collection process at the preliminary stage of retrofit evaluation. It was discussed and confirmed that the EE checklist should be easy-to-use and time efficient for the Auditor, but not for non-experts. It should be performed accurately by a Certified Energy Auditor trained by the GreenRE, but not to the expense of slowing down the inspection process.

The checklist is divided into two main parts: (i) a simple survey questionnaire to be filled up by the homeowner as the occupancy assessment, (ii) on-site building assessment (two-hour inspection) by the Auditor as the condition survey and energy report (Figure 2). The four (4) main categories of EE measures to collect and record are as follows:

A. General Characteristics: building address, year of construction, home type, orientation, etc.,
B. Available Data: electricity bills, architectural drawings, building specifications, etc.,
C. EE Measures: five (5) EE measures, based on literature review findings and in compliance with GreenRE guideline,
D. Electrical Appliances: in compliance with MS2680.

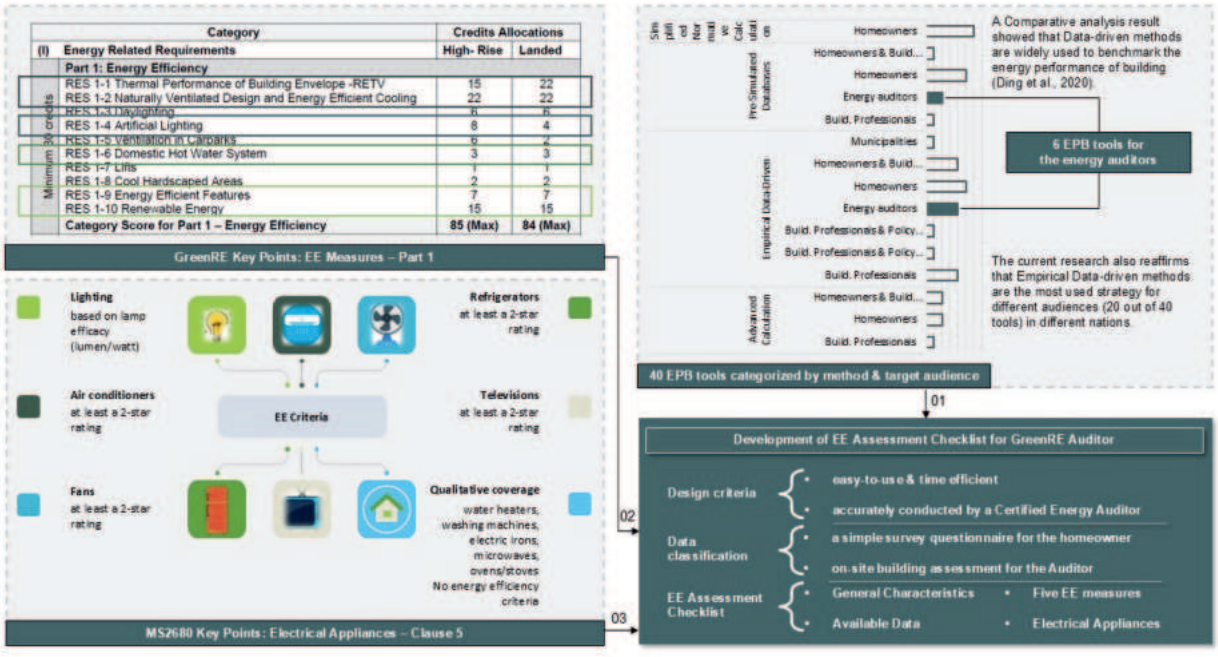

Figure 2. Research process diagram

3. FUTURE PROSPECTS

The EE assessment checklist preparation was the first step in the EE retrofit process to improve the energy efficiency of the property. The checklist was designed systematically to enable responses to be transferred into a user-friendly app to generate EE Label Scores for Pre-retrofit and Post-retrofit scenarios based on the electricity consumption values (kWh/m2) for the future prospect as the Milestone 04 (Figure 3). The app can be used on-site by the Auditor in the future to further enhance effectiveness and efficiency of the audit processing time.

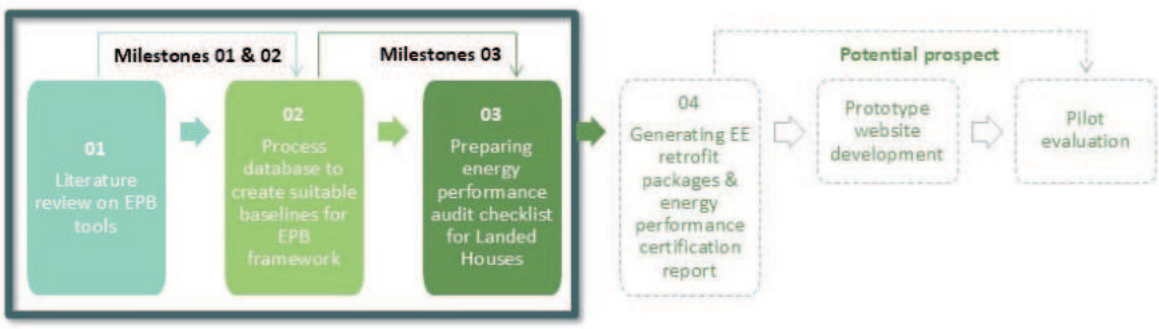

Figure 3. Research milestones and future prospects

TOOLKIT UPDATES

1.0 BUILDING ENERGY INTENSITY CALCULATION – UPDATE

The calculation of Building Energy Intensity (BEI) must exclude contributions from renewable energy replacement.

For Existing Non-Residential Buildings (ENRB v3.3), the BEI benchmarking option for the prerequisite will be based on the Building Energy Intensity calculation excluding renewable energy replacement.

All revised tools will be made available on the GreenRE website.

2.0 RESIDENTIAL BUILDING AND LANDED HOME VERSION 3.3 - UPDATE

Point Scoring for Residential Landed (Individual Title) Developments:

RES 1-4: Artificial Lighting

Points cannot be scored for non-gated and guarded developments as there is no common area to assess.

RES 1-9: Energy Use Intensity (EUI) for Common Areas

No EUI requirements are applicable for common areas in this category.

RES 6-1(a): Operational Carbon Computation

Only the operational carbon for the residential units needs to be calculated.

3.0 DATA CENTRE UPDATE OF PRE -REQUISITE REQUIREMENT UPDATE

Updated Prerequisite Requirements for GreenRE Gold and Platinum Certifications

GreenRE has updated the prerequisite requirements for data center projects seeking Gold and Platinum certifications to enhance energy efficiency and sustainability.

Energy Modelling

Projects must utilize a computer simulation model to evaluate the energy performance of the proposed data center facility and its systems. PUE performance of the data center shall be determined using energy modelling software at the 25%, 50%, 70% and 100% of IT load for Gold and Platinum Rating and comply to the PUE stipulated in the PUE Curve above.

- **GreenRE Gold:**
  Projects must comply with specific PUE values at various IT load points (25%, 50%, 75%, and 100%).
- **GreenRE Platinum:**
  Projects must comply with specific PUE values at various IT load points (25%, 50%, 75%, and 100%).

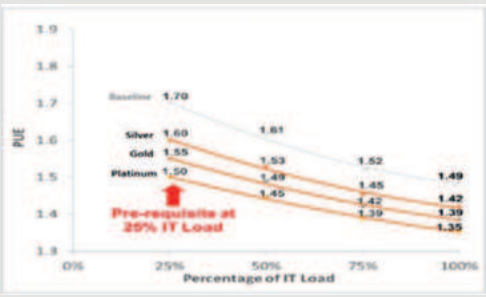

Figure1. PUI Compliance Curve

For comprehensive details, including the specific PUE values and energy modeling requirements, please refer to the GreenRE New Data Centre Design Reference Guide, available on the official GreenRE website.

4.0 LIST OF GREEN FEATURES - UPDATE

GreenRE has reviewed and updated the list of green features eligible for certification. Effective immediately, the following features will no longer be accepted as Green Features:

- **Precast Culvert Drain**
- **Steel with Recycled Content in Rebar**
- **Aluminium Recycled Content in Window and Door Frames**
- **Indoor Air Quality Audit for Residential Developments**
- **Virtual Show Gallery**
- **ESG Reporting**
- **No Plastic Campaign During Construction**

These updates aim to align with current sustainability practices and industry standards.

FEBRUARY

18-19	**GreenRE Technical Seminar 01-2025 on Green Data Centre** *Online*
22	**GreenREAPC 39 - Assessment** *Wisma REHDA, Petaling Jaya*

MARCH

	GreenRE Technical Panel Meeting (2025-01) *Wisma REHDA, Petaling Jaya/ Online*

APRIL

15-17	**GreenRE Accredited Professional's Course No. 40** *Johor Bahru/Online*
	GreenRE Advisory Panel Meeting *Petaling Jaya*

MAY

16	**GreenREAPC 40 - Assessment** *Johor Bahru*
21@22	**GreenRE Technical Seminar 02-2025** *Wisma REHDA, Petaling Jaya*

JUNE

13	**Training Panel Meeting / Technical Panel** *Wisma REHDA, Petaling Jaya*
18-19	**GreenRE Technical Seminar 03-2025 on ACMV** *Online*

JULY

1-3	**GreenRE Accredited Professional's Course No. 41** *Petaling Jaya/Online*

AUGUST

1@2	**GreenREAPC 41 - Assessment** *Wisma REHDA, Petaling Jaya*
5	**GreenRE Refresher Course 2025** *Online*
	Pre-GBCGreen Tour (in collaboration with RY) *Online*
19	**5th International Green Build Conference, IGBC 2025** *Kuala Lumpur*

SEPTEMBER

9-11	**GreenRE Accredited Professional's Course No. 42** *Sarawak/Online*

OCTOBER

8	**GreenRE Technical Seminar 04-2025** *Wisma REHDA, Petaling Jaya*
11	**GreenREAPC 42 - Assessment** *Sarawak*

NOVEMBER

	Sustainable Design Awards (SDA) 2025 in conjunction with REHDA Annual Dinner *One World Hotel, Petaling Jaya*
4-6	**GreenRE Accredited Professional's Course No. 43** *Petaling Jaya/Online*

DECEMBER

5-6	**GreenREAPC 43 - Assessment** *Wisma REHDA, Petaling Jaya*
	GRE Technical Panel Meeting (2025-03) *Petaling Jaya*

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PLATINUM

Project Name & Location	Company	Design Ref	Type of Cert	Date of Cert
Plot 16 D	Persada Mentari Sdn Bhd	RES v3.2	Provisional	29/7/2024
Elmina Experience Sales Gallery & Integrated Operation Office	Sime Darby Property (Elmina Lakeside Mall) Sdn Bhd	NRB v3.2	Provisional	23/9/2024
UHP Green Feature House	Urban Hallmark Properties Sdn Bhd	RES v3.0	Actual	11/9/2024
Botanik Point	Urban Hallmark Properties Sdn Bhd	RES v3.3	Provisional	26/11/2024
Wetlands Arboretum Centre	Gamuda Land Sdn Bhd	EC v1.0	Actual	15/11/2024
Sunway University - New University Block	Sunway REIT Management Sdn Bhd	ENRB v3.2	Actual	23/12/2024
W Kuala Lumpur	W Kuala Lumpur	ENRB v3.3	Actual	24/12/2024
Design Village	PE Land (Penang) Sdn Bhd	ENRB v3.3	Actual	27/12/2024

GOLD

Project Name & Location	Company	Design Ref	Type of Cert	Date of Cert
Isola Coast (Phase B3C & B3D)	Senibong Cove Development Sdn Bhd	RES v3.2	Provisional	1/7/2024
Waterway Peaks (B5B6 Apartment	Senibong Cove Development Sdn Bhd	RES v3.2	Provisional	4/7/2024
Uptown Residence 2	Berkeley Sdn Bhd	RES v3.2	Provisional	15/7/2024
KL East Phase 5	Sime Darby Property (KL East) Sdn Bhd	RES v3.2	Provisional	24/7/2024
Setia Federal Hill Parcel 1A-B	Setia MF SFH Development Sdn Bhd	RES v3.2	Provisional	10/7/2024
North Wood Residennces	Gamuda Land (T12) Sdn Bhd	RES v3.3	Provisional	9/8/2024
Kulim Logistics Hub	PKT Logistics (M) Sdn Bhd	IND v1.0	Provisional	2/9/2024
Kews Senibong	Kews Senibong Sdn Bhd	TS v1.0	Provisional	22/10/2024
Arte Star	Suriamega Developmnet Sdn Bhd	NRB v3.2	Provisional	5/9/2024
Kyliez Suites @ KL City Centre	Exsim Avenue Sdn Bhd	RES v3.3	Provisional	12/11/2024
Rehda Institue	Rehda Institute	INT v2.0	Actual	26/11/2024
Retail Podium @ KL Midtown	KL Midtown Sdn Bhd	NRB v3.0	Provisional	19/12/2024
The Peak	Damansara Peak Sdn Bhd	RES v3.2	Provisional	26/12/2024
Platinum South Valley 2 (PSV 2) Residences	Pembinaan Serta Hebat Sdn Bhd	RES v3.2	Provisional	19/12/2024
Axis Mega Distribution Centre 2 (AMDC2)	RHB Trustees Berhad (As Trustee fro Axis Real Estate Investment Trust)	IND v1.0	Actual	19/12/2024
D'Buaya	M/S Syarikat Petikemas Sdn Bhd	IND v1.1	Actual	20/12/2024
D'Rock	M/S Syarikat Petikemas Sdn Bhd	IND v1.1	Actual	24/12/2024
The Gardens North Tower	IGB Property Management Sdn Bhd	ENRB v3.3	Actual	26/12/2024
The Garden South Tower	IGB Property Management Sdn Bhd	ENRB v3.3	Actual	26/12/2024

SILVER

Project Name & Location	Company	Design Ref	Type of Cert	Date of Cert
Quayside Plaza, TwentyFive7	Gamuda Land (Kemuning) Sdn Bhd	RES v3.2	Provisional	22/7/2024
Hyatt Centric Kuala Lumpur (HCKL)	Sunrise Spring Sdn Bhd	ENRB v3.2	Provisional	10/7/2024
Ashwood	Paramount Property (Cityview) Sdn Bhd	RESv3.2	Provisional	29/7/2024
KAIA Heights - Phase 2	Sunrise Alliance Sdn Bhd	RES v3.2	Provisional	24/7/2024
M Azura	Jastamax Sdn Bhd	RES v3.3	Provisional	22/8/2024
Elmina Lakeside Mall	Sime Darby Property (Elmina Lakeside Mall) Sdn Bhd	NRB v3.2	Provisional	4/10/2024
The Shore, Ponderosa	Prinsip Alpha Sdn Bhd	RES v3.2	Provisional	25/10/2024
Avantro	Boon Koon Commercial Sdn Bhd	RES v3.3	Provisional	3/10/2024
Centrum Iris	Casa Inspirasi Sdn Bhd	Res v3.3	Provisional	13/10/2024
Pangsapuri Servis Aralia	Tetuan Palmington Sdn Bhd	RES v3.3	Provisional	28/10/2024
Petrol Station Kuala Ketil (KKCC Petronas)	Jesin Synergy Sdn Bhd	NRB v3.2	Provisional	8/11/2024
Sunway Pier	Sunway REIT Management Sdn Bhd	NRB v3.2	Provisional	15/11/2024
Bukit Jalil Plot 2	Exsim Jalil Link Sdn Bhd	RES v3.3	Provisional	8/11/2024
Klemeru Phase 4	Tetuan Eadepro Development Sdn Bhd	RES v3.3	Provisional	6/11/2024
Gen Starz	Majestic Gen Sdn Bhd (Trans Penang inn Sdn Bhd)	RES v3.3	Provisional	15/11/2024
Ardia Resdences	WCT OUG Development Sdn Bhd	RES v3.3	Provisional	13/11/2024
22 Quartz Residences	Irama Sanubari Sdn Bhd (Mitraland Group)	RES V3.3	Provisional	3/12/2024
The Shah Alam International Logistics Hub	Global Vision Logistics Sdn Bhd	IND v1.0	Provisional	19/12/2024
PGB Worker Hostel	Paragon Bizhub Sdn Bhd	RES v3.3	Provisional	9/12/2024
PGB Worker Hostel	Paragon Bizhub Sdn Bhd	RES v3.3	Provisional	9/12/2024
Klemeru Township	Tetuan Eadepro Development Sdn Bhd	TS v2.0	Provisional	19/12/2024
Aricia Residences	Aricia Sdn Bhd	RES v3.3	Provisional	24/12/2024
Axis Mega Distribution Centre	RHB Trustees Berhad (As Trustee fro Axis Real Estate Investment Trust)	EIND v1.0	Actual	26/12/2024

BRONZE

Project Name & Location	Company	Design Ref	Type of Cert	Date of Cert
Empire Park Kulai Phase 2	Landsco Resources Sdn Bhd	IND v1.0	Provisional	22/7/2024
CJ 11 Office	ITP Cjaya Sdn Bhd	NRB v3.2	Provisional	12/7/2024
Nova @ Seremban 2 Heights	Seremban Two Holdings Sdn Bhd	RES v3.2	Provisional	15/7/2024
Eco Horizon Australis	Eco Horizon Sdn Bhd	NRB v3.2	Provisional	29/7/2024
M Tiara	Venice View Development Sdn Bhd	TS v1.0	Provisional	4/7/2024
BRDB Semenyih	Pentagon Victory Sdn Bhd	RES v3.3	Provisional	26/7/2024
Wisdom Park	Wisdom Infinity Sdn Bhd	TS v1.0	Provisional	29/7/2024
Tropicana Alam Avisa Phase 2	Tropicana Alam Sdn Bhd	RES v3.3	Provisional	19/7/2024
Samariang Avenue Phase 2	Hornbill Networks Consortium Sdn Bhd	RES v3.3	Provisional	14/8/2024
Desa Cemerlang Industrial Park Plot 3	Paragon Platinum Sdn Bhd	IND v1.1	Provisional	21/8/2024
BSP Sutera (Apartment)	Seribu Baiduri Sdn Bhd	RES v3.2	Provisional	20/8/2024

BRONZE

Project Name & Location	Company	Design Ref	Type of Cert	Date of Cert
Gamuda Gardens Phase 7	Bandar Serai Development Sdn Bhd	RES v3.2	Provisional	21/8/2024
Tropicana Grandhill Twin Pines	Tropicana Sierra Sdn Bhd	RES v3.3	Provisional	27/8/2024
Sanderling 2	Lakefront Residence Sdn Bhd	RES v3.3	Provisional	8/8/2024
Vista Sentul Residences	Constant Premium Sdn Bhd	RES v3.2	Actual	15/8/2024
Versa Apartment	Aspen Vision City Sdn Bhd	RES v3.2	Provisional	2/9/2024
Residensi Aidia	Sime Darby Property (City of Elmina) Sdn Bhd	RES v3.2	Provisional	30/9/2024
Gravit8 Phase 3 - The Riva	Vibrantline Sdn Bhd	RES v3.2	Provisional	4/9/2024
Eco Business Park 6	Eco Business Park 6 Sdn Bhd	TS v1.0	Provisional	11/9/2024
Iringan Bayu	Aspect Synergy Sdn Bhd	TS v1.0	Provisional	16/10/2024
Residensi Polo	Mayang Tiasa Sdn Bhd	RES v3.2	Provisional	5/9/2024
Palm Hill Residencs Sdn Bhd	KEB Land Sdn Bhd	RES v3.2	Provisional	18/9/2024
Desa Cemerlang Industrial Park Plot 4	Paragon Platinum Sdn Bhd	IND v1.0	Provisional	20/9/2024
M Legasi	Mah Sing (MESTIKA BISTARI SDN BHD)	TS v1.0	Provisional	30/10/2024
Armani Signature Residence	Golden Armani Sdn Bhd	RES v3.3	Provisional	4/10/2024
Bamboo Hills Residence	Concord Housing Development Sdn Bhd	RES v3.3	Provisional	20/9/2024
Batiq @ S2 Heights Aman	Seremban Two Holdings Sdn Bhd	RES v3.3	Provisional	21/10/2024
Quaver Residence	Quaver Sdn Bhd	RES v3.3	Provisional	20/9/2024
Covo Residences	Lush Development Sdn Bhd	RES v3.3	Provisional	18/9/2024
Hana Hills	OSK Property Holdings Berhad	RES v3.3	Provisional	29/10/2024
Park Green Pavilion Bukit Jalil	Regal Path Sdn Bhd	RES v3.3	Provisional	15/10/2024
Bayu @ Mori Park	Mori Park Sdn Bhd	RES v3.3	Provisional	16/10/2024
SkySanctuary Silverlake	SkySanctuary Development Sdn Bhd	RES v3.3	Provisional	14/10/2024
Cybersouth 5B	Casa Boulevard Sdn Bhd	RES v3.3	Provisional	24/10/2024
Suria Hill Phase 1A	Shah Alam 2 Sdn Bhd	RES v3.3	Provisional	17/10/2024
Atwater Office Tower A	Paramount Property Development Sdn Bhd	NRB v3.1	Provisional	21/11/2024
Solarvest Office Tower	BK Alliance Sdn Bhd	NRB v3.2	Provisional	14/11/2024
Taman Austin Duta Phase 2	IJM Properties Sdn Bhd	RES v3.3	Provisional	15/11/2024
Phase 6A South	Bandar Eco-Setia Sdn Bhd	RES v3.2	Provisional	11/11/2024
Menara Desa	Glowbest Sdn Bhd	NRB v3.2	Provisional	26/11/2024
ATS Armani Industrial Park Kajang	ATS Armani Development Sdn Bhd	IND v1.1	Provisional	20/11/2024
Elysian, Ho Ching Minh City	Troung Tin Construction and Housing Trading Company Limited	RES v3.3	Provisional	8/11/2024
Quayside Mall (QSM)	Gamuda Land Sdn Bhd	EC v1.0	Actual	15/11/2024
ATWATER Office Tower B	Paramount Property Development Sdn Bhd	NRB v3.0	Provisional	12/12/2024
Thung Hing Industrial Trading Sdn Bhd	Thung Hing Industrial Trading Sdn Bhd	IND v1.0	Provisional	3/12/2024
Residensi Renaisans Bukit Jalil	Gaya Kuasa Sdn Bhd	RES v3.3	Provisional	16/12/2024
Sea Crestz @ Kuantan Waterfront Resort City	Kuantan Waterfront Resort City Sdn Bhd	RES v3.3	Provisional	12/12/2024
Sejati Residences PH4	Paramount Property (Cjaya) Sdn Bhd	RES v3.3	Provisional	19/12/2024
Adison	WCT Green Sdn Bhd	RES v3.3	Provisional	17/12/2024
Utama Park Residence Phase 2A & Utama Park Residence Phase 2B	IJM Properties Sdn Bhd	RES v3.2	Actual	16/12/2024
Axis Aerotech	RHB Trustees Berhad (As Trustee for Axis Real Estate Investment Trust)	EIND v1.1	Actual	26/12/2024

CERTIFICATE NO	NAME	COMPANY
GREENREAP0525	MUHAMMAD AFFIF BIN ISKANDAR FITRI	G-ENERGY (M) SDN BHD
GREENREAP0526	TEH JIA MEI	MI EQUIPMENT SDN BHD
GREENREAP0527	NUR SYAHIRAH BINTI MOHD RADZI	AIRSCAN SDN. BHD.
GREENREAP0528	NURUL AMIRAH BINTI ZULKIFLEE	GAMUDA ENGINEERING SDN. BHD.
GREENREAP0529	ELAINE KOH	ALLIED ENVIRONMENTAL CONSULTANTS MALAYSIA SDN BHD
GREENREAP0530	MUHAMAD SYAZANI BIN MOHD HIZAN	WK & PARTNERS CONSULT SDN BHD
GREENREAP0531	PUN E-MEN	ELCO ENERGY SOLUTIONS SDN. BHD.
GREENREAP0532	PRIYATHARISHINI MARDARVERAN	VERITAS ENVIRONMENT
GREENREAP0533	SOON AI SHIEN	EXSIM DEVELOPMENT SDN. BHD.
GREENREAP0534	HENG PENG SIN	SUNWAY SOUTHERN MANAGEMENT SDN BHD
GREENREAP0535	LEE MAW JIA	GSD ARCHITECT
GREENREAP0536	IR. TS. HEW WENG SAN	TNB GLOBAL BUSINESS SOLUTION
GREENREAP0537	WAN HANAFIAH ASYRAF BIN WAN BADRUL HISHAM	AVALAND BHD
GREENREAP0538	SOO NING CHYANG	VERITAS ARCHITECTS SDN BHD
GREENREAP0539	IR. ALEX MAH WAI LEONG	O&A CONSULT SDN BHD
GREENREAP0540	NAJLAN BIN ISMAIL	RANHILL RESEKUTU SDN BHD
GREENREAP0541	AHMAD FAIZ BIN HASSAN NAZIRI	RAFFLES UNIVERSITY, JOHOR
GREENREAP0542	LOONG SEH SIANG	FESTIVA MALL SDN. BHD.
GREENREAP0543	AW SIEW BEE	TRINITY GROUP SDN. BHD.
GREENREAP0544	POON LAI GUAN	5 SENSE SPACE DESIGN
GREENREAP0545	NG TIAN YI	TAK GROUP OF COMPANIES
GREENREAP0546	IR. KALAIKUMAR A/L VALLYUTHAM	PETRONAS, GTS
GREENREAP0547	ZAMZUL KHAIRI BIN ZULKIFLI	MALAYSIA BOARD OF TECHNOLOGISTS
GREENREAP0548	YONG CHIAN CHAI	ARUP JURURUNDING SDN. BHD.
GREENREAP0549	PHUAH YI LING	Q&C JURUKUR PERUNDING
GREENREAP0550	SAM GUO RONG	TRIPLE H CONSTRUCTION & ENGINEERING SDN BHD
GREENREAP0551	ANG XIANG TING	SUNWAY SOUTHERN MANAGEMENT SDN BHD
GREENREAP0552	LIM YOU SHENG	SENIBONG COVE DEVELOPMENT SDN BHD
GREENREAP0553	LEE SEE WEI	EXSIM DEVELOPMENT SDN BHD
GREENREAP0554	KHAIZURAN FYRDAUS BIN AZLAN ZAHARI	G-ENERGY (M) SDN BHD
GREENREAP0555	MOHAMAD ADIB AIMAN BIN MOHD MONTARE	NEAPOLI SDN BHD
GREENREAP0556	KASTURI A/P LETCHUMANAN	GBI INNOVATION SDN BHD
GREENREAP0557	SOFIAH BINTI AHAMAD KAMAL	PETROLIAM NASIONAL BERHAD
GREENREAP0558	PINKY TAN JUN INN	VERITAS DESIGN GROUP
GREENREAP0559	SHAHIRAH BINTI BAHAROM	99 SPEEDMART SDN BHD
GREENREAP0560	MUHAMAD HAFIZ BIN MAT KASA	STC PROPERTY MANAGEMENT SDN BHD
GREENREAP0561	MOHAMMAD ISKANDAR BIN ABD RAZAK	VERITAS ARCHITECTS SDN. BHD.
GREENREAP0562	HUI WAI YAN	EXSIM DEVELOPMENT SDN BHD

CERTIFICATE NO	NAME	COMPANY
GREENREAP0563	MOHAMAD ZAZUAN BIN MOHAMED ZAKARIA	AVALAND BHD
GREENREAP0564	PUON SWEE HOONG	DITROLIC ENERGY HOLDINGS SDN BHD
GREENREAP0565	IR MOHAMED AZMI BIN SALIM	JURUTERA PERUNDING AZFA
GREENREAP0566	MUHAMAD HAFIZUDDIN BIN ZULKIFLI	MYHOMEPALM INTEGRATED SDN. BHD.
GREENREAP0567	KAZRENA NALIA BINTI MAT DAUD	N/A
GREENREAP0568	MOHD ADIB BIN OMAR	PETROFAC RNZ
GREENREAP0569	DR. ELAINE WHY SIEW KUAN	DME SOLUTIONS SDN. BHD.
GREENREAP0570	MAK KAH WEE	GMT CONSULTING ENGINEERS
GREENREAP0571	OO LAY SAN	BEE ARCHITECT
GREENREAP0572	TAY LEE PENG	CIVIL & STRUCTURAL INTEGRITY ONSHORE GROUP TECHNICAL SERVICES
GREENREAP0573	ARYTON KONG TZE KHIANG	TEO A. KHING DESIGN CONSULTANTS
GREENREAP0574	NG HUI LIH	RDC ARKITEK SDN BHD
GREENREAP0575	THIVYAH SUBRMANIAM	ESD GREENTECH SDN BHD
GREENREAP0576	AR. CHONG LINXIN	EXSIM DEVELOPMENT SDN BHD
GREENREAP0577	CHOONG WEI LI	FUTURGROUND DESIGN SDN BHD
GREENREAP0578	SIOW JAT SHERN	ALLIANCE MEP SDN. BHD.
GREENREAP0579	KHAIRUL FAIZAL BIN ISMAIL	TAYLOR'S EDUCATION GROUP ASSETS SDN BHD
GREENREAP0580	TAN ZHI JIE	RDC AKITEK (KL) SDN BHD
GREENREAP0581	LUCAS AU YONG ZHEN QUAN	TAK GROUP OF COMPANIES
GREENREAP0582	LOW LOKE KIONG (VINCENT)	G-ENERGY GLOBAL
GREENREAP0583	LEE WEI SIANG	RDC ARKITEK SDN BHD
GREENREAP0584	MIMI NUR LAILY BINTI MAJID	PETRONAS
GREENREAP0585	CHUA JIAN WEN	GBI INNOVATION SDN BHD
GREENREAP0586	NUR MARYAM BINTI ISMAIL	GREENRE SDN BHD
GREENREAP0587	NG KOK KIN	ESD GREENTECH SDN BHD
GREENREAP0588	AR. LAU YIN HON (ANTHONY)	VERITAS ARCHITECTS SDN BHD
GREENREAP0589	MOHAMAD WAZIR SHAFIX BIN OSMAN	KOLEJ KEMAHIRAN TINGGI MARA SRI GADING
GREENREAP0590	AHMAD FAREEZ BIN YAACOB @ ALI	ARKITEK A FAREEZ
GREENREAP0591	LING YI XIN	GEN ENGINEERING CONSULTANTS SDN. BHD.
GREENREAP0592	LING TIEN HENG	ECOWORLD DEVELOPMENT GROUP BERHAD
GREENREAP0593	AINUL NABEEL FIKRI BIN AINUL ZUHAIRI	ISKANDAR INVESTMENT BERHAD (IIB)
GREENREAP0594	CHONG HOC MUN	SUNWAY PROPERTY
GREENREAP0595	NUR ZATUL AIESHA BINTI JAMAL	DME SOLUTIONS SDN BHD
GREENREAP0596	WONG YAN CE	AXIAL DESIGN ARCHITECTS
GREENREAP0597	AZZUIN BINTI AMER	SUNWAY ISKANDAR SDN BHD
GREENREAP0598	NUR ADILA ABU BAKAR	SUNWAY PROPERTY
GREENREAP0599	AMMIRA ATIQA BINTI AMIR HAMZAH	SUNWAY PROPERTY
GREENREAP0600	NORDIANY BT MOHD ALI	SUNWAY MANAGEMENT SDN BHD
GREENREAP0601	CHENG LI MIN	HWA HIN SDN BHD
GREENREAP0602	NAJWA IZZATI BINTI ZAHARI	SUNWAY PROPERTY

CERTIFICATE NO	NAME	COMPANY
GREENREAP0603	QUEK JIN HAN	SUNWAY CITY JB
GREENREAP0604	CHIN LEE YI	TIMBER LAND PROPERTIES SDN. BHD.
GREENREAP0605	CHAI YEE FANG	TIMBER LAND PROPERTIES SDN. BHD.
GREENREAP0606	NURUL SUHAIDA BINTI SAMAD	SCM INTERNATIONAL PROPERTY MANAGEMENT SDN BHD
GREENREAP0607	SYAHRUL NIZAM BIN MAARUP	KOLEJ KEMAHIRAN TINGGI MARA SRI GADING
GREENREAP0608	NURAIHAN KAMARUDIN	SUNWAY PROPERTY
GREENREAP0609	LAR DR SITI RAHMAH BINTI OMAR	UNIVERSITI TEKNOLOGI MALAYSIA (UTM) JOHOR BAHRU
GREENREAP0610	MD RAZIF BIN MANAP	SCM INTERNATIONAL PROPERTY MANAGEMENT SDN BHD
GREENREAP0611	FAREHAN BORHAN	SUNWAY INTEGRATED PROPERTY

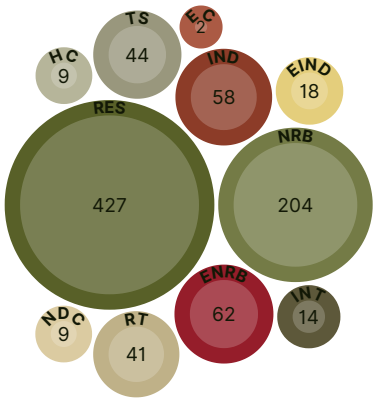
GREENREAP

Congratulations

MEMBERS & WELCOME ON BOARD

Project Registered

As of December 2024



Legend

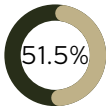
- Residential (RES)
- Non Residential (NRB)
- Existing Non Residential (ENRB)
- Healthcare Facilities (HC)
- Industrial Facilities (IND)
- Existing Industrial Facilities (EIND)
- Office Interior (INT)
- Data Centre (NDC)
- Retail (RT)
- Township (TS)
- Enegry Certificate (EC)

Project Certified

515 out of 888 projects registered are certified as of December 2024

Certified Buildings

30,229,076.53 sqm out of 46,874,831.36 sqm of buildings are certified as of December 2024

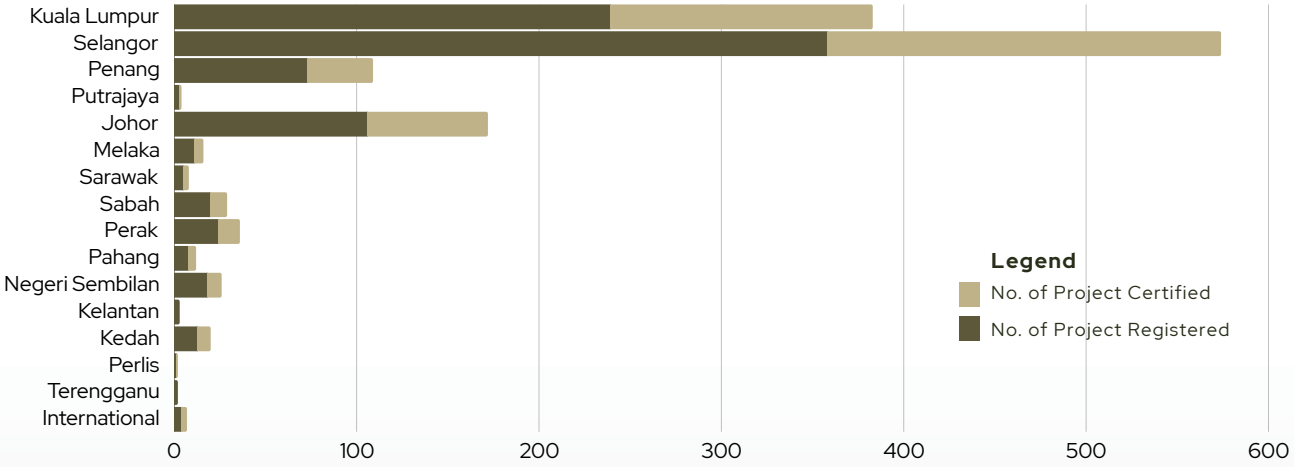


Certified Township

11,848.07 acres out of 19,251.438 acres of townships are certified as of December 2024

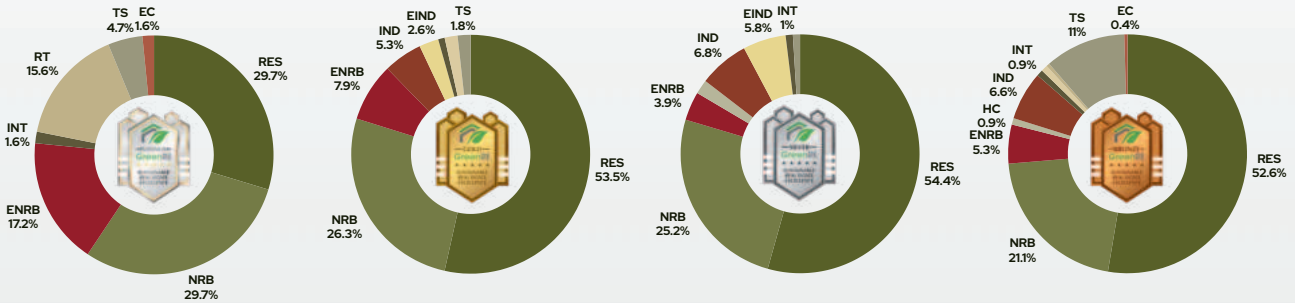
Project Distribution

As of December 2024



Projects Certified by Rating

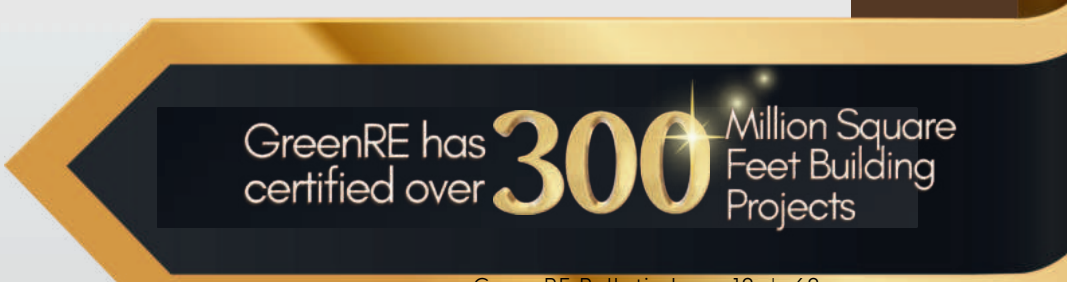
As of December 2024



Legend

Residential (RES) | Non Residential (NRB) | Existing Non Residential (ENRB) | Healthcare Facilities (HC) | Industrial Facilities (IND) | Existing Industrial Facilities (EIND) | Office Interior (INT) | Data Centre (NDC) | Retail(RT) | Township (TS)

GreenRE is proud to announce that we have certified 300 million square feet of real estate. With a portfolio of almost 1000 projects in Malaysia and the region, GreenRE is rapidly transforming environmental stewardship in the region.



GreenRE 10th Anniversary Coffee Table book, hardcover edition, is now available for purchase. Contact info@greenre.org for more information.

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