Issue 4 (July-December 2020)

GREENRE BUILD

SEMI - ANNUAL BULLETIN

Over 100 million sqft certified

GreenRE is proud to announce that we have certified over **70 million sqft** of buildings and **2000 acres** of townships as of December 2020

1st Platinum Rated GreenRE Certified Petrol Station

Reimagining the **Workplace After COVID-19**

Paramit Factory: **Award-Winning Factory in the Forest**

Insight: **Malaysia's Commercial Green Buildings**

Foreword

Dear Readers,

Welcome to the year-end edition of the GreenRE Build for 2020.

In the past year we have experienced an unprecedented chain of events brought about by COVID-19. We have had to change the way we work, play and live. Moving forward, we must ensure our built environment is future proofed for the foreseen and unforeseen calamities of climate change and pandemics. We have to embrace the "build back better" mantra to achieve the twin aims of rejuvenating the property sector in Malaysia and reducing its impact to the surrounding environment.

It is undeniable that technology advancement is the key to future proofing the construction and real estate industry enabling affordability and sustainability. With initiatives such as the Construction Revolution Blueprint and Construction Transformation Programme by the Government, greater use of Industrialised Building Systems (IBS), Building Information Modelling (BIM), automation and smart technologies are imperative in the construction industry green revolution. Projects that incorporate these solutions will also score additional points in green building certification standards such as GreenRE.

Despite the challenging setbacks due to COVID-19, it is encouraging to note that we have had an increase in number of green projects this year. GreenRE's project portfolio has reached 230 registered projects encompassing more than 100 million square feet. GreenRE carried out all its signature courses online, ie. GreenRE Manager's Courses (No 21-23) and Technical Seminars. Additionally, in an effort to raise awareness on green buildings, GreenRE also carried out three free Sustainability Webinars. We appreciate your continued support for our endeavours to promote sustainability in the real estate industry.

Finally, our sincere appreciation to GreenRE Advisory Panel (GREAP), Technical Panel and Training Panel.

Moving forward, let us embrace the tides of change and evolve our businesses to roll with the punches that is the 'new normal'.

Best Wishes for 2021.

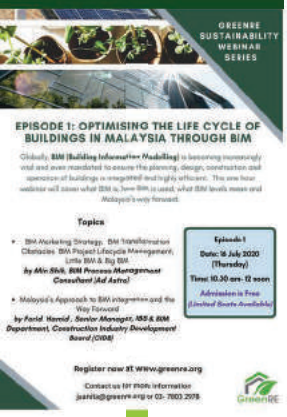
Datuk Soam Heng Choon
REHDA President & GreenRE Board Member

Content

GreenRE Sustainability Webinar Series 2020

With climate change having an undeniable impact on the way we plan and manage cities, buildings and construction projects will need to take into account all available technologies and best practices to ensure a cleaner and greener environment. GreenRE held free webinars as part of our Sustainability Awareness Campaign in 2020.

Episode 1



OPTIMISING THE LIFE CYCLE OF BUILDINGS IN MALAYSIA THROUGH BIM, 16th July 2020

Globally, BIM (Building Information Modelling) is becoming increasingly vital and even mandated to ensure the planning, design, construction and operation of buildings is integrated and highly efficient. This one-hour webinar covered what BIM is, how BIM is used, what BIM levels mean and Malaysia's way forward.

Speakers & Topics:

BIM Marketing Strategy, BIM Transformation Obstacles, BIM Project Lifecycle Management, Little BIM & Big BIM *by Min Shih BIM Process Management Consultant (Ad Astra)*

Malaysia's Approach to BIM integration and the Way Forward *by Farid Hamid, Senior Manager, IBS & BIM Department, Construction Industry Development Board (CIDB).*

Episode 2

INDOOR LIGHTING FOR WELL-BEING, 21st AUGUST 2020

Since the 1800s, electric light has illuminated the path towards longer days and shorter nights. We now spend over 90% of our time indoors, highly dependant on artificial lighting. Although the benefits of natural light are profound, artificial lighting that was traditionally developed to support our visual responses, is now being revolutionised to support our non-visual responses too as we live and work indoors. This one hour webinar covered the impact of artificial lighting on human well-being, benefits of human-centric lighting and the latest technology for efficient lighting.

Speakers & Topics:

Healthy Indoor Lighting - What it is & why it matters? *by Ar. Dr. RatnaKala Sithravel, the Architectural Network (Malaysia)*

Optimising Artificial Lighting for Healthy & Energy Saving Buildings *by Mr Wilfried Pohl, Bartenbach GmbH (Austria)*

Episode 3

TOWARDS A LOW CARBON REAL ESTATE INDUSTRY, 2nd OCTOBER 2020

In recent years, there is a heightened interest on climate change risks to real estate development. Many are concerned on how the property sector could be affected by variable climate and related extremes, as well as policies adopted to combat greenhouse gas (GHG) emissions. Climate change poses a significant risk towards property damage and increased property life cycle cost. Furthermore, property prices and growth may be affected by the government policy of 45% GHG emission reduction by year 2030. This one-hour webinar covered climate change risks and Malaysia's climate change policy direction and targets. It also discuss the potential impacts on Malaysia's real estate sector and the adoption of necessary mitigation measures.

Speakers & Topics:

Climate Change & the Property Industry in Malaysia *by Mr Ismail b. Haji Abdullah, President & CEO International Green Training Centre (IGTC)*

Malaysia's Carbon Initiatives and the Local Agenda *by Mr S. Ramesh V. Subramaniam, Asst General Manager, IJM Corporation Berhad*

Malaysia Urban Forum (MUF) 2020

28th - 30th September 2020

Malaysia Urban Forum (MUF) 2020 was a national level forum aiming to promote inclusive debates and discussions towards developing and improving sustainable urbanisation strategies, policies and programmes.

GreenRE was invited to participate in the Urban Resilience and Low Carbon forum held on 28th September 2020. GreenRE was represented by Ir Ashwin Thurairajah who presented a paper on Energy and the Built Environment. He covered aspects of green buildings that play a vital role in achieving our national carbon reduction targets. Other panellist included, Ms. Alissa Raj (C40 Cities), Mr. Jeh (ITP), Ms. Sofia (ThinkCity) and Mr. Norizal (GTALCC). With a number of government agencies and stakeholders involved, it is crucial that an integrated and coordinated effort is in place.

Low Carbon Cities Webinar by MGTC & KASA

Low Carbon Cities is an initiative by the Malaysian Green Technology and Climate Change Centre (MGTC) under the Ministry of Environment and Water (KASA) to help Local Authorities make the shift towards low carbon cities by referencing the Low Carbon Cities Framework (LCCF). MGTC organised a 6-part webinar series for local authorities across Malaysia in the second half 2020.

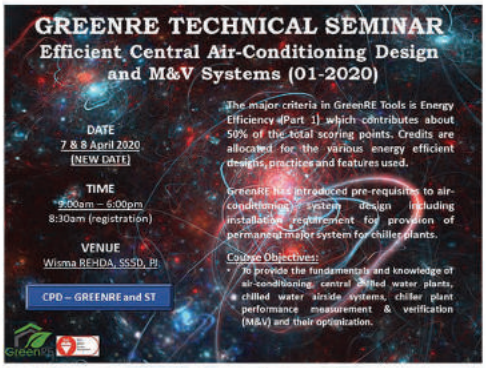
GreenRE was represented by Ir. Ashwin Thurairajah and Ms. Juanita Lourdes who presented papers on Greening Commercial Buildings, Indoor Environmental Quality In The New Pandemic Era and The Business Case For Green Buildings In Malaysia.

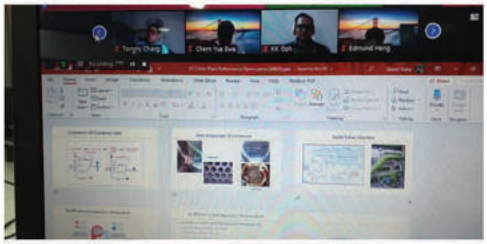
Local authority engagement is a key part of GreenRE's sustainability agenda in order to foster awareness on the benefits of green buildings.

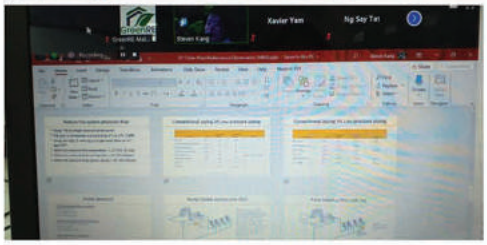
GreenRE Technical Webinar (GRETW)

Efficient Central Air-Conditioning Design and M&V Systems

6th to 8th July 2020







GreenRE has successfully organised the first online Technical Seminar on Efficient Central Air-Conditioning Design and M&V Systems. It was held 6th to 8th July 2020 via Zoom.

The course was split into 4-hour sessions per day. This was the second intake of the ACMV Technical Seminar, the first intake was held in Wisma REHDA early 2020. These courses were conducted by Mr Steven Kang, Director of Business Development for Measurement & Verification Pte. Ltd. He is a Certified Green Mark Professional, Singapore Certified Energy Manager, US Certified Energy Manager and LEED Accredited Professional. Well experienced in the field of designing efficient air conditioning systems, Mr Kang conducts in-depth trainings on HVAC design and optimisation to ESCOs, consultants and building owners throughout Asia.

GreenRE's ACMV course aims to provide an understanding of the fundamentals of air-conditioning measurement and verification (ACMV) and its optimisation. The course covers topics such as Central Chilled Water Plants, Chilled Water Airside Systems, Energy Efficient Water & Air Distribution Systems, Chiller Plant Performance Optimization, AHRI 550 and SS591.

Participants of the ACMV Seminar who passed the ACMV examination at the end of the course were awarded the GreenRE Measurement & Verification (M&V) Practitioner Certificate.

Considering the positive feedback from GreenRE's ACMV courses, the 3rd Intake is planned for 2021. For more information on our training courses and schedule, visit https://greenre.org/training1.html

GreenRE Technical Webinar (GRETW)

Implementation of Sustainable Procurement for Property Development

7th - 8th December 2020

Sustainable Procurement for Property Development was a new topic introduced to the GreenRE Technical Seminar (GRETS) series. The 2-day course was held 7th - 8th December 2020 online and was presented by Mr Ismail bin Haji Abdullah, President & CEO of the International Green Training Centre (IGTC). Mr Ismail is involved in various sustainable programs such as Development of Frameworks & Blueprints for Green City State, Municipal Councils in Melaka & Selangor; City-Wide GHG Municipal Inventory; and Preparation of the Cities Climate Change Action Plan. He is also the Ministry of Human Resource's Green Master Trainer.

This technical webinar aimed to provide knowledge and skills to all stakeholders in public and private organisations on the definition, approach and methodology of sustainable procurement, the differences compared to conventional procurements and the concepts of consumption and production. The course consisted of four modules, covered Sustainable Procurement Process Compliance, Sustainable Procurement Risk Mitigation Compliance, Sustainable Procurement Processes Conducts and also Sustainable Procurement Administration Requirement Supervision.

GreenRE Manager's Course (Webinar)

22nd & 23rd Intake 2020

GreenRE's Manager's Courses are a long standing 3-day course structured to provide participants a holistic coverage of green building principles and operations to enable them to participate in the design process, incorporate integrated design and facilitate GreenRE certification. The 22nd & 23rd Intake of GREMC was held online due to Covid-19 restrictions.

The 22nd & 23rd intakes were held, 20th - 24th July 2020 and 19th - 22th October 2020 respectively over a period of 4-5 days. In total, over 40 participants from the various sectors attended these courses, ie. engineers (mechanical, electrical and civil), architects, surveyors, etc. These included companies such as Tropicana Corporation Berhad, See Hoy Chan Facilities Management Sdn Bhd, Malakoff Corporation Berhad, Bolt Industries Sdn Bhd, Paramount Construction Sdn Bhd, Perunding LNB, Duriane Professionals Sdn Bhd, Neapoli Sdn Bhd, Ecoworld, PPB Hartabina Sdn Bhd, Universiti Pertahanan Nasional Malaysia (UPNM), Universiti Teknologi MARA (UiTM), Politeknik Kota Kinabalu, TzuChi International School and many more.

Participants of GREMC were able to claim CPD points from both Suruhanjaya Tenaga and GreenRE. The GREMC course included a MCQ examination and group project presentation on a green building project. Participants who successfully completed lectures, MCQ examination and group project were able to apply to become GreenRE Managers.

The next GREMC will also be held online and is expected to take place mid-February 2021.

GreenRE Refresher Course 2020

29th September 2020

GreenRE Refresher Course 2020 was held 29th September 2020 online. The half-day course was organised to provide industry practitioners, specifically certified GreenRE Managers up-to-date information with the latest development in green building industry, regulations and GreenRE updated rating tools and requirement. It also included a discussion on the common mistakes made in GreenRE Project Submissions and case studies of green building projects.

GreenRE Managers (GREM) are required to attend the Refresher Course or Day 1 of the GreenRE Manager's Course to be eligible for certification renewal every 2 years. In addition to this, GREM are also required to obtain a minimum of 10 CPD points per year as part of the renewal process.

The next GRERC is tentatively planned for May 2021.

UPCOMING EVENTS

BY GREENRE
(FIRST HALF OF 2021)

FEBRUARY, 21

GreenRE Sustainability Webinar
Episode 4: Sustainable Construction Waste Management

FEBRUARY, 22-25

GreenRE Manager's Course (GREMC)
24th Intake 2021

MARCH, 25-26

GREMC 24th Intake
Examination & Group Project

APRIL, 6-7

GreenRE Technical Seminar 01 (2021)
Air Conditioning Measurements & Verifications

APRIL, 21

GreenRE Sustainability Webinar
Episode 5: Future Proofing Buildings for Occupants Wellness

MAY, 20

GreenRE Refresher Course 2021

JUNE, 15-17

GreenRE Manager's Course (GREMC)
25th Intake 2021

JULY, 15-17

GREMC 25th Intake
Examination & Group Project

JULY, TBC

Green Building Conference (GBC) 2021 & Sustainable Design Award (SDA) 2021

For further info, please contact:

Ms Juanita (juanita@greenre.org)
Ms Nariemah (training@greenre.org)

Tel: 03-7803 2978

GREENRE MANAGER'S COURSE

(WEBINAR) 24TH INTAKE

GreenRE

This course equips professionals or technical individuals with knowledge and skills of green building practices to enable them to participate in the design process, incorporate integrated design and facilitate GreenRE certification

FEES

COURSE ACCESS ONLY *(18 hours access to webinar content + Certificate of Attendance)*
RM 99 (Member) RM149 (Non-Member)

COURSE ACCESS & GREENRE MANAGER'S EXAMINATION *(18 hours access to webinar content + Certificate of Attendance + Certificate of GreenRE Manager)*
RM 499 (Member) RM549 (Non-Member)

*Course Access Only also serve as a Refresher Course for Certified GREM

Member
(GREM/REHDA/IEM/BEM/PAM/LAM/ST/RISM/BQSM/ACEM/MIP/MBAM)
GreenRE Manager's Examination can be taken separately (Certificate of Attendance is prerequisite) within one year from the course date with separate course fee. Additional RM499 or RM549 will be charged for the examination

Contact us at 03-78032978 (Ms. Nariemah) OR training@greenre.org

22 - 25 FEB '21

Examination Date:
25-26 March 2021

CPD Points

GreenRE 15
IEM, LAM, ST and BOVAEP to be confirmed

GREENRE MANAGER'S COURSE

(WEBINAR) 24TH INTAKE

22 February 2021	9.30am – 12.30pm	Introduction of GreenRE and Assessment Process Introduction of Green Buildings and Township Tools
	2pm – 4pm	Overall Thermal Transfer value (OTTV)
	4.30pm – 5.30pm	Passive Design for Green Buildings & Township Tools
23 February 2021	10am – 12pm	Artificial Lighting & Daylighting
	2.30pm – 3.30pm	Sustainable Construction & Green Products
	4pm – 5pm	Solar Photovoltaic for Buildings & Township
24 February 2021	9.30am – 12.30 pm	Efficient Air- Conditioning
	3am – 4pm	IEQ and Green Innovation Features
25 February 2021	10am – 12pm	Energy Modelling and Ventilation Simulation
	2.30pm – 3.30pm	Water Efficiency, Rainwater Harvesting & Green Plot Ratio
	4pm – 5pm	Stormwater Management
	5pm – 6pm	Examination & Group Project Briefing

COURSE OBJECTIVES

- Provide crucial information and knowledge on the best practices and green building principles
- Understand and reduce life cycle cost of green buildings
- Legislative requirements on Environmental Sustainability for Buildings
- Provide an understanding on the interpretation of the GreenRE Tool Criteria, Scores and certification process

EXAMINATIONS

The examination measures knowledge about green buildings, GreenRE rating system and the certification process. The examination is divided into 2 sections. Part 1 is multiple choice question (MCQ) test and Part 2 is group project. In keeping with our green and sustainable practices, course notes will be available in e-format

GREM APPLICATION REQUIREMENT

- Attended all the webinar contents of GreenRE Manager's Course
- Pass the MCQ test and group project
- Professional experiences: A recognized Degree or Diploma in related disciplines (engineering, architecture, quantity surveying, environmental science, project development, etc.) approved by GreenRE Review Panel, in addition to 3 years working experiences for Degree holder or 5 years working experiences for Diploma holder.
- GreenRE Manager's certification is valid for 2 years from issuance.

RENEWAL REQUIREMNTS

- Compulsory attendance for GreenRE Refresher Course OR Basic Course of GreenRE Manager's Course (In-House Class) OR Full Contents of GreenRE Manager's Course(Webinar)
- Accumulation of CPD points of 10 CPD points per year

GreenRE Technical Panel Members

Tan Phay Ping
Managing Director,
BSD Consultancy Sdn Bhd

Ar Clement Wong
Principle Architect,
Clement Wong Architecture

Nic Chin
Founder,
Green Quarter Sdn Bhd

Choong Chow Neng
Director, Business & Operation,
G-Energy Global Pte Ltd

Farizan D'avezac De Moran
Senior Partner,
GreenA Consultants

Gregers Reimann
Managing Director,
IEN Consultants Sdn Bhd

Hans Weemaes
Managing Director,
Neapoli Sdn Bhd

Azril Amir Jaafar
Principal,
Veritas Architects Sdn Bhd

Sr Wan Ainon Zuraiha Wan Abdul Khalid
Chair of Building Management Board,
Royal Institution of Surveyors Malaysia (RISM)

Teo Chui Ping
Bandar Utama Development Sdn Bhd

Ir Tiah Oon Ling
Management Committee,
GreenRE Sdn Bhd

Ir Ashwin Thurairajah
Chief Operating Officer,
GreenRE Sdn Bhd

Ahmad Thibri Mashri
Chief Operating Officer,
ESD GreenTech Sdn Bhd

GreenRE Training Panel Members

Ar Dr Joseph Kong
Principle,
Joseph Kong Architecture

Ar Clement Wong
Principle Architect,
Clement Wong Architecture

Choong Chow Neng
Director, Business & Operation,
G-Energy Global Pte Ltd

S. Ramesh A/L V. Subramaniam
Senior Manager,
IJM Corporation Bhd

Ar Hoi Jung Wai
Director,
Axial Design Works Sdn Bhd

Christophe Inglin
Managing Director,
Energetix Pte Ltd

Po Woei Ken
Associate Director,
BSD Consultancy Pte Ltd

Gregers Reimann
Managing Director,
IEN Consultants Sdn Bhd

GreenRE Advisory Panel Members

Ministry of Science, Technology & Innovation
MOSTI (Previously MESTECC)

Ministry of Energy & Natural Resources
KETSA (Previously MESTECC)

Ministry of Housing & Local Government
KPKT

Ministry of Transport
MOT

Ministry of Environment & Water (Previously MESTECC)
Department of Environment

PLANMalaysia
Federal Department of Town and Country Planning

Ministry of Works
Public Works Department (JKR)

Tenaga Nasional Berhad
TNB/GSparx

Construction Industry Development Board
CIDB

Sustainable Energy Development Authority
SEDA

Malaysia Investment Development Authority
MIDA

SIRIM Berhad
SIRIM

Suruhanjaya Perkhidmatan Air Negara (SPAN)
National Water Services Commission

Suruhanjaya Tenaga (ST)
Energy Commission

Malaysia Green Technology Corporation
MGTC

Malaysian Institute of Planners
MIP

Institute of Engineer Malaysia
IEM

Royal Institution of Surveyors Malaysia
RISM

Association of Consulting Architect Malaysia
ACAM

Persatuan Pengurusan Kompleks Malaysia (PKKM)
Malaysia Shopping Malls Association

Master Builders Association Malaysia
MBAM

Malaysia Association of Facility Management
MFAM

Institut Sultan Iskandar
Universiti Teknologi Malaysia

Malaysia University of Science & Technology
MUST

National University of Singapore
NUS

Universiti Tunku Abdul Rahman
UTAR

Thank You

Highest appreciation to our Technical Panel, Training Panel & Advisory Panel Members for your support and contribution in 2020.

We look forward to our continued collaborations and mutual growth.

Green Station
Caltex Ayer Keroh R&R Southbound

By: DLM Engineering Sdn Bhd

Located along the North-South Expressway heading towards Malacca, Caltex Ayer Keroh R&R Southbound owned by Chevron has been certified GreenRE Platinum under the Existing Non-Residential category (ENRB V3.1). The petrol station which is the pioneer green petrol station in this category, has fulfilled the design criteria of environmentally sustainable building such as energy efficiency, water efficiency, sustainable operation and maintenance, indoor environmental quality and carbon offset. With the sustainable criteria and features implemented, the petrol station is estimated to offset up to 34% of its total annual carbon emission, which equivalent to carbon sequestered by 8,000 trees.

Solar PV Panel installed on the roof directly offset the energy consumption of the station by 64%
BELOW

Caltex Ayer Keroh R&R Southbound is equipped with 5-star rated electrical appliances to reduce building electricity consumption such as inverter air-conditioning system and high-performance LED lightings. For building energy monitoring purpose, a digital power sub-meter has been installed to monitor the usage of lighting and air-conditioning. With the implementation of energy savings measures and retrofitting works, the petrol station is able to save up to 34% of energy usage compared to a conventional petrol station.

In terms of efficient water usage, low flow water fittings with 'Excellent water savings' under Water Efficiency Labelling and Standards (WELS) from Singapore has been installed, as well as a digital water meter to monitor and track water consumption. Additionally, native and adaptive plants that are drought tolerant and require minimal irrigation have been selected for landscaping in the vicinity of Caltex Ayer Keroh R&R Southbound- further minimizing potable water requirements.

Apart from energy and water efficiency, other green and sustainable features have also been incorporated to ensure public health and well-being. For instance, all interior walls are painted with low VOC paints for improved indoor air quality and all lighting levels are designed in accordance with MS 1525:2019 to ensure optimal lighting illuminance levels to perform multi-task activities. Additionally, the building is also equipped with real time temperature and relative humidity display for indoor thermal comfort and monitoring, as well as portable thermal control which provides the flexibility to adjust indoor temperature and airflow setpoints according to thermal comfort requirements.

In the green innovations category, Caltex Ayer Keroh R&R Southbound is equipped with 40kWp solar photovoltaic system for renewable electricity generation. There is also a real time energy display in the retail area displaying the building's energy usage and serves as an educational front promoting best energy saving practices to the public. The management team also promotes sustainability, by providing recycling bins for the public and building occupants and implementing 'No-Plastic Straw Campaign' at the station to further reduce the plastic consumption.

Chevron also encourages the use of electric vehicles with the provision of an EV charging station, available in both DC (50kW fast charger supporting both CCS & CHAdeMO 2.0) and AC options (43kW, Type 2). The IEC certified charging station is equipped with app payment system (QR code) to promote cashless transaction.

Project Info:

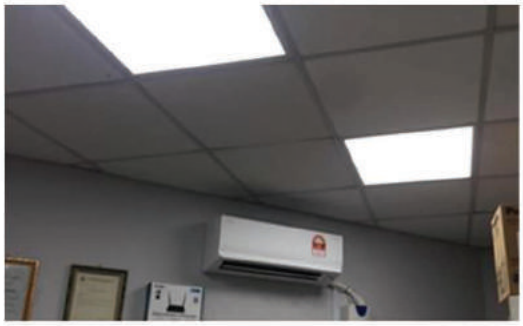
Building Owner: Chevron Malaysia Limited

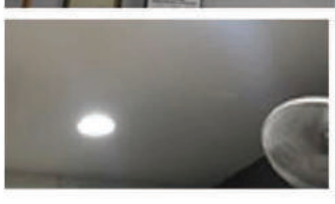
ESD Consultant: DLM Engineering Sdn Bhd

ABOVE & RIGHT: *EV charging station*

ABOVE
Energy Measurement System installed in station building

ABOVE
Digital water meter installed to monitor rainwater harvested





LEFT
LED panel lighting, 5-star rated split unit air-conditioning and LED yard light installed at the station

Reimagining the workplace after COVID-19

By: Hans Weemaes (Neapoli Sdn Bhd)

The pandemic has forced the adoption of new ways of working. Organizations must reimagine their work and the role of offices in creating safe, productive, and enjoyable jobs and lives for employees.

Changing Times, Changing attitudes; Before the pandemic, the conventional wisdom was that attractive offices were critical to productivity, culture and attracting and retaining talent. Companies competed for prime office space, and concepts as densification, open-office designs, hoteling and co-working were mode of operation.

But a survey[1] conducted by KPMG during the Movement Control order (MCO) revealed that 69% of Malaysians want the work from home (WFH) arrangements to continue after the MCO period.

During the pandemic, many have been surprised by how quickly and effectively technologies for video-conferencing and other forms of digital collaboration were adopted. For many, the results have been better than imagined. Despite the eagerness to keep this working arrangement, as many as 64% admit to facing challenges affecting their productivity and willingness to work from home.

At the moment, companies are managing in varied ways. Some have given employees permission to continue working remotely until at least 2021. Others have recalled staff to the workplace on different schedules and in staggered groups. Still others are leaving it entirely up to individual workers to decide where to base themselves.

Companies are looking to the post-Covid future. For many, the vision is a hybrid model that combines remote work and office time. According to Nicholas Bloom, a Stanford University economics professor, states that once the pandemic subsides, working from home two days a week will be optimal for balancing collaborative and quiet work, while benefitting from the reduced stress of less commuting.

Here are **four suggestions** that can be implemented to ensure that the office time allows for workers remain healthy so they can find the right balance between structure and sociability, and independence and flexibility.

1) Improve wellbeing to boost productivity:

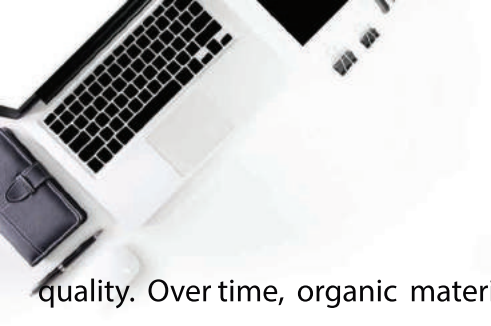
Research carried out by Gallup in 2017 linked wellness with high levels of employee satisfaction, and a 21% rise in productivity. Factors such as thermal comfort, air quality and good acoustics are key – data suggests there is a 66% drop in productivity when people are exposed to disruptive noise.

You can promote wellness in the office by encouraging people to use the stairs rather than the lift, for example, with art on the walls of the stairwells. Aside from encouraging different fitness activities, simply improving the ways that people interact can aid wellness. There is a wealth of research on how well-being is impacted and buildings standards such as WELL, and FITWEL are a providing a holistic set of actionable measures benchmarks.

2) Leverage practices from other industries

Even before the emergence of Covid-19, more hospitals were starting to use ultraviolet-C (UV-C) light to disinfect surgical suites and other rooms and surfaces because it kills or inactivates microorganisms. Some offices are now looking into installing UV-C lighting in their air-handling units to remove airborne bacteria, viruses and germs to improve the indoor air

1 https://home.kpmg/my/en/home/insights/2020/03/the-business-implications-of-coronavirus/the-work-from-home-revolution.html



quality. Over time, organic materials usually build up on the surfaces of the units' cooling coils and other components, degrading their energy efficiency and leading to higher energy use and costs. Having UV-C lights in the units also prevents this and lessens the need for maintenance

3) Keep it Simple

You don't need to have one workstation per person anymore, and there is the opportunity for space efficiencies, leading to significant cost saving. This can then be re-invested in more agile ways of working, such as home-working. Business requirements also have a much shorter time span these days, often of two or three years, and real estate strategies need to accommodate this. Future proofing is not just about using the latest technology, it's about having an architecture proposition that gets the basics right and allows flexibility.

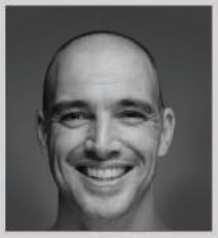
4) Reduce spread of viruses

Public health officials agree that one of the ways to prevent the indoor spread of any contagious respiratory virus is to increase the volume of outside air into our offices. The simple act of opening a window can meaningfully dilute the concentration of infectious particles in the air. Frequent hand-washing is another good way to mitigate disease transmission. But in many office buildings, the only sinks are inside bathrooms, which tend to be out of the way. By introducing self-contained hand-washing stations and hand sanitizer dispensers in high-traffic areas, we can improve safety and sustainability.

Now is the time; As employers around the world experiment with bringing their employees back to offices, the leadership must act now to ensure that when they return, workplaces are both productive and safe.

Organizations must also use this moment to break from the inertia of the past by dispensing with suboptimal old habits and systems. A well-planned return to offices can use this moment to reinvent their role and create a better experience for talent, improve collaboration and productivity, and reduce costs. That kind of change will require transformational thinking grounded in facts.

Ultimately, the aim of this re-imagination for the workplace is what good companies have always wanted: a safe environment where people can enjoy their work, collaborate with their colleagues, and achieve the objectives of their organizations.



NEA·POLI

Author:
Hans Weemaes
NEAPOLI Sdn Bhd

Hans Weemaes, is a Dutch national, with a 15+ year international career in a Sustainability, Consulting, and Business Education. He has an MBA with Distinction from London Business School, and a Masters in Business from Erasmus University in the Netherlands.

His strength is to communicating complex concepts in a straight forward language to a general audience, whether this in the class-, meeting- or boardroom.

He works as the Managing Director of NEAPOLI, one of Malaysia's leading Green Building Consultancies. NEAPOLI's current portfolio exceeds 25 million sqft Green Building space across major sustainable projects around the world and certified under LEED, GBI, GreenRE and MyCREST certification bodies. Prior to this, Hans worked as a Visiting Professor at Yonsei School of Business, as where he taught S trategic Management, Entrepreneurship and Project Management, and was engaged in various consulting projects on the topics of Innovation and Operational Excellence.

Factory in the Forest

By: Gregers Reimann, IEN Consultants Sdn Bhd

"Wow, is this a resort?!" the taxi driver exclaimed when pulling into the Paramit electronics factory at Batu Kawan science park in Penang. The extensive greenery, the gravity-defying architecture and the grand horizontal louver roof clearly had mesmerized the taxi driver in this otherwise soulless industrial area. His reaction is quite typical of first-time visitors. Equally impressive is the fact, that this is a high-performing green factory with 40% measured energy savings compared to the old factory, also in Penang.

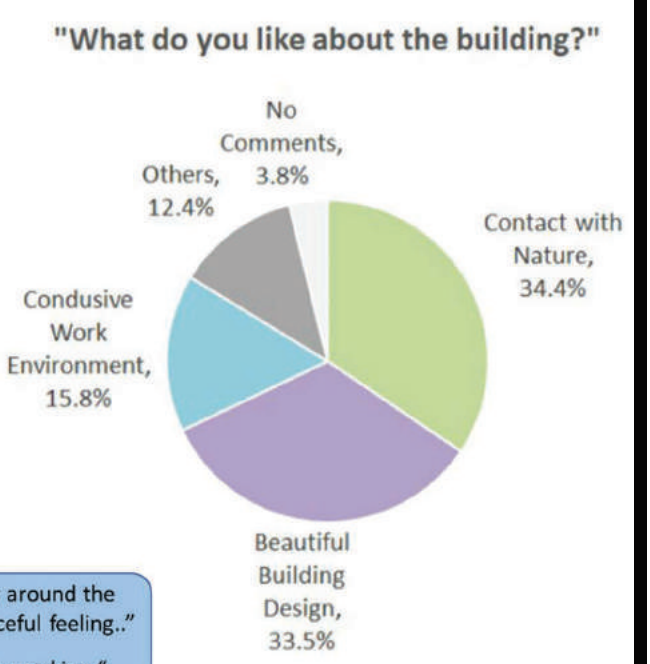
Sustainability was an integral part of the design process from the very beginning, thanks to the client's vision of a high-performing building. In fact, the client first consulted with the environmental design consultants to help put together the design brief and to help identifying what architects to invite for the design competition. The environmental performance of the building was prioritised and underpinned the design process, instead of just being an afterthought.

RIGHT:
Author (left) and colleagues visiting the completed Paramit factory project (Photo by Khim Bok)

The cardinal sustainable design principles were energy efficiency, water efficiency, daylighting and biophilia – the fundamental human need for a connection to Nature. The vision was to create daylit work environments with view to Nature for all employees throughout the 11,600m^2 factory and 1,450m^2 office spaces. The client knew that he wanted a factory with a conducive and healthy work-environment, not just because it is the right thing to do on a Human level, but also because it gives healthier and more productive employees – and increases staff retention. In other words, it is also a good business decision.

Occupant satisfaction

An anonymous post-occupancy survey (141 respondents) found that 90% of the staff preferred the new factory over the old factory. When asked the open-ended question "What do you like about the building?", the three most common responses were the contact with Nature (34.4%), the beautiful building design (33.5%), and the conducive working environment (15.8%). One staff even called the factory her "Second home". Generally speaking, the feedback has been very positive from staff and visitors alike.



90%

Prefer new factory to old factory

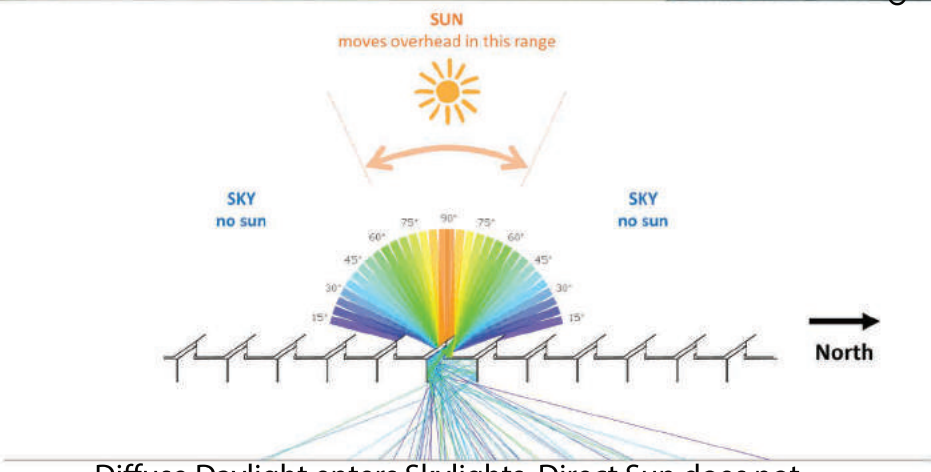
"Its the best place i worked.. The greenery around the factory is simply amazing.. It give us a peaceful feeling.."

"The beauty of the natural, de-stress while working "

Passive Design

Reducing the energy consumption always starts by reducing the energy demand though a climate responsive building design. Passive design strategies included a huge sunshade canopy over roof gardens, skylights allowing natural diffused light across the factory floor, concrete fins shielding against the low east and west sun and of course the 'forest' to provide shade to the building and recreation space for building users – the forest reintroduced indigenous trees to this site.

For the office block, the canopy louver roof was designed to provide effective solar protection from 2 pm onwards, i.e. during the hottest part of the day, while allowing streaks of sunlight through during the cooler morning hours. Pleasant diffuse evenly distributed daylighting for the entire factory production hall was ensured by North facing saw-tooth skylights.

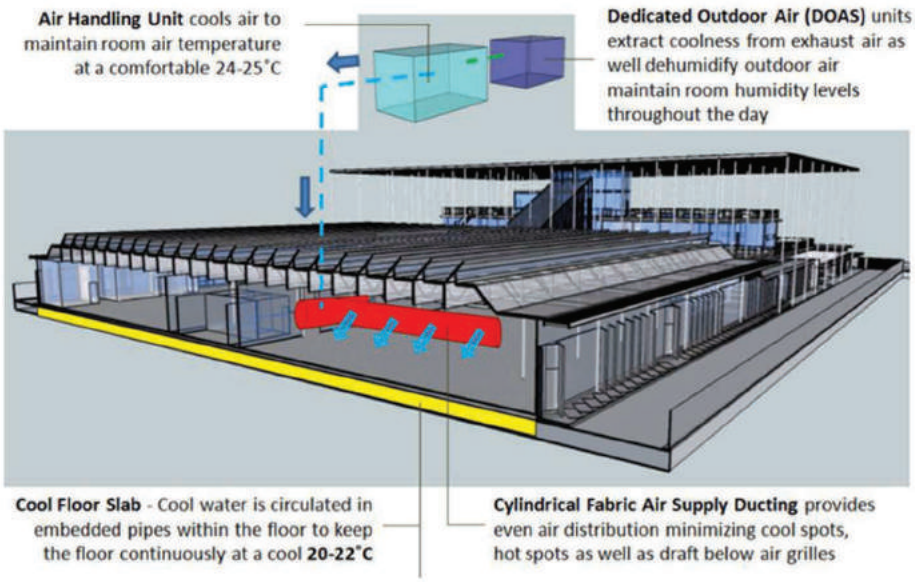


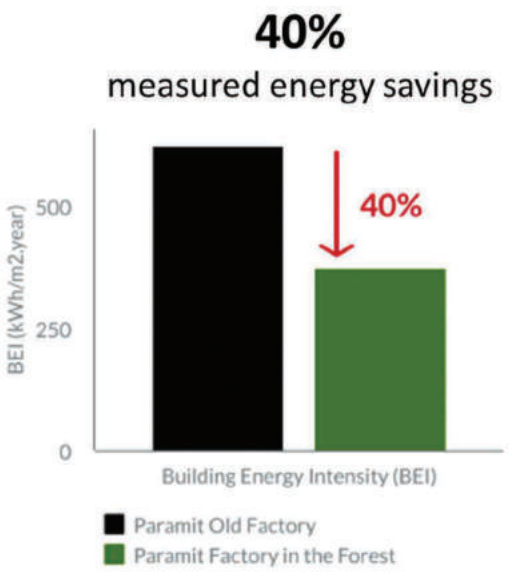
Diffuse Daylight enters Skylights. Direct Sun does not

Active Design

The factory production requires high humidity control and must be fully air-conditioned 24-hours. After accurately establishing the heat load and exhaust rates of the manufacturing plant, detailed energy simulations were undertaken that enabled down-sizing the cooling system by a factor 2.3, thereby saving USD1.2 million in CAPEX.

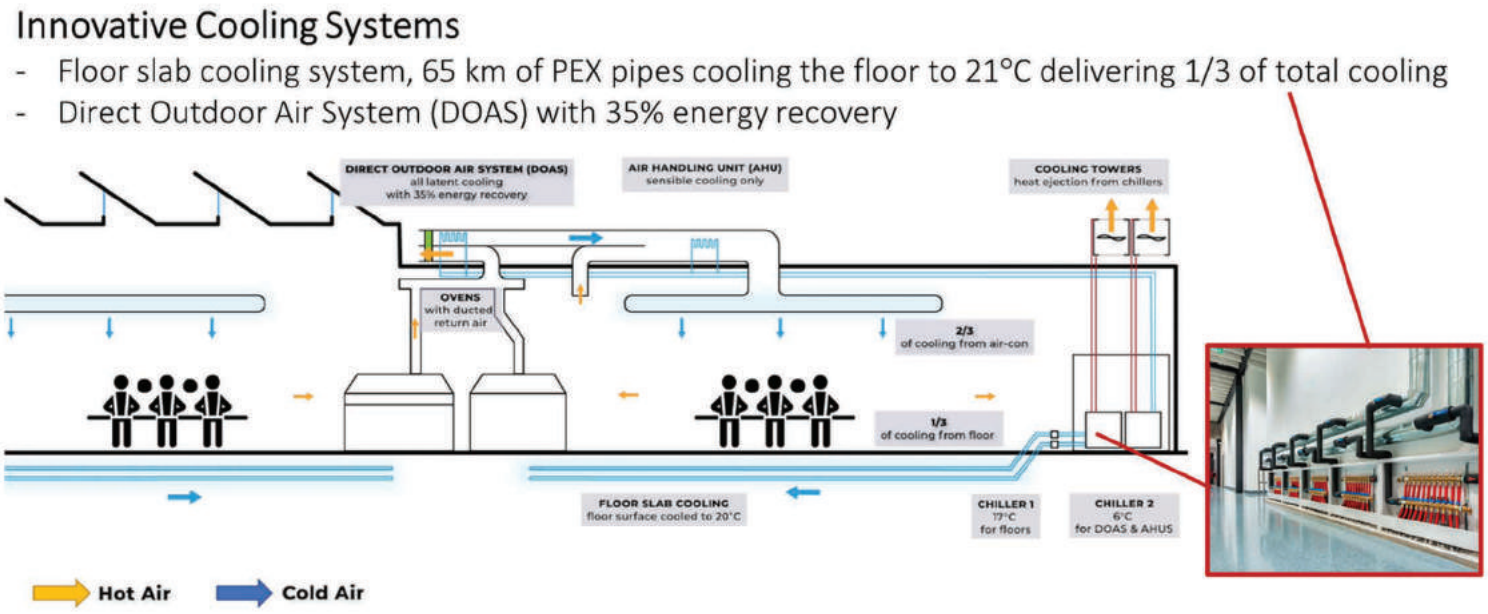
The factory has two cooling systems, namely an innovative and highly energy efficient radiant floor cooling system that delivers 1/3 of the cooling as well as an energy efficient air-conditioning system delivering the remaining 2/3 of the cooling.





The radiant floor system works by embedding 65 km of PEX pipes in the concrete slabs throughout the factory. By cooling down the slabs to about 21°C, this structural element of the factory doubles up as part of the cooling system and allows the magnetic bearing chiller to operate at a significantly higher efficient (COP of 9.7) with a chilled water supply temperature of 17°C in comparison to a standard centrifugal chiller (COP of 5.6) with a chilled water supply temperature of 7°C.

Dedicated outdoor air supply (DOAS) units were installed with energy recovery units, hereby saving 35% from the exhaust air. Energy efficient and dimmable LED adjust to the daylight levels. These and other systems are controlled by an extensive, flexible and user-friendly Building Management System (BMS). Measured energy saving reductions of 40% have been achieved compared to the old factory, by comparing 1 year of electricity bills of the old and the new factory.



Water Savings

To alleviate flood risk from the tropical rainstorms, the building has an 800m³ storm water retention tank as well as a 400m³ rainwater harvesting tank. For year 2019, 61% of the rainwater harvested from the big factory roof a was used for irrigation, reducing the potable water consumption by 7.1 million liters of water, or 26% of the overall consumption.

Recognition

The project has won numerous green building awards, a testament to its genuine environmental design despite not undergoing any formal green building certification. Key awards include winning the 2020 WorldGBC Asia Pacific Leadership in Green Building Awards (commercial building), and being nominated for the 2019 Aga Khan Award as well as long-listed for the 2018 RIBA International Prize.

LEFT:
Lush greeneries cascading from factory platform down to carpark offers touch of human-nature connection.

Key project info:

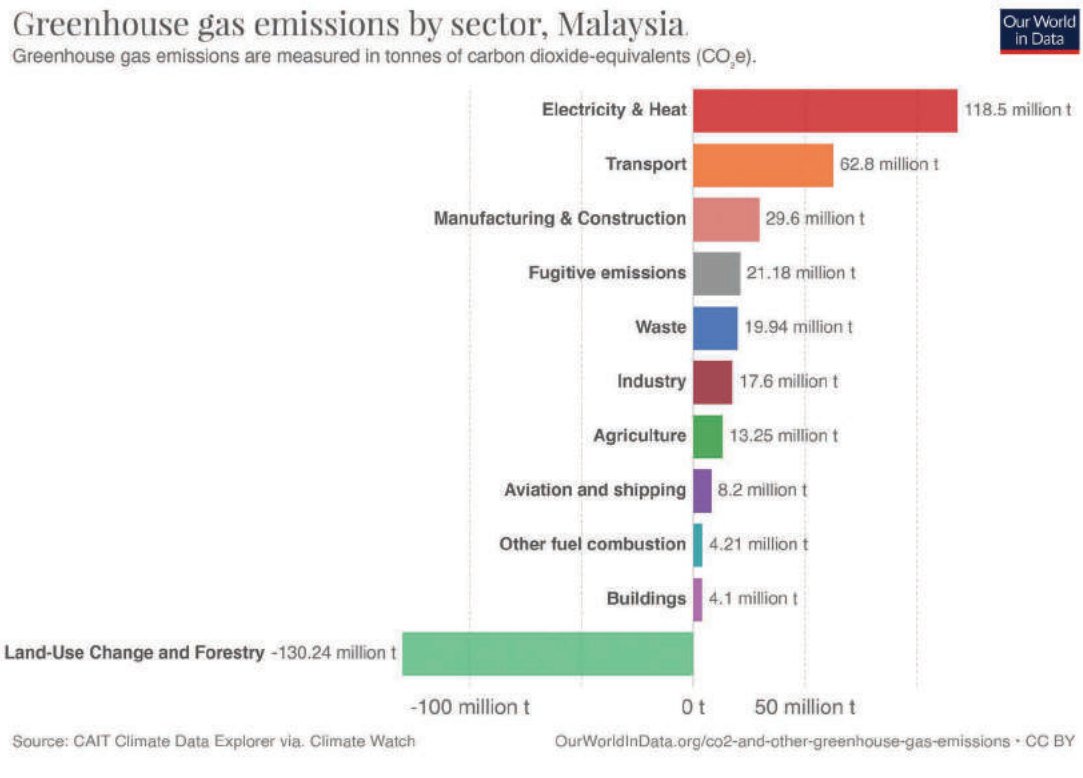
Year of completion: *2016*
Project scale: *13,000 m²*
Client: *Paramit Malaysia Sdn Bhd*
Architect: *Design Unit Sdn Bhd*
ESD Consultant: *IEN Consultants Sdn Bhd*

3-minute design video:
https://youtu.be/fl3WMYAt55E

Author:
Gregers Reimann
IEN Consultants Sdn Bhd

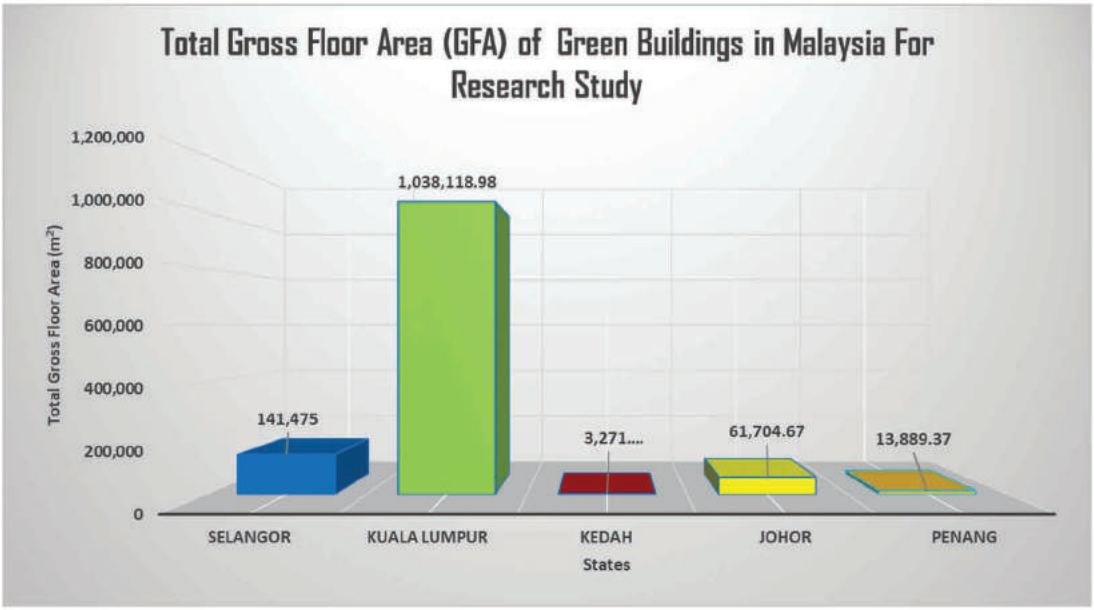
Gregers Reimann specializes in energy efficient and green building design with excellent indoor environment. His green building consultancy pursues innovative and integrated design solutions bridging the gap between architects and engineers. In addition to green building consultancy, Gregers regularly contributes to green building articles and frequently lectures at universities.

POCKET fact



Research Study on Malaysia's Commercial Green Buildings

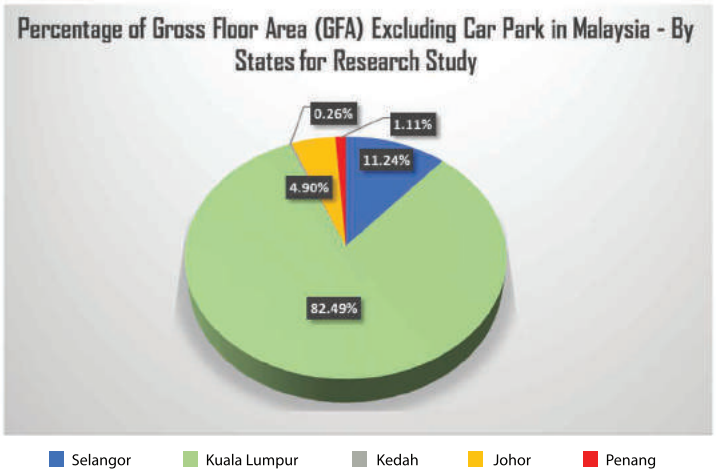
As of December 2019, 25.6 million metre square in total gross floor area had been certified by green building certification bodies in Malaysia. Based on the research grant granted by GreenRE, a research study was carried out on commercial green buildings in Malaysia. The research study and subsequent paper that was published is titled "Green Building Certification and Its Correlation to Building Energy Index: Malaysia Commercial Green Building". This research study was conducted to identify design efficiency of green buildings in terms of energy performance. It was led by Dr. Vignes Ponniah from Universiti Tunku Abdul Rahman together with other researchers from Universiti Sains Malaysia. The main objective of this research is to calculate the Building Energy Index of the commercial green building using the standard formula of MS1525:2019. Secondly, it aimed to determine the correlation between the Building Energy Index and total tier of green rating certification points.

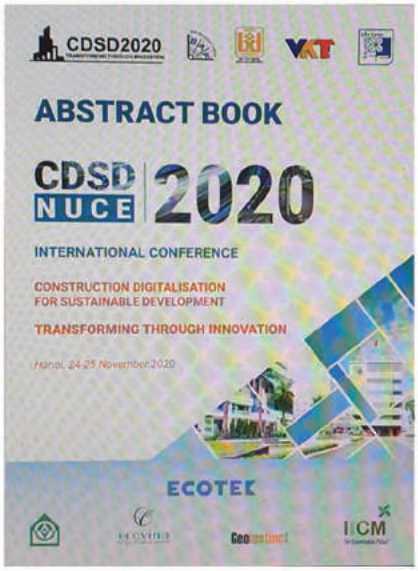


This paper aims to assess the relationship between tier points of green rating and Building Energy Index for commercial green building. Tier points of green building certification depends on the individual green rating tool which was used in green rating process. There are several green rating tools in Malaysia such as GBI, GreenRE, MyCrest, Melaka Green Seal and PHJKR. Basically, most of the green rating tools in Malaysia implement a four-level certification ranking for green building certification process, ie. Platinum, Gold, Silver and Bronze. A total number of twenty-four (24) buildings with a total GFA of 1,258,459.62 m^2 were analysed in this research study. It consisted of green buildings rated by two Malaysian leading green rating tools; GreenRE and Green Building Index (GBI).

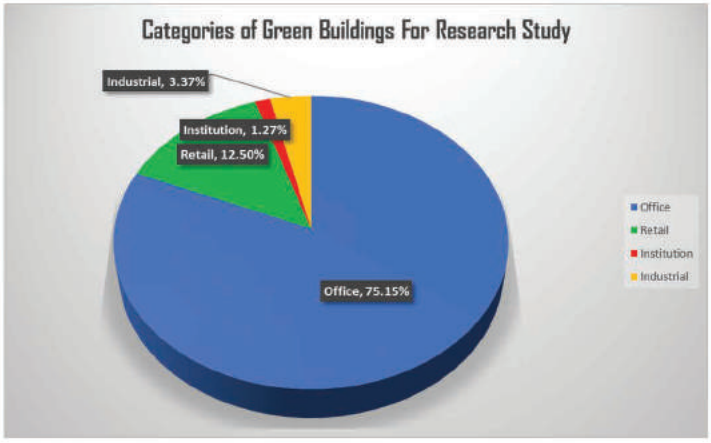
The analysed buildings are categorised under office, retail, industrial and institution buildings. The five states which were involved are Selangor, Kuala Lumpur, Kedah, Johor and Penang. Kuala Lumpur recorded the highest research area by total gross area of green buildings in Malaysia at 1,038,118.98 m^2 while Kedah recorded the lowest number at 3,271.60 m^2. Thus, Selangor, Kuala Lumpur, Kedah, Johor and Penang contributed research gross floor areas of 11.24%, 82.49%, 0.26%, 4.9% and 1.11% respectively.

Based on the total number of twenty-four (24) green buildings which were analysed, the majority were in the office category (75.15%) and this category was selected for this study.





Retail type of green buildings recorded as the second highest at12.5%. Finally, institution and industrial categorised green buildings were recorded at 1.27% and 3.37% respectively.



This research paper was successfully published in the abstract book of 2020 International Conference on Construction Digitalisation for Sustainable Development – Transforming Through Innovation (CDSD 2020) which was held on 24 to 25 November 2020. The conference was hosted by National University of Civil Engineering in Hanoi, Vietnam. The full research paper is expected to be published in Springer Conference Proceeding.

The outcome of the research showed a strong correlation between improved building energy performance and green building certification tier particularly for GreenRE certified projects.

Author:
Dr. Vignes Ponniah
Universiti Tunku Abdul Rahman

Dr. Vignes A/L Ponniah is currently attached to Universiti Tunku Abdul Rahman under the Faculty of Engineering and Green Technology in Department of Construction Management as an Assistant Professor. He graduated with Doctor of Philosophy (PhD.) in Green Construction Management from Universiti Sains Malaysia. His research interests are related to sustainable development, energy modeling and energy performance of buildings. As per his research interest, he had published number of articles and conference papers internationally.

Furthermore, he has several years of experience working in companies which involve in construction and property management before joining the academic institution. He is also a certified GreenRE Manager from GreenRE Sdn Bhd after completing the certification course and having fulfilled the specific requirements since year 2017.

1.0 NON RESIDENTIAL BUILDINGS

NRB 1-1 Thermal Performance of Building Envelope (OTTV)

Overall Thermal Transfer Value (OTTV) for Non-Residential building need to be calculated in accordance to MS1525:2019.

NRB 1-2 Minimum System Efficiency

Minimum system efficiency for buildings using air-cooled water plant or unitary air-conditioner updated as follows:

GreenRE Rating	Building Cooling Load (RT)	
	< 500	≥ 500
	Efficiency (kW/RT)	
Bronze	1.1	1.0
Silver	1.0	1.0
Gold	0.85	Not applicable (i)
Platinum	0.78	

(i) For building with building cooling load of more than 500RT, the use of air cooled central chilled water plant or other unitary air-conditioners are not applicable for Silver and higher ratings.

NRB 1-2 Mixed Mode Spaces

Points scoring and fulfilment of pre-requisite for mixed mode ventilated spaces are as follows:

- If more than >90% of space (NLA excluding common areas) utilizes one mode of ventilation, pre-requisite for that form of ventilation only applies.
- Points scoring to be pro-rated based on modes of ventilation provided. (e.g if 90% NV and 10% air conditioned – points for NV scoring to be 90% of available points (NRB 1-3 & NRB 1-4) and 10% from NRB 1-1 & NRB 1-2).
- OTTV <50 w/m^2 will be applicable for all air conditioned spaces exceeding 1000m^2.
- Roof u-value requirements mandatory for all building types.

NRB 1-2 Provision of Air-conditioning and Compliance to Pre-requisites

Points scoring and fulfilment of pre-requisite for air-conditioning will be allowed in the following scenarios:

- Provided by developer for NLA.
- Not provided by developer but included as part of green lease **AND** inclusion in green fit out guidelines and building user guide.
- Not provided by developer but included as obligation to purchaser **AND** inclusion in green fit out guidelines and building user guide.

Fulfilment of pre-requisite for air-conditioning without point scoring:

- Included in green fit out guidelines and building user guide.
- For gold and platinum projects, savings in energy model to reflect efficiency of air-conditioners proposed in green fit out guidelines.

2.0 RESIDENTIAL BUILDINGS

Roof U-Value Requirements

Roof u-value for all high rise and landed residential buildings to not exceed the following limits:

Roof Weight Group	Maximum U-Value (W/m^{2}K)
Light (Under 50 kg/m^2)	0.4
Heavy (Above 50 kg/m^2)	0.6

RES 1-2 Provision of Air-conditioning and Compliance to Pre-requisites

Points scoring and fulfilment of pre-requisite for air-conditioning will be allowed in the following scenarios:

- Provided by developer for all dwelling spaces (i.e living room and bedrooms).
- Provided by developer in either living room or bedrooms AND inclusion in green fit out guidelines and building user guide.
- Not provided by developer but included as a clause in sales and purchase agreement **AND**

inclusion in green fit out guidelines and building user guide.

Fulfilment of pre-requisite for air-conditioning without point scoring:

- Included in green fit out guidelines and building user guide

RES 1-2 Provision of Ceiling fans and Compliance to Pre-requisites

Points scoring and fulfilment of pre-requisite for ceiling fans as follows:

- Must be installed by developer AND included in green fit out guidelines.
- Points will be pro-rated based on % of dwelling spaces applied.

Fulfilment of pre-requisite for ceiling fan without point scoring:

- Included in green fit out guidelines and building user guide.

RES 1-2 Provision of Ceiling fans and Compliance to Pre-requisites

Points scoring and fulfilment of pre-requisite for ceiling fans as follows:

- Must be installed by developer AND included in green fit out guidelines.
- Points will be pro-rated based on % of dwelling spaces applied.

Fulfilment of pre-requisite for ceiling fan without point scoring:

- Included in green fit out guidelines and building user guide.

3.0 GENERAL

Renewable Energy

The credit scored for renewable energy provision shall not result in a double grade jump in GreenRE rating (i.e. from GreenRE Bronze or Silver to Gold or Platinum)

Ventilation Simulation

Assistance from the ceiling fan is allowable to improve the thermal comfort of a space whereby ventilation simulation shall prove that unassisted ventilation (NV) complies with the minimum requirement of 0.14 m/s wind velocity.

Saltwater Chlorination System

The use of saltwater chlorination systems will no longer be eligible for innovation credits.

4.0 UPDATED RENEWAL FEE STRUCTURE

Size of Development	Total Gross Floor Area TGFA (m^2)	Assessment Fees (RM)	
		Renewal (Commercial)	Renewal (Residential)
Single Unit / Residence	Below 2,000	2,000	500
Small	Up to 4,000	5,000	1,000
Intermediate	4001-10,000	7,000	2,000
Medium	10,001-30,000	10,000	
Large	30,001-50,000	12,000	
Extra Large	50,001-100,00	15,000 (capped)	5,000 (capped)
Mega Project	>100,000		

*Projects that are owned and operated by REHDA members are eligible for a 20% members' discount.

CONGRATULATIONS

Newly Certified GreenRE Managers (GREM) and Certified Projects

New GreenRE Managers (GREMs)

Cert No	Name	Company
GREM0252	Ir. TAN CHIN HONG	EXSIM DEVELOPMENT SDN BHD
GREM0253	TAN CHIN HONG	IEN CONSULTANTS SDN BHD
GREM0254	NORA AZUIN SABRI	ESD GREENTECH SDN BHD
GREM0255	CHAN JEH YEU	CHEVRON MALAYSIA LIMITED
GREM0256	Ts. JALI BIN MARIB	
GREM0257	AISSWARYA A/P KUMARAN	
GREM0258	JOANNA KOH SI LING	ECO WORLD DEVELOPMENT GROUP BERHAD
GREM0259	NARESH KUMARASAMY	CHINA RAILWAY 17TH GROUP (M) SDN BHD
GREM0260	Dr. SITI NORBAIZURA MD REJAB	NEAPOLI SDN BHD
GREM0261	JASRIL NAZMI ABDUL RAHMAN	BGREEN CONSULTANCY SDN BHD
GREM0262	LIM WEE MING	ARUP JURURUNDING SDN BHD
GREM0263	YONG SUE ANN	NEAPOLI SDN BHD
GREM0264	KHOR SIONG HOE	TZU CHI INTERNATIONAL SCHOOL
GREM0265	LIM EU GENE	GREAT FRAMEWORK SDN BHD
GREM0266	Dr. WOON KOK SIN	XIAMEN UNIVERSITY MALAYSIA
GREM0267	SYAFAWATI BINTI HASBI	UNIVERSITI PERTAHANAN NASIONAL MALAYSIA
GREM0268	PUTERI AISYAH BINTI MEGAT SHARIFFUDIN	SIMATIK ENGINEERING SDN BHD
GREM0269	MUHAMMAD ZULHILMI BIN MAHADI	ORANGEBEAM CONSTRUCTION SDN BHD
GREM0270	ANG KER CHING	FAME PARADE SDN BHD
GREM0271	TAN TECK YING	DURIANE PROFESSIONALS SDN BHD
GREM0272	Ir. MOHD TAUFEK BIN YACOB	MAJU INTEGRATED ENGINEERS SDN BHD
GREM0273	Dr. MOHD ALFA SHAMSURI MOHD WAHI	KENCANA AMANJAYA SDN BHD
GREM0274	ALMAZ BINTI AZMI	TROPICANA CORPORATION BERHAD

Newly Certified Projects

Project Name & Location	Company	ESD Consultant	Design Reference	Type of Certification	Date of Certification
Sunway Velocity Two (Commercial), Kuala Lumpur	Sunway Velocity Two Sdn Bhd	G-Energy (M) Sdn Bhd	NRB v3.0	Provisional	30/11/2020
1Powerhouse, Petaling Jaya	Bandar Utama City Assets Sdn Bhd	ESD Greentech Sdn Bhd	NRB v3.0	Provisional	7/1/2020
Lot91 Office Tower, Kuala Lumpur	Impian Bebas Sdn Bhd	Li-Zainal Sdn Bhd	NRB v3.0	Provisional	27/7/2020
VSQII Hostel Building, Petaling Jaya	Pembinaan Gapadu Sdn Bhd	BSD Consultancy Sdn Bhd	NRB v.30	Provisional	24/6/2020
Sunway Geolake, Petaling Jaya	Sunway South Quay Sdn Bhd	BSD Consultancy Sdn Bhd	RES v3.1	Provisional	19/6/2020
Residensi Allevia Mont Kiara, Kuala Lumpur	Allevia Sdn Bhd	BSD Consultancy Sdn Bhd	RES v3.1	Provisional	14/12/2020
Secoya Residences, Pantai Sentral Park, Kuala Lumpur	Murni Lapisan Sdn Bhd	Green Quaters Sdn Bhd	RES v1.2	Actual	11/6/2020
Arte Mont Kiara (Office Suites), Kuala Lumpur	Nusmetro Property Sdn Bhd	DME Solutions Sdn Bhd	NRB v3.0	Actual	10/12/2020
Sunway Grit, Iskandar Puteri	Sunway Iskandar Sdn Bhd	In House Team	RES v3.1	Provisional	27/3/2020
Four Points by Sheraton, Chinatown Kuala Lumpur	Dutamas Waras Sdn Bhd	LJ Energy Sdn Bhd	NRB v3.0	Actual	14/9/2020
Caffe Diem@Pekan Cina, Alor Setar	Encomas Sdn Bhd	DME Solutions Sdn Bhd	ENRB v3.0	Renewal	10/2/2020
Millerz Square Phase 5 (Block A & B), Kuala Lumpur	Lim Legacy Development Sdn Bhd	Zeal Perunding Sdn Bhd	RES v3.0	Provisional	10/12/2020
Metropark Plot 20B Mixed Development (Residential), Petaling Jaya	Tropicana Metropark Sdn Bhd	ESD Greentech Sdn Bhd	RES v3.1	Provisional	11/9/2020
Metropark Plot 20B Mixed Development (Commercial), Petaling Jaya	Tropicana Metropark Sdn Bhd	ESD Greentech Sdn Bhd	NRB v3.1	Provisional	11/9/2020
Uptown Residences, Klang	Berkeley Sdn Bhd	ESD Greentech Sdn Bhd	RES v3.1	Provisional	1/9/2020
Ruby Residences, Petaling Jaya	Midas De Sdn Bhd	DME Solutions Sdn Bhd	RES v3.1	Provisional	20/10/2020
UMW Guard House, Shah Alam	UMW Development Sdn Bhd	DME Solutions Sdn Bhd	NRB v3.1	Provisional	21/9/2020
UMW Office Block, Shah Alam	UMW Development Sdn Bhd	DME Solutions Sdn Bhd	NRB v3.1	Provisional	22/10/2020
UMW Industrial, Shah Alam	UMW Development Sdn Bhd	DME Solutions Sdn Bhd	IND v1.0	Provisional	11/11/2020
Edgewood, SkySactuary Residence, Kuala Lumpur	Skysanctuary Sdn Bhd	DME Solutions Sdn Bhd	RES v3.1	Provisional	30/11/2020
The Riyang at Happy Garden, Kuala Lumpur	Suntrack Development Sdn Bhd	In House Team	RES v3.0	Actual	21/9/2020
Arte Mont Kiara (Serviced Apartment), Kuala Lumpur	Nusmetro Property Sdn Bhd	DME Solutions Sdn Bhd	RES v3.0	Actual	10/12/2020

PLATINUM

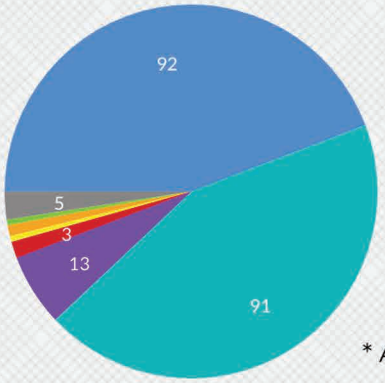
GOLD

SILVER

BRONZE

Project Statistics

Registered Projects



- Residential (RES) (44.23%)
- Non-Residential Building (NRB) (43.75%)
- Existing Non-Residential Building (ENRB) (6.25%)
- Healthcare Facilities (HC) (1.44%)
- Industrial Facilities (IND) (0.48%)
- Existing Industrial Facilities (EIND) (0.96%)
- Office Interior (INT) (0.48%)
- Township (TS) (2.4%)

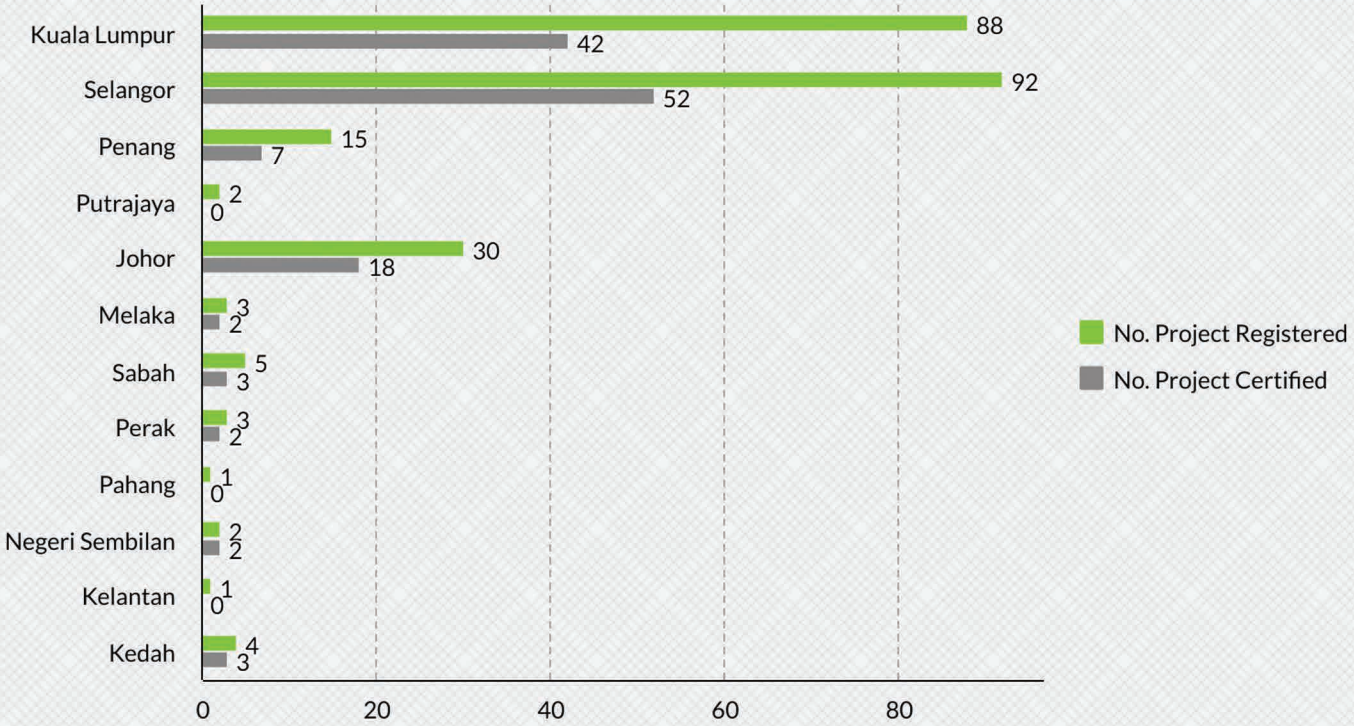
* As per End of December 2020

246
Registered Projects

Certified Building
6,575,531.21 sqm

Certified Township
1,976.20 acre

Project Distribution



Certified by Rating

11%
Residential (RES) 28%
Non-Residential Building (NRB) 65%
Existing Non-Residential Building (ENRB) 7%

27%
Residential (RES) 58%
Non-Residential Building (NRB) 36%
Existing Residential Building (ENRB) 3%
Township (TS) 3%

17%
Residential (RES) 45%
Non-Residential Building (NRB) 36%
Existing Non-Residential Building (ENRB) 5%
Healthcare Facilities (HC) 5%
Existing Industrial Facilities (EIND) 9%

45%
Residential (RES)49%
Non-Residential Building (NRB) 35%
Existing Non-Residential Building (ENRB) 10%
Township (TS) 3%
Industrial Facilities (IND) 3%