



Green Building Index

1. Product qualification with Green Building Index

The Green Building Index is an environmental rating system for buildings developed by PAM (Pertubuhan Arkitek Malaysia / Malaysia Institute of Architects) and ACEM (The Association of Consulting Engineers Malaysia). The Green Building Index is Malaysia's first comprehensive rating system for evaluating the environmental design and performance of Malaysian buildings based on the six main criteria of Energy Efficiency, Indoor Environment Quality, Sustainable Site Planning & Management, Materials & Resources, Water Efficiency, and Innovation.

The GBI Rating System

Building will be awarded the GBI rating based on 6 key criteria:

1	Energy Efficiency (EE)
2	Indoor Environmental Quality (IEQ)
3	Sustainable Site Planning & Management (SM)
4	Material and Resources (MR)
5	Water Efficiency (WE)
6	Innovation (IN)

The GBI initiative aims to assist the building industry in its march towards sustainable development. The GBI environmental rating system is created to:

- Define green buildings by establishing a common language and standard of measurement;
- Promote integrated, whole-building design;
- Recognize and reward environmental leadership;;
- Transform the built environment to reduce its environmental impact; and
- Ensure new buildings remain relevant in the future and existing buildings are refurbished and upgraded properly to remain relevant.

GBI Classification

Points	GBI Rating
86+ points	Platinum
76 to 85 points	Gold
66 to 75 points	Silver
50 to 65 points	Certified

*Unimas Student Pavilion with GBI Gold rating.
Photo courtesy of United G.I. Products*

2.

GBI Assessment Criteria for Non-Residential New Construction (NRNC)

Part 1 Energy Efficiency (EE)

Item	Area of Assessment	Detail Points
EE1	<p>Minimum EE Performance</p> <p>Establish minimum energy efficiency (EE) performance to reduce energy consumption in buildings, thus reducing CO² emission to the atmosphere. Meet the following minimum EE requirements as stipulated in MS 1525:2007:</p> <p>1) OTTV ≤ 50, RTTV ≤ 25. Submit calculations using the BEIT software or other GBI approved software(s), AND</p> <p>2) Provision of Energy Management Control system where air-conditioned space ≥ 4000m²</p>	1
ROCKWOOL Contribution	ROCKWOOL insulation provides excellent thermal resistance that contributes low U-value and plays significant role in reducing heat transmittance through building envelope. Hence, it can contribute to energy saving by having better energy efficiency through consistent thermal performance.	
EE5	<p>Advanced EE performance</p> <p>Exceed Energy Efficiency (EE) performance better than the baseline minimum to reduce energy consumption in the building. Achieve Building Energy Intensity (BEI) ≤ 150 kWh/m²yr as defined under GBI reference (using BEIT software or other GBI approved software(s), OR</p> <p>BEI ≤ 140, OR BEI ≤ 130, OR BEI ≤ 120, OR BEI ≤ 110, OR BEI ≤ 100, OR BEI ≤ 90</p>	2 3 5 8 10 12 15
ROCKWOOL Contribution	ROCKWOOL insulation provides excellent thermal resistance with a low U-Value and can play a significant role in reducing heat transmittance through building envelope. Hence, by having lower OTTV and/or RTTV, a lower BEI can be achieved, which represents reduced energy consumption in the building.	

Part 2 Indoor Environmental Quality (EQ)

Item	Area of Assessment	Detail Points
EQ4	<p>Indoor Air Pollutants</p> <p>Use products with no added urea formaldehyde. These include:</p> <p>1) Composite wood and agrifiber products defined as: particleboard, medium density fiberboard (MDF) plywood, wheatboard, strawboard, panel substrates and door cores, AND</p> <p>2) Laminating adhesives used to fabricate on-site and shop-applied composite wood and agrifiber assemblies, AND</p> <p>3) Insulation foam, AND</p> <p>4) Draperies</p>	1
ROCKWOOL Contribution	ROCKWOOL insulation contains no air pollutants. TÜV SÜD PSB testing services conducted chemical emission test for Formaldehyde Emission Rate on ROCKWOOL products. The emission test can meet / or is significantly below the maximum concentration criteria of IAQ pollutants set out by SGBC (Singapore Green Building Council) requirement. By minimizing the indoor air quality pollutant potential, the comfort and well-being of the construction workers and building occupants are enhanced.	
EQ13	<p>Internal Noise Levels</p> <p>Maintain internal noise levels at an appropriate level. Demonstrate that 90% of the NLA do not exceed the following ambient internal noise levels:</p> <p>Within the entire baseline building general office space, noise from the building services does not exceed 40dB(A)eq, OR</p> <p>Within the baseline building office space, the sound level does not exceed 45dB(A)eq for closed offices.</p>	1
ROCKWOOL Contribution	ROCKWOOL insulation can provide a very high level of sound absorption and reduces noise vibrations, helps to protect against noise and vibrations and to improve the indoor acoustic comfort.	

3.

Part 4 Materials & Resources (MR)

Item	Area of Assessment	Detail Points
Reused and Reduced Materials		
MR1	<p>Reuse building materials and products to reduce demand for virgin materials and reduce creation of waste. This serves to reduce environmental impact associated within extraction and processing of virgin resources. Integrate building design and its buildability with selection of reused building materials, taking into account their embodied energy, durability, carbon content and life cycle costs:</p> <p>Where reused products/materials constitutes ≥ 2% of the project's total material cost value, OR</p> <p>Where reused products/materials constitutes ≥ 5% of the project's total material cost value</p>	1 2
ROCKWOOL Contribution	ROCKWOOL products are dimensionally stable and sag resistant and when removed undamaged, may be reused and recycled for other projects, enhancing performances and reducing construction waste. ROCKWOOL recommends using skips or bins in construction site for disposing usable insulation so that it can be reused or recycled within the construction site.	
MR2	<p>Recycled Content Materials</p> <p>Increase demand for building products that incorporate recycled content materials in their production: <i>(Recycled content shall be defined in accordance with the International Organization of Standards Document)</i></p> <p>Where use of materials with recycled content is such that the sum of post-consumer recycled plus one-half of the pre-consumer content constitutes ≥ 10% (based on cost) of the total value of the materials in the project, OR</p> <p>Where use of materials with recycled content is such that the sum of post-consumer recycled plus one-half of the pre-consumer content constitutes at least 30% (based on cost) of the total value of the materials in the project.</p>	1 2
ROCKWOOL Contribution	ROCKWOOL products contains up to 20% pre-consumer recycled materials. This not only reduces the impact that results from the extraction and processing of raw materials, but also reduce the volume of solid waste that is produced as by-product of our built environment. For detailed percentage of recycled content, please consult your local sales representative.	
Sustainable Resource		
MR3	<p>Regional Materials</p> <p>Use building materials and products that are extracted and manufactured within the region, thereby supporting the use of indigenous resources and reducing the environmental impacts resulting from transportation:</p> <p>Use building materials or products that have been extracted, harvested or recovered, as well as manufactured, within 500km of the project site ≥ 20% (based on cost) of the total material value.</p> <p><i>Mechanical, electrical and plumbing components shall not be included. Only include materials permanently installed in the project.</i></p>	1
ROCKWOOL Contribution	ROCKWOOL has two strategically located factories in Malaysia – one in Selangor and one in Melaka. The two factories are near highly populated areas and in close proximity to major transportation routes and may be within 500km of the project site. For the eligible points, site distance would have to be calculated based on projects.	

4.

GBI Assessment Criteria for Residential New Construction (RNC)

Part 1 Energy Efficiency (EE)

Item	Area of Assessment	Detail Points
EE1	<p>Minimum EE Performance</p> <p>Establish minimum energy efficiency (EE) performance to reduce energy consumption in buildings, thus reducing CO₂ emission to the atmosphere.</p> <p>Meet the following minimum EE requirements as stipulated in MS1525: 1) OTTV ≤ 50 W/m², AND 2) Roof U-value ≤ 0.4 W/m²K (Lightweight) Roof U-value ≤ 0.6 W/m²K (Heavyweight)</p>	1
ROCKWOOL Contribution	ROCKWOOL insulation provides excellent thermal resistance that contributes low U-value and plays significant role in reducing heat transmittance through building envelope. Hence, it can contribute to energy saving by having better energy efficiency through consistent thermal performance.	
EE2	<p>Advanced EE Performance</p> <p>Establish EE Performance to reduce dependence on Energy to keep indoor environment at satisfactory comfort level. Computed OTTV and roof U-value to show lower dependence on Energy to maintain indoor thermal comfort.</p> <p>A) Landed OTTV ≤ 46 W/m², OR OTTV ≤ 42 W/m², OR OTTV ≤ 38 W/m²</p> <p>Lightweight Roof U-value ≤ 0.35 W/m²K / Heavyweight Roof U-value ≤ 0.5 W/m²K, OR Lightweight Roof U-value ≤ 0.3 W/m²K / Heavyweight Roof U-value ≤ 0.4 W/m²K, OR Lightweight Roof U-value ≤ 0.25 W/m²K / Heavyweight Roof U-value ≤ 0.3 W/m²K, OR Lightweight Roof U-value ≤ 0.2 W/m²K / Heavyweight Roof U-value ≤ 0.2 W/m²K, OR Lightweight Roof U-value ≤ 0.15 W/m²K / Heavyweight Roof U-value ≤ 0.15 W/m²K</p> <p>B) Low-Rise OTTV ≤ 46 W/m², OR OTTV ≤ 42 W/m², OR OTTV ≤ 38 W/m², OR OTTV ≤ 34 W/m², OR OTTV ≤ 30 W/m²</p> <p>Lightweight Roof U-value ≤ 0.35 W/m²K / Heavyweight Roof U-value ≤ 0.5 W/m²K, OR Lightweight Roof U-value ≤ 0.3 W/m²K / Heavyweight Roof U-value ≤ 0.4 W/m²K, OR Lightweight Roof U-value ≤ 0.25 W/m²K / Heavyweight Roof U-value ≤ 0.3 W/m²K, OR Lightweight Roof U-value ≤ 0.2 W/m²K / Heavyweight Roof U-value ≤ 0.2 W/m²K, OR Lightweight Roof U-value ≤ 0.15 W/m²K / Heavyweight Roof U-value ≤ 0.15 W/m²K</p> <p>C) High-rise OTTV ≤ 46 W/m², OR OTTV ≤ 42 W/m², OR OTTV ≤ 38 W/m², OR OTTV ≤ 34 W/m², OR OTTV ≤ 30 W/m²</p> <p>Lightweight Roof U-value ≤ 0.35 W/m²K / Heavyweight Roof U-value ≤ 0.5 W/m²K, OR Lightweight Roof U-value ≤ 0.3 W/m²K / Heavyweight Roof U-value ≤ 0.4 W/m²K, OR Lightweight Roof U-value ≤ 0.25 W/m²K / Heavyweight Roof U-value ≤ 0.3 W/m²K</p>	<p>1</p> <p>2</p> <p>3</p> <p>1</p> <p>2</p> <p>3</p> <p>6</p> <p>9</p> <p>1</p> <p>2</p> <p>3</p> <p>1</p> <p>2</p> <p>3</p> <p>1</p> <p>2</p> <p>3</p>
ROCKWOOL Contribution	ROCKWOOL insulation can be used for external wall and roof application, providing excellent thermal resistance with low U-value and plays significant role in reducing the energy used in the cooling of building.	

5.

Part 2 Indoor Environmental Quality (EQ)

Item	Area of Assessment	Detail Points
EQ3	<p>Formaldehyde Minimisation</p> <p>Reduce the exposure of occupants to formaldehyde and promote good indoor air quality in the living spaces.</p> <p>Use products with no added formaldehyde or use products which comply with the formaldehyde emission ratings recognized by GBI, if glue is used in the manufacturing process.</p>	1
ROCKWOOL Contribution	ROCKWOOL insulation contains no air pollutants. TÜV SÜD PSB testing services conducted chemical emission test for Formaldehyde Emission Rate on ROCKWOOL products. The emission test can meet / or is significantly below the maximum concentration criteria of IAQ pollutants set out by SGBC (Singapore Green Building Council) requirement. By minimizing the indoor air quality pollutant potential, the comfort and well-being of the construction workers and building occupants are enhanced.	
EQ6	<p>Sound Insulation</p> <p>Encourage and recognize building's walls and floors are designed with adequate noise attenuation properties to maintain good acoustic insulation between dwellings.</p> <p>Ensure that the sound penetration between dwelling are controlled within the following criteria;</p> <p>Sound Transmission Class (STC) value between dwelling units ≥45.</p>	1
ROCKWOOL Contribution	ROCKWOOL insulation can provide a very high level of sound absorption and reduces noise vibrations, helps to protect against noise and vibrations and to improve the indoor acoustic comfort.	

6.

Part 4 Materials & Resources (MR)

Item	Area of Assessment	Detail Points
Reused and Recycled Materials		
MR1	Materials Reuse and Selection	
	Reuse building material and products in order to reduce demand for virgin materials and to reduce waste, thereby reducing impacts associated with the extraction and processing of virgin resources. Integrate building design and its buildability with careful selection of building materials in relation with embodied energy and durability of the materials to lower carbon foot print and improve materials' life cycle.	
	Where reused products or materials constitutes $\geq 2\%$ of the project's total material cost value, OR	1
	Where reused products or materials constitutes $\geq 5\%$ of the project's total material cost value.	2
ROCKWOOL Contribution	ROCKWOOL products are dimensionally stable and sag resistant and when removed undamaged, may be reused and recycled for other projects, enhancing performances and reducing construction waste. ROCKWOOL recommends using skips or bins in construction site for disposing usable insulation so that it can be reused or recycled within the construction site.	
Sustainable Resources		
MR2	Recycled Content Materials	
	Increase demand for building products that incorporated recycled content materials, thereby reducing impacts resulting from extraction and processing of virgin materials (Recycled content shall be defined in accordance with the International Organization of Standards Document).	
	Where use of products or materials with recycled content is such that the sum of post-consumer recycled plus one-half of the pre-consumer content constitutes $\geq 10\%$ (based on cost) of the total value of the materials in the project, OR	1
	Where use of products or materials with recycled content is such that the sum of post-consumer recycled plus one-half of the pre-consumer content constitutes $\geq 30\%$ (based on cost) of the total value of the materials in the project.	2
ROCKWOOL Contribution	ROCKWOOL products contains up to 20% pre-consumer recycled materials. This not only reduces the impact that results from the extraction and processing of raw materials, but also reduce the volume of solid waste that is produced as by-product of our built environment. For detailed percentage of recycled content, please consult your local sales representative.	
MR3	Regional Materials	
	Increase demand for building materials and products that are extracted and manufactured within the region, thereby supporting the use of indigenous resources and reducing the environmental impacts resulting from transportation.	
	Use building products or materials that have been extracted, harvested or recovered, as well as manufactured, within Malaysia for $\geq 50\%$ (based on cost) of the total material value, OR	1
	Use building products or materials that have been extracted, harvested or recovered, as well as manufactured, within Malaysia for $\geq 75\%$ (based on cost) of the total material value.	2
ROCKWOOL Contribution	ROCKWOOL has two strategically located factories in Malaysia – one in Selangor and one in Melaka. The two factories are near highly populated areas and in close proximity to major transportation routes and may be within 500 km of the project site. For the eligible points, site distance would have to be calculated based on projects.	

Reference Projects



PTM Green Energy Office Building is Malaysia's first GBI Certified Building



The Unimas Student Pavilion with GBI Gold rating



Setia City Mall with GBI Silver rating

Note: For non-residential building assessments under the Green Building Index (GBI), other assessment tools available are as below. Kindly contact ROCKWOOL representatives for more information.

1. GBI Non-Residential New Construction (NRNC) - Data Centre
2. GBI Non-Residential New Construction (NRNC) - Retail
3. GBI Non-Residential New Construction (NRNC) - Hotel
4. GBI Non-Residential New Construction (NRNC) - Resort
5. GBI Non-Residential Existing Building (NREB)
6. GBI Non-Residential Existing Building (NREB) - Data Centre
7. GBI Non-Residential Existing Building (NREB) - Retail
8. GBI Non-Residential Existing Building (NREB) - Hotel
9. GBI Non-Residential Existing Building (NREB) - Resort
10. GBI Industrial Existing Building (IEB)

Disclaimer: All information, calculations, replies and/or specifications contained herein are solely based upon the details supplied by you. You acknowledge that ROCKWOOL Asia's knowledge of the project in question is limited to the details provided by you, whether verbally or in writing, and ROCKWOOL is in no way obliged nor responsible for procuring additional information on its own accord in providing this proposal. The provision of inaccurate details or failure to provide sufficient and/or relevant information may result in ROCKWOOL Asia's proposal not meeting your requirements for the project in question. For the avoidance of doubt and to the extent permitted by applicable laws, ROCKWOOL makes no representations nor gives any warranties of any kind, whether express or implied, as to the accuracy or completeness of the information, calculations, replies and/or specifications provided by ROCKWOOL in this proposal and in any discussions and/or correspondence related thereto.



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