



Product Qualification with LEED

1. Product qualification with Leadership in Energy and Environment Design (LEED) project

The below details information regarding scoring LEED points with ROCKWOOL insulation

EA Credit 1 – Optimize Energy Performance:

EA Credit 1 intends to achieve increasing levels of energy performance beyond the prerequisite standard to reduce environmental and economic impacts associated with excessive energy use.

For eligible points, the project would have to demonstrate a percentage improvement in the proposed building performance rating compared with the baseline building performance rating according to Appendix G of ASHRAE Standard 90.1-2007 using a computer simulation model for the whole building project.

The following equation is provided to determine the percentage of improvement in the Design Energy Cost versus the performance baseline:

Percent Savings =

$$100 \times \frac{\text{Performance Baseline} - \text{Design Energy Cost}}{\text{Performance Baseline}}$$

Design energy cost refers to the proposed design building based on a computer representation of the actual proposed building design or portion thereof used as the basis for calculating the design energy cost.

2.

Baseline design building is a computer representation of a hypothetical design based on the proposed building project. This representation is used as the basis for calculating the baseline building performance for rating above standard design. It just meets code and standard practice.

ROCKWOOL insulation provides excellent thermal resistance with a low U-Value and can play a significant role in reducing the energy used in the heating and cooling of building. Hence, it can contribute to energy saving in terms of improving the efficiency of energy consumed through consistent thermal performance.

MR Credit 2 – Construction Waste Management:

MR Credit 2 intends to divert construction and demolition debris from disposal in landfills and incineration facilities. Redirect recyclable recovered resources back to the manufacturing process and reusable materials to appropriate sites.

ROCKWOOL products are dimensionally stable and sag resistant. 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. However, it depends on the construction site management.

MR Credit 4 – Recycled Content:

MR Credit 4 intends to increase demand for building products that incorporate recycled content materials, thereby reducing impacts resulting from extraction and processing of virgin materials. Using materials with recycled content such that the sum of

postconsumer recycled content plus ½ of the preconsumer content constitutes at least 10% (1 point) or 20% (2 points), based on cost, of the total value of the materials in the project.

ROCKWOOL products contain up to 20% pre-consumer recycled materials. This does not only reduce the impact that results from the extraction and processing of raw materials, but also reduce the volume of solid waste that is produced as a byproduct of our built environment. For detailed percentage of recycled content, please consult your local sales representative.

MR Credit 5 – Regional Materials:

MR Credit 5 intends to 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.

Using building materials or products that have been extracted, harvested or recovered, as well as manufactured, within 500 miles of the project site for a minimum of 10% (1 point) or 20% (2 points), based on cost, of the total materials value. Project site distances need to be calculated for eligible points.

ROCKWOOL South East Asia has three strategically located factories – one in Selangor (Malaysia), one in Melaka (Malaysia) and another in Rayong (Thailand). All factories are near highly populated areas and in close proximity to major transportation routes and may be within 500 miles of the project site.

However, for the eligible points, project site distance would have to be calculated.

3.

IEQ Credit 3.2 – Construction Indoor Air Quality Management Plan (Before Occupancy):

IEQ Credit 3.2 intends to reduce indoor air quality problems resulting from construction or renovation to promote the comfort and well-being of construction workers and building occupants.

ROCKWOOL insulation contains no asbestos or hazardous air pollutants. TUV SUD PSB testing services conducted chemical emission test for Total Volatile Organic Compounds (TVOC) Emission Rate, Formaldehyde Emission Rate, 4-Phenylcyclohexene Emission Rate, Total Phthalates Emission and Total Particles Emission on ROCKWOOL products. The emission test can meet / or is significantly below the maximum concentration criteria of IAQ pollutants set out by LEED. By reducing the heat transfer through the building envelope, ROCKWOOL products can also reduce the greenhouse gas (GHG) emissions produced by coal-fired power plants. By minimizing the indoor air quality pollutant potential, the comfort and well-being of the construction workers and building occupants are enhanced.

Contaminant	Maximum Concentration (Required by LEED)	ROCKWOOL ThermalRock S40 Emission Test
Formaldehyde	27 parts per billion	< 0.02 micrograms per cubic meter per hour
Particulates (PM10)	50 micrograms per cubic meter	< 0.02 micrograms per cubic meter
Total volatile organic compounds (TVOCs)	50 micrograms per cubic meter	0.02 micrograms per cubic meter per hour
4-Phenylcyclohexene	6.5 micrograms per cubic meter	Not Detected
Carbon monoxide (CO)	9 part per million and no greater than 2 parts per million above outdoor levels	The production of stone wool products do not contain any component of Carbon monoxide, hence ROCKWOOL products do not have CO emission

IEQ Credit 7.1 – Thermal Comfort– Design

IEQ Credit 7.1 intends to provide a comfortable thermal environment that promotes occupant productivity and well-being.

TUV SUD PSB testing services conducted independent thermal conductivity tests on ROCKWOOL products. Results are as follows:

As can be seen in the table on the right, ROCKWOOL products provide low thermal conductivity, meaning they have a low U-Value and are highly effective in terms of reducing heat transfer. Hence, it can help to minimize thermal cycling due to external conditions, providing a comfortable thermal environment that supports the productivity and well-being of building occupants.

Product types	Nominal density (kg/m³)	Thermal Conductivity 20°C λ Values (W/mK)
ThermalRock S40	40	0.036
ThermalRock S50	50	0.035
ThermalRock S60	60	0.034
ThermalRock S80	80	0.034
ThermalRock S100	100	0.033
ThermalRock S120	120	0.034
ThermalRock S140	140	0.034
ThermalRock B40	40	0.036
ThermalRock B50	50	0.035
ThermalRock B60	60	0.034
ThermalRock B80	80	0.033
ThermalRock B100	100	0.034

4.

ID Credit 1 – Innovation in Design:

ID Credit 1 intends to provide the design team and the project the opportunity to achieve exceptional performance above the requirements set by the LEED Green Building Rating System and/or innovative performance in Green Building categories not specifically addressed by the LEED Green Building Rating System.

ROCKWOOL products provide superior acoustic, water repellency and fire performance properties.

ROCKWOOL products can effectively reduce airflow and sound transmission with good sound absorption coefficient, and helps to achieve better sound insulation in the room.

ROCKWOOL insulation is water repellent and allows for reduced probability that deterioration may occur if moisture is introduced to the building envelope. It also does not rot, corrode, promote mold or fungi growth.

ROCKWOOL insulation is non-combustible with a melting point of approximately 1000°C. It provides the incremental benefit of fire-resistance and improved life-safety in buildings. All these performances exceed LEED's requirements and may assist projects to achieve better environmental performance in green buildings.



www.rockwoolasia.com

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