

ENERGY SAVING WITH ECO GREEN MAT

Cost Efficiency — Temperature

[Temperature Difference]

Roof Surface Data

Ministry of Land, Infrastructure, Transport and Tourism, Japan (Common Dirt: Thickness = approximately 200 mm)	-7°C ~ 19°C
Tokyo (Common Dirt: Thickness = approximately 200 mm)	-2.5°C
Eco Green Mat System (System Thickness = approximately 80 mm)	-1.0°C

Room Temperature Below the Roof Data

Ministry of Land, Infrastructure, Transport and Tourism, Japan (Common Dirt: Thickness = approximately 200 mm)	approximately -4°C
Tokyo (Common Dirt: Thickness = approximately 200 mm)	-1 ~ 3°C
Eco Green Mat System (System Thickness = approximately 80 mm)	-3°C ~ 5°C

[Environment Improvement] — Energy Saving & Heat Island Relief

As well as thermal insulation material for exterior walls, Eco Green Mat enables thermal insulation, protection from degradation due to UV rays, prevention of water proof layer deterioration, reduced air conditioning expense, and longer building life.

Temperature rise caused by the increasing number of buildings on man-made grounds and heat from the urban and local community can be quelled.

[Lowered Temperature] — Trial Calculation

Generally, setting the air conditioner 1°C lower saves energy by 10%.

(The Energy Conservation Center, Japan)

Lowering room temperature by 3°C means saving energy by approximately 30%. In terms of electricity costs, refer to the following trial calculation (Tokyo, April, 2010).

Temperature Difference	Daily Heat Shield Volume	Electricity Cost	Room Area	Daily Electricity Cost Saved Under Full Air Conditioning
- 3°C	0.6 kWh/㎡	JPN5.0/㎡	100 ㎡	JPN500

[CO2 Reduction from the Electric Energy Perspective]

— Trial Calculation

The CO2 reduction volume by lowering room temperature 3°C with Eco Green Mat:

$$\text{CO2 Emission Volume (kg) (Power Equivalent)} = \text{Amount of Activity (kWh)} \times \text{Emission Factor [0.36kgCO2/kWh]}$$

Temperature Difference	Daily Heat Shield Volume	× Emission Factor	Room Area	Daily Electricity Cost Saved Under Full Air Conditioning
- 3°C	0.6 kWh/㎡	0.216 kg/㎡	100 ㎡	21.6 kg

[Eco Green Mat System] — Evaluation

The rate of energy saving and heat island relief varies according to the plant, irrigation condition and so on.

For example, tested in a less irrigated season, the vaporization of turf was twice as much as sedum, and Phyla nodiflora 4 times more than sedum.

Turf	<ul style="list-style-type: none"> • Grass. Grows wild in the field • Roots and stems grow and spread / Long thin leaves / Grows thick • Evaporation Ability - middle / Photosynthesis Ability - high • Irrigation required for cultivation / Can be walked on • Maintenance (mowing 4~6 times per year, regular weeding etc)
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The evaporation ability varies from plant to plant. Higher photosynthesis ability brings better heat island relief and lower building temperature.

***Turf, having high photosynthesis ability, is recommended in installing irrigation systems.**