

THE ADVANTAGES OF A GREEN ROOF

A green roof has many advantages. The visual aspect is very important. A Sempergreen® green roof looks good the whole year round and gives the surroundings tranquillity. A Sempergreen® green roof also has financial, environmental and practical/technical advantages:

Financial advantages

Energy conservation in the winter as a result of insulation

Research has shown that an extensive green roof provides good insulation in the winter. This does depend on the humidity in the layers. A building which is one storey high and has a green roof needs 23% less energy than a building of the same dimensions without a green roof.

According to the energy conservation monitor of 2006, an office used an average of 1250 Mega Joules (MJ) per m² per year. The heating of the building takes up a 39% share of this amount, which is 488 MJ per year.

23% saving means that a green roof saves 112 MJ. 1 MJ equals 0.0316 m³ gas. Conclusion: a Sempergreen® green roof saves approximately 3.539 m³ gas per m² per year.

Energy conservation in the summer as a result of insulation

Also in the summer the green roof provides good insulation. Much more than in the winter, because the green reflects the heat and because the layers are generally dryer in the summer.

According to the energy conservation monitor of 2006 4% more energy was used in the summer, mainly for electricity. Research has shown that 38 MJ of electricity can be saved per year. In 2006 an MJ cost € 0.05.

Longer life for the underlying roof cladding because of UV protection

Research has shown that the roof cladding lasts on average three times longer than normal when a green roof is laid on top of it. This is a major saving. The results greatly depend on the type of roof cladding and the condition the building is in.

Added value of a building

By giving the building a natural look combined with the growing awareness for our responsibility towards the environment, people are prepared to pay more for a building with a green roof. The exact savings are very difficult to determine.

Rain water retention

Because Sempergreen® green roof has a water retention level of approximately 50% more and more municipalities and cities are prepared to reward the users of a building by giving a discount on the sewer tax. This discount can be up to 100% in some areas in Germany! Another advantage of water retention is that the drainage is easier to arrange. This advantage greatly depends on the situation the roof is in.

In general it can be said that the costs of a green roof are recovered within 8 to 21 years. Because the green roof results in longer life of the underlying roof cladding the resulting savings can be significant.



Environmental advantages

Insulation in the winter

The energy saved is not only good in terms of money, but is also very advantageous for the environment.

Insulation in the summer

The same applies to insulation in the winter: it is not only good in terms of money, but is also very good for the environment!

Lower ambient temperature

In the summer the temperature in the city is approximately 5°C higher than in rural areas. This is because buildings and roads in the city absorb heat and then reflect it. Green reflects a great amount of the heat, which results in a lower ambient temperature.

And also the plants cool the air because they give off humidity.

Absorption of CO₂

It is known that plants absorb CO₂. At this moment we do not know how much CO₂ Sedum is able to absorb, but because of the great amount of sedum leaves per m², we expect this number to be considerable.

Absorption of microscopic dust

Plants also absorb microscopic dust. Research needs to be done to determine how high the absorption is.

Stimulating micro life and the ecological cycle

In places where building activities take place, micro life is disrupted a great deal. A Sempergreen® green roof helps to rapidly restore the balance for this micro life and the ecological cycle.

Rain water retention

Research has shown that a Sempergreen® green roof has a water retention level of approximately 50%. This means that per year 50% less rainwater ends up in the sewer. Because the showers of rain in the Netherlands are becoming increasingly heavy, it is an important advantage. In the past years the rivers have flooded the surrounding areas more frequently. This results in great economic damage. Certainly in densely populated areas water retention of roofs is becoming increasingly important.

Rain water purification

Rainwater is not only retained on the roof, but the water is also purified. Rainwater moves through the plant and substrate layer to reach the drainpipe.

As a result the water is purified. 95% of the lead, copper and cadmium that falls on the roof in rain water remains behind in the substrate. For Zinc this level is 19%. The amount of Nitrogen that is retained in the substrate is considerable, but difficult to quantify.

Practical advantages

Noise insulation

A Sempergreen® green roof is known to insulate noise. For example noise from aircraft, but also from a heavy rain shower or a hail storm.

Creation of ballast

For some roofs it may be necessary to have ballast. This is to prevent the roof cladding from blowing off the roof. A standard Sempergreen® green roof has a saturated weight of approximately 85 kg/m². Moreover, the green roof will form one connected layer after a while.

Do you like to know more about us? Please contact us via www.sempergreen.com!

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