

## Green Buildings: economic aspects and efficiency

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A green building is a building that is built and used in such a way as to protect the environment throughout its life cycle, starting with design, construction, use, maintenance, renovation and demolition.

The Green Building is an environmentally friendly building, and this means, first of all, that such a building has no or very low heat loss, which means very good insulation from this point of view. Secondly, all the materials used to construct this type of building are recyclable.



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GOOD HEALTH AND WELL-BEING



CLIMATE ACTION



### Efficiency indicators

**Cost per saved kWh**

$$C_{(m)} - (e \times \Delta E \times N) = 0$$

**Net present value**

$$VNA = C_0 + \left\{ \sum_{k=1}^N C_{Ek} \times \sum_{t=1}^N \left[ \frac{(1+f_k)}{(1+i)} \right]^t \right\} + \left\{ C_M \times \sum_{t=1}^N \left[ \frac{1}{(1+i)} \right]^t \right\}$$

**Payback Period**

$$C_{(m)} - \left\{ \Delta C_E \times \sum_{t=1}^{N_R} \left[ \frac{(1+f)}{(1+i)} \right]^t \right\} = 0$$

Although the costs of this type of building are higher than a normal building, any investment can be recouped by substantially reducing energy costs. Another thing to bear in mind about green buildings is that they have an extremely low heat transfer with the environment.

The number of green buildings is increasing, especially as, at European level, it is desired that in the future each building should "consume" only the energy it "produces". The main indicators of the economic efficiency of a green building are the payback period of an additional investment and the cost per unit of energy saved (RON/kwh).

**THE SHORTER THE PAYBACK PERIOD AND THE HIGHER THE CONSUMPTION SAVED, THE MORE COST-EFFECTIVE A GREEN BUILDING IS**

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