



GREENBUILDING

ENERGY EFFICIENCY OF BUILDINGS

SUSTAINABLE DEVELOPMENT DEPARTMENT

GREENBUILDING PROGRAMME

GREENBUILDING

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GreenBuilding is a promoted way of doing business and a framework of actions, aiming at the improvement of the energy efficiency of buildings.

It takes into account:

- The external climatic conditions
- The local conditions
- The specifications and requirements of internal spaces
- The cost – benefit relation.

TARGETS

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The EU initiated the GreenBuilding Programme (GBP) in 2006.

Main targets:

- To *trigger investments* for the improvement of buildings' energy efficiency.
- To promote *actions for energy saving*.

PARTICIPATION IN GREENBUILDING

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Any company or organization can participate:

- With the *refurbishing of an existing building*, which will result in the reduction of the total energy consumption by at least **25%**.
- With the *construction of a new building*, which consumes **25%** less energy compared to the levels of a conventionally constructed building.

GREENBUILDING PROCEDURE

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1. Decision of the Management on the application of GreenBuilding and on environmental investment
2. Selection of building (only larger than 5.000 m²)
3. Selection of technology that contributes to energy efficiency
4. Study concerning the building's energy efficiency
5. Estimation of energy saving
6. Evaluation of investment's cost
7. Energy audit by the official institution, the Centre for Renewable Energy Sources
8. Submitting the application to the EU together with the building documents
9. Decision by the EU on acceptance or not of the file
10. Categorization of the building's energy efficiency level by the EU
11. Awarding to the company of the GreenBuilding Partner status

GREENBUILDING IMPLEMENTATION BY AKTOR

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AKTOR applied the programme at the
Group's new Headquarters Buildings.

Area: 23.500 m²

4 floors and 3 underground floors

ACTION: CHILLERS

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- Installation of water cooled chillers of high efficiency
- ✓ Benefit: energy savings of 113.795 KWh/year

ACTION: ARTIFICIAL LIGHTING

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- Special lamps
with low energy consumption
- ✓ Benefit: energy savings
of 276.805 KWh/year

ACTION: VENTILATION OF BUILDING

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- Network of pumps and electronic control of the ventilation system
- ✓ Benefit: energy savings of *8.136* KWh/year

ACTION: UNDERGROUND GARAGE VENTILATION

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- System for measuring the quality of air in the underground parking and fans operation based on the level of pollution
- ✓ Benefit: energy savings
of 44.932 KWh/year

ACTION: BUILDING ENERGY MANAGEMENT SYSTEM

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- Central system of control and energy management of the building – BEMS.
- ✓ Benefit: energy savings
of *387.000* KWh/year

ACTION: ATRIUM

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- Construction of a 200 m² atrium in the central building zone
- ✓ Benefit: daylight penetration and improved thermal performance of the buildings

ACTION: SHADING

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- Movable louvers – shading panels
in accordance with the windows' orientation
- Special glass panes for the reflection of daylight
- ✓ Benefit: improvement of the energy
efficiency of the buildings

BENEFITS FOR AKTOR FOR APPLYING GREENBUILDING

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COST – BENEFIT RATIO:

➤ **ACTIONS**

- ✓ Actions: 7
- ✓ Cost of investment : 585,000 €

➤ **BENEFITS**

- ✓ Energy saving: 980,669 KWh/year
- ✓ Energy efficiency: 26.4%
- ✓ Annual energy benefit: 98,670 €
- ✓ Simple payback : 6 years

GREENBUILDING AND EMPLOYERS

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- *Employers* need to *participate* actively for maximization of energy saving.
- Increase of personnel's environmental awareness.

GREENBUILDING AND BENEFITS

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By applying the programme, AKTOR achieved:

- ✓ the maximum energy saving technically possible
- ✓ the improvement of comfort levels and indoor quality of the building
- ✓ reduction of its operational costs due to less energy consumption
- ✓ long-term financial benefits, especially after the simple payback period
- ✓ the recognition of the company and the improvement of its image
- ✓ environmental promotion of the company in Greece and in EU

GREENBUILDING AND PROMOTION

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AKTOR responsibly promotes:

- the principles of sustainability in its interested parties
 - the Greenbuilding Programme at the buildings that it constructs for third parties
- ✓ Target : AKTOR status of “*Greenbuilding Endorser*” and *multiple benefits* for the environment and the society.



For more information:

SUSTAINABLE DEVELOPMENT DEPARTMENT

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- <http://www.eu-greenbuilding.org>
- <http://www.cres.gr/kape/index.htm>
- <http://www.cres.gr/greenbuilding>