



European  
Commission



# GREENBUILDING

enhanced energy efficiency for non-residential buildings

Joint  
Research  
Centre

As the Commission's in-house science service, the Joint Research Centre's mission is to provide EU policies with independent, evidence-based scientific and technical support throughout the whole policy cycle. Working in close cooperation with policy Directorates-General, the JRC addresses key societal challenges while stimulating innovation through developing new methods, tools and standards, and sharing its know-how with the Member States, the scientific community and international partners. Key policy areas include: environment and climate change; energy and transport; agriculture and food security; health and consumer protection; information society and digital agenda; safety and security, including nuclear; all supported through a cross-cutting and multidisciplinary approach.

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<http://re.jrc.ec.europa.eu/energyefficiency/greenbuilding/index.htm>

Cover Page:

Building 1 : FN-Byen P/S, DK, New Building, Winner 2012

Building 2 : Immofinanz Montaigne Liegenschaftsvermietungs GmbH, AT, Refurbished Building, Winner 2012

Building 3 : NÖ Landesimmobiliengesellschaft mbH (LIG), AT, New Building, Winner 2012

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# EXAMPLES OF Energy Efficiency Measures

- Building envelope:**
- Changing/Installation: type of glazing
  - Changing/Installation: type of frame
  - Improving insulation of envelope components
  - Reducing unwanted solar heat gains
  - Modifying geometry
- Heating system:**
- Selection of energy efficient equipment, e.g.:
    - Installation of a low temperature boiler or a condensing boiler*
    - Installation of well dimensioned heating pumps + power regulation*
    - Installation of thermostatic radiator valves*
  - Optimisation of the regulation, e.g.:
    - Outdoor-temperature regulation*
    - Improvement of regulation at secondary supply system*
    - Activation of night-drawdown*
  - Improvement of the heating supply system, e.g.:
    - Improvement of hydraulic system*
- Cooling system, e.g.:**
- System based on water distribution
  - Systems with water and air AWS1 Improved control of classic system
- Lighting, e.g.:**
- Improvement of luminaries
  - Selection of energy efficient lamps
- Electric equipment :**
- Selection of energy efficient devices
  - Selection of energy efficient equipment
  - User specific saving potentials
- Management:**
- Behaviour
  - Maintenance

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Megaron Vukovar d.o.o., HR, Planned Building, Winner 2012



Fabege AB, SE, New Building, Winner 2012



Königstein im Taunus, DE, Refurbished Building, Winner 2011



# SPECIFICITY OF THE GreenBuilding Programme

Gold-Kraemer-Stiftung, DE, New Building, Winner 2012



Corem Property Group AB, SE, Refurbished Building, Winner 2012



Bayer Real Estate GmbH, DE, New Building, Winner 2011

Derag Hotels, DE, Refurbished Building, Winner 2012



Hemfosa Fastigheter AB, SE, Refurbished Building, Winner 2012

The GreenBuilding Programme is designed to be:

- **Flexible and open**, so as to be applicable to the great variety of building types and situation, including building refurbishment and new buildings;
- **Sufficiently precise to ensure** that companies that join the programme and carry out the commitment will **achieve a significant part of potential energy savings**;
- **Adaptable** to the large variety of national and regional/local programmes and agencies;
- **Effective in disseminating** the Energy Performance of Buildings Directive and stimulating its early implementation.



Landratsamt Main-Spessart, DE, Refurbished Building, Winner 2011



Innsbrucker Immobilien GmbH & Co.KG, AT, New Building, Winner 2012

On the GreenBuilding website you will find:

- The Partner and Endorser guidelines
- The technical modules
- The non technical modules (energy management guidelines, financing module, energy audit guidelines)
- The Partner and Endorser registration form
- GreenBuilding Application Tool (Action Plan)

In a number of participating countries, a so called GreenBuilding National Contact Point (NCP) is established for aiding organisations who consider participation in GreenBuilding. In countries where no NCP is established, the Joint Research Centre assists the potential participant.



Constructora d'aro, ES, New building, Winner 2012



Leibniz-Institut für ökologische Raumentwicklung e.V. (IÖR), DE, Refurbished Building, Winner 2012

Energy efficiency plays a key role in European energy policies. It improves the security of energy supply, strengthens the competitiveness of European businesses and contributes to the reduction of CO<sub>2</sub> emissions in order to achieve the EU 2020 target.

The building sector accounts for more than 40% of the final energy demand in Europe. One third of this demand can be attributed to non-residential buildings, such as offices, factories, schools, hospitals or hotels. At the same time, some of the largest potentials for energy savings can be exploited by e.g. improving heating and cooling systems of buildings as well as by optimising the building envelope. A strong effort is therefore needed by all Europeans, particularly by private and public organisations, to realise this substantial potential for energy savings.

GreenBuilding is a voluntary programme which was initiated by the European Commission in 2005. The programme intends to raise awareness and trigger additional investments in energy efficiency and renewable energies among owners of non-residential buildings and to give advice and public recognition to those, who are ready to implement ambitious measures in their buildings, resulting in substantial energy savings. These savings not only contribute to the European fight against climate change, but make also good business sense as it will reduce energy costs.

On the following pages, you could find information on the GreenBuilding Programme. I hope you could consider to become a GreenBuilding Partner, showing your commitment to contribute to the mitigation of climate change. The brochure will inform you about what it takes and whom to contact.

Paolo Bertoldi  
European Commission  
Joint Research Centre



# BENEFITS OF THE GreenBuilding Programme

There are many benefits in the participation in GreenBuilding:

- Partners/Endorsers may use the GreenBuilding **logo**.
- The list of GreenBuilding Partners/Endorsers, including a description of their specific contribution to the Programme, the organisation's logo or website, will be published widely (brochure, Internet, Catalogue, database, etc.).
- GreenBuilding Programme **Awards** will be made to outstanding GreenBuilding Partners/Endorsers in several categories.

## For Partners:

- Maintain or improve comfort levels, indoor quality and the quality of the service of the systems concerned.
- Realise technically and economically feasible energy savings.
- Partners may use the GreenBuilding **Poster** dedicated to their building.

## For Endorsers:

- Endorsers may use the GreenBuilding documents.



Siemens Transmission et Distribution, FR, Refurbished Building, Winner 2011

There are five steps in becoming a GreenBuilding Partner:

1. Formulation of a "**GreenBuilding Promotion Plan**", defining the scope and nature of the organisation's activities in support of the GreenBuilding.
2. Submission of **prove** by the applicant Endorser to have assisted at least one building owner/occupier in becoming a GreenBuilding Partner.
3. **Approval** of the Promotion Plan by the Commission. Commission grants **Endorser** status to the organisation.
4. **Execution** of the Promotion Plan and annual reports to the Commission.
5. Commission **renewal** of Endorser status, upon review of the annual report and submission of prove to have assisted at least one additional building owner/occupier in becoming a GreenBuilding Partner.



Dr.-Ing. W. Goetzelmann & Partner GmbH, DE, New Building, Winner 2011

# How To BECOME A GreenBuilding Endorser?

The GreenBuilding Endorser Programme has been established to help the European Commission and the GreenBuilding National Contact Points to **promote** GreenBuilding to potential participants and to **support** already registered GreenBuilding participants in their efforts to reduce the energy consumption in their non-residential buildings.

The GreenBuilding Endorser Programme is open to almost all interested parties from the building sector. (e.g.: Equipment manufacturers, Building contractors, Energy management and system design companies, Electric utilities and energy service companies, Energy equipment importers, distributors and vendors, National professional and trade associations.



C & SO Medical Properties Ltd, CY, New Building, Winner 2011

Vasakronan AB, SE, New Building, Winner 2011

# How To JOIN GreenBuilding?

## Together for Energy Efficiency

GreenBuilding gives information about energy efficiency and renewable energies in non-residential buildings, encourage building owners to participate in the programme and create publicity and recognition for those who successfully participate in the programme.

Initiated by the European Commission and implemented with the help of National Contact Points in presently 11 European countries (see page 9), but open to buildings in all European countries, GreenBuilding is one of the most important campaign for the promotion of energy efficiency in non-residential buildings in Europe.

## Who can participate in GreenBuilding?

- Owners of non-residential buildings can become **GreenBuilding Partner**.
- Businesses from the building sector, contributing to energy efficiency in the non-residential building sector with their products or services, can become **GreenBuilding Endorser**.

The participation in GreenBuilding is free of charge.



Komunaprojekt Ve•namenski Objekt, SI, New Building, Winner 2011

# HOW TO BECOME A GreenBuilding Partner?

For becoming GreenBuilding Partner, the implementation of energy efficiency measures has to reach the following objectives:

- **New Buildings** shall consume **25%** less total primary energy, if economically viable, of the **building standard** in force at the time or of a “conventional” new building presently constructed.
- **Existing Buildings** should consume at least **25%** less total primary energy, if economically viable, **after refurbishment** compared to before the refurbishment.
- **Building already renovated/refurbished** within the last 5 years
  - should consume at least **25%** less total primary energy, if economically viable, **after refurbishment** compared to before the refurbishment **OR**
  - shall consume **25%** less total primary energy, if economically viable, of the **building standard** in force at the time or of a “conventional” new building at the time of the refurbishment.



Val de Núria, ES, Refurbished Building, Winner 2011

There are four steps in becoming a GreenBuilding Partner:

1. Energy **Audit** ( for existing buildings) or **energy performances** evaluation (for new buildings).
2. Formulation of an **Action Plan**, defining the scope and nature of the organisation's commitment.
3. **Approval** of the Action Plan by the Commission in consultation with the National Contact Point; Commission grants **Partner** status to the organisation.
4. **Execution** of the Action Plan, report to the Commission and to the relevant National Contact Point.



KF Fastigheter, SE, Refurbished Building, winner 2011