

# **Design guidelines for managers and designers of settlements, urban sites and utilities**

## **Project Summary**

The aim of the proposal is to study and propose global strategies, tools and guidelines that will promote the efficient and cost effective global implementation of advanced systems and techniques in the refurbishment of existing settlements in Europe.

The specific objectives of the proposal include:

- The combination and adaptation of scientific and technological knowledge with best engineering and architectural practice in order to study, develop, propose and disseminate global actions on the integration of energy efficient systems and techniques in existing settlements requiring refurbishment;
- The development of tools for best practice and economic efficient management and retrofitting of existing settlements
- The study of the existing legislative framework on the implementation of advanced energy efficient systems and techniques in settlements;
- The assessment of five case studies on the energy efficient retrofitting of specific settlements in Europe;
- The integration of the results and conclusions into a set of design guidelines for managers and designers of settlements, urban sites and utilities.

## **Description of the work**

The project team will achieve the objectives presented above, through the implementation of nine phases (duration 24 months):

1. Collection and documentation of the input data required to carry out the study
2. Development and assessment of methodologies to improve local microclimate with the use of energy efficient techniques
3. Development and assessment of the potential of methodologies to improve the design and performance of the buildings constructed within the settlements by implementing the use of passive and active systems and techniques and by maximizing the use of environmental sources
4. Applicability and assessment of the energy potential of using advanced cooling systems in settlement buildings
5. Study of the characteristics, design and applicability of district heating and cooling systems and Demand Side Management techniques when used for covering the energy requirements of settlements
6. Development and assessment of specific global scenarios for the energy efficient refurbishment of existing settlements, for five case studies in Europe
7. Development of the Reference Manual - Best Practice Handbook
8. Testing of the manual in a series of European workshops held in each one of the participating countries
9. Finalization and dissemination of the final products and delivery to Commission.

To disseminate the results of the project a specific dissemination plan has been designed.

## **Expected results**

The final deliverable of the project will be a global and integrated plan for the energy, environmental and financial efficient refurbishment of existing settlements, aiming to provide design tools and support to a wide range of professionals, to consumers and to public authorities. It will include:

- a Reference Manual - Design Guidelines Handbook, presenting globally design guidelines, performance criteria and methodologies for best practice retrofitting of existing settlements,
- a complete technical, financial and environmental assessment of the potential for energy conservation when the proposed interventions are applied to refurbished settlements,
- a series of extended brochures presenting results from the performed case studies, where global scenarios to integrate energy saving systems and techniques during all phases of the retrofitting of an existing settlement will be developed and assessed theoretically,
- the conclusions and results of the organized workshops on the energy efficient global retrofitting of settlements.