



## **Longlife - Sustainable, energy efficient and resource saving residential buildings with consideration of unified procedures and new and adapted technologies**

Longlife aims to optimize methods for buildings and construction, adapt and implement new technologies and harmonize building procedures between countries. These will lead to reduction of the energy consumption during the building's lifecycle.

Longlife will develop guidelines for energy efficiency, sustainability, resource saving buildings and low lifecycle costs. These guidelines will include minimum requirements for sustainable buildings. Furthermore, these guidelines will be implemented in a prototype residential building. Complete planning, administrative and tender documents for a prototype building will be available. They will be based on a common standard, still adapted to regional conditions.

Longlife is an EU-project, approved in the Baltic Sea Region Programme 2007-2013 in October 2008.

Partners from Denmark, Germany, Lithuania, Poland and Russia work jointly in national units. Professor Dr.-Ing. Klaus Rückert, head of the Department Design and Structure at the Institute of Architecture, is the lead partner.

The project duration is 42 month. The total project budget is 2,4 Mio EUR.

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Longlife, International partner team, Gdansk, 15 May 2009



Longlife - Sustainable, energy efficient and resource saving residential buildings with consideration of unified procedures and new and adapted technologies

Longlife is an EU-project, approved in the Baltic Sea Programme 2007-2013. Longlife contributes to the objective "An accessible and attractive place" of the EU Strategy for the Baltic Sea Region. It stands for improvements of the energy market functioning.

The construction boom of the last decades fuelled the growth of the markets in the Baltic Sea Region. However, high-end technologies are still not widely used in large-scale housing construction. Owners and investors don't introduce new energy-efficient technologies as these are more expensive. Moreover, building technologies and procedures, like planning, permit, tendering, financing, sustainability standards are different between the countries and thus hinder the exchange of technologies.

The project "Longlife" aims to optimize methods for buildings and construction, adapt and implement new technologies and harmonize building procedures between countries. These will lead to reduction of the energy consumption during the building's lifecycle. The project will also tackle financing of sustainable residential buildings through various EU funds.

Longlife will develop guidelines for energy efficiency, sustainability, resource saving buildings and low lifecycle costs. These guidelines will include minimum requirements for sustainable buildings, which can be met by all the participating countries with their current state of technologies, yet aiming at the state of the art. Furthermore, these guidelines will be implemented in a prototype residential building. Complete planning, administrative and tender documents for a prototype building will be available. They will be based on a common standard, still adapted to regional conditions. Financing and maintenance models for this prototype project will be developed for planners, housing and construction companies.

Professor Dr.-Ing. klaus Rückert, chief of the Department Design and Structure of the Institute of Architecture is the lead partner of this EU-project in which Regional authorities, universities, competence centers and housing associations from Denmark, Germany, Lithuania and Poland and Russia work jointly in national units. The Project duration is 42 month. The total project budget is 2,4 Mio EUR.

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**Sustainable, energy efficient and resource saving, residential buildings with consideration of unified procedures and new and adapted technologies**

Project duration: 26 months  
Longlife-partners: 13 partners  
Number of partners: 11

[www.longlife-world.eu](http://www.longlife-world.eu)

**Challenges**

- Climate changes, influence of energy consumption in building
- European Union's political agenda – Member of Labour and Environment
- reduction of CO<sub>2</sub> to reduce the long primary energy supply about 20% in 2020
- ambition in saving resources in countries of the Baltic sea region

**Objectives**

- European cooperation in planning, housing industry, building industry, research and practice, knowledge of innovative or practices in the building economy
- application of innovative approaches and solutions for EU guidelines and recommendations
- quality improvement of building methods and technologies
- use of research for technological application of innovative ways in residential buildings
- identification of long term "Longlife" aspects of building for quality and costs
- integrated planning



**Outputs**



Longlife will develop practice, innovative technologies, unified procedures and guidelines for and subsequently the design of a prototype of a sustainable, energy efficient and resource saving residential building in the Baltic Sea Region. The above mentioned knowledge will be transferred, according to Denmark, Ireland, Germany, Denmark (Lithuania, Poland and Russia) and will be applied in the construction. Through the transfer of knowledge in practice, technologies, procedures, sites and institutional structures in the BSR will hence be achieved.

In a first step, existing practices for planning, permit and building, practices for developing and operating housing and technologies for construction of buildings will be gathered and analyzed for the participating countries. This comparative overview as output will already lead to a better mutual cooperation.

In a second step, requirements and guidelines will be jointly developed to improve the existing procedures, practices and technologies to new, innovative and higher standards under the aspects of energy efficiency, sustainability, resource saving, building and the living conditions. The output consists of a guideline on a set of standardized values and is intended to be used by politicians, designers, assessors, etc. for future legislation and as a guideline of building standards.

In the third step, the developed requirements, provisions and technologies will be jointly implemented in a prototype residential building. This will be done in a "bottom-up" approach that starts from the existing level and improve in the steps – and a "top-down" approach – on the side of the WP. The prototype will be selected at the end for country specific requirements. A country designed building in the output will be built and will also be used for regional, national and EU-level, planning, housing, administrative, development, comparison and SWOT-analysis subsequent "realization" of the prototype as pilot project in the project partner countries. The prototype building will be certified as a sustainable building.

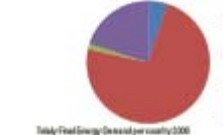
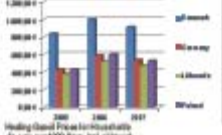
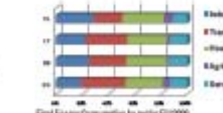
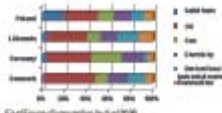


The quality requirements and innovative technologies developed also be applied in other building types: the sector gardens, hospitals and offices. Longlife will also propose elements for future housing through EU funds, innovation, public-private partnerships and housing associations that each participating country will jointly in national calls, which will identify the knowledge in each country and in three horizontal cooperation teams (innovation, administration - planning, housing associations) - project, which develop and share the knowledge in the international context. The realization of the (Baltic Sea Region Development Association - BSRDRA) will ensure the cooperation after conclusion of the project's length.

**Analysis and comparison**

The project has been started with a kick-off conference in March 2009 at the TU Berlin, as the project office in the beginning. In order to get a better understanding of existing practices for planning, permit and building, practices for developing and operating housing and technologies for construction of buildings, a questionnaire was developed jointly by all the project partners. The questionnaire was sent to five paths according to the BSR (Denmark, Lithuania, Ireland, Germany, Poland) and to three paths according to the BSR (Denmark, Lithuania, Ireland, Germany, Poland). The questionnaire has been processed in assessing the national engineering and building technology standards, structural and structural design, energy efficiency, building methods, building physics, technical facilities, definition of quality standards, quality of building process and integration of sustainable aspects and the quality of the site are some of the interesting subjects. The second international comparison team (international) is investigating the current standards of planning, permit and building procedures. This, finding information about building permit and building sites and how, currently applied planning methods, conditions and the role of investigation, funding, operating and facility management, economic planning, housing law, urban infrastructure and housing standards, development aspects of housing

standards and target group of population is part of their work. The first international comparison team (Denmark) is collecting information about economical and financial basis, industry and quality. In the economical and financial basis, sustainability aspects, quality aspects in building sector, construction method, technical and energy supply, evaluation of current maintenance and operating costs, housing development programs of the participating countries, management models and research structure, conditions of real estate management, land analysis for urban and housing, housing and building reduction and mechanisms are part of the international level of work. For the presentational case (international) of BSR (Denmark) we allow to get an overview over the work of the project. One of the objectives already in international and in comparison other international countries for Denmark/Lithuania/Poland/Spain are working on the site of the structure of the entire project.





Longlife, International partner team, Gdansk 15 May 2009



## **Dokumentation - Kurzversion Tag der Forschung**

**Architekturforum am 27. Mai 2009**

**TU Berlin  
Fakultät VI - Institut für Architektur**

