

staccato



**STACCATO:** A COMPOSITION OF  
ENERGY EFFICIENT REFURBISHMENT

# STACCATO

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STACCATO is an acronym that stands for Sustainable Technologies And Combined Community Approaches Take Off. The project articulates the need for a transition to a sustainable energy supply in existing residential housing areas. The urban areas all face technical arrears and a lack of social cohesion. Whilst in Eastern Europe energy efficiency is the main reason to renovate, in Western Europe redevelopment is seen as an opportunity to implement energy efficiency measures and sustainable energy sources. The three city districts involved in STACCATO integrate large solar thermal systems in their energy supply. The heat distribution based energy infrastructure undergoes modernisation and the building envelopes will be improved drastically. The renovations should all result in healthier indoor climates and low energy bills.

The STACCATO project is carried out under the European CONCERTO initiative and is an example for other renovation projects in Europe.

Goal: more than 50% energy saving,  
CO<sub>2</sub> reduction

Apartments: +/- 2,500 in 3 European cities

Duration: 5 years (2007 - 2012)

Budget: € 20 mln

EU-support: € 8 mln

Partners: 25 in 7 different countries

Co-ordinator: Eneco



# STACCATO: A COMPOSITION OF ENERGY EFFICIENT REFURBISHMENT

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In music a CONCERTO is a composition usually in three parts, in which a solo instrument (for instance, a piano or violin) is accompanied by an orchestra. STACCATO is also composed in three parts: the European capital districts Amsterdam-North, Óbuda-Békásmegyer (Budapest) and Oborishte (Sofia). The project is accompanied by an orchestra or consortium of 25 partners in 7 countries. The STACCATO consortium has been working together since 2007 to renovate approximately 2,500 dwellings on the three demonstration sites.

The musicians among us know that STACCATO is a way of playing music with unconnected and detached notes. I think this style perfectly describes the STACCATO project; physically unconnected demonstration sites that together form a composition of energy efficient refurbishment.

This brochure focuses on the demonstration sites and their communities. I hope that you enjoy reading this brochure.

The latest news about STACCATO can be found on our website [www.concerto-staccato.eu](http://www.concerto-staccato.eu).

Subscribe to the newsletter for future updates.

Wilfred van der Plas  
Co-ordinator STACCATO



# DEMONSTRATION SITES

The areas of the STACCATO project are typical post-war neighbourhoods. In recent decades the wealthier inhabitants have moved to new towns, or greener suburbs. The post-war neighbourhoods are presently dominated by lower income groups and immigrants. The change in distribution causes an accumulation of problems (low cohesiveness of society, high unemployment, fuel poverty etc). It is clear that a new impulse is needed to attract middle and higher income groups to strengthen the social cohesion on a neighbourhood level and prevent further decline. This means improvements in the housing blocks, commercial facilities, offices, transportation services etc. We have asked three important partners involved in the project to reflect on the three different demonstration sites:



## **Amsterdam-Noord**

Mrs. Marja Visser, senior adviser on environment and sustainability, city district Amsterdam-Noord (The Netherlands):

"The demonstration site, located in Amsterdam-North, is a housing complex named Het Breed. It consists of 1,176 dwellings owned by two housing associations. These dwellings were built in the mid 1960's as part of a project designed

by the architect Van Gool. Van Gool received the contract to design dwellings with a maximum of standardisation. The project consists of eleven blocks connected by avio bridges, which give the complex its unique look. The dwellings are heated by four gas-fired boiler houses spread over the location."

### **What elements will contribute to a (more) energy efficient building?**

"Sustainable energy techniques such as solar collectors along with heat pumps and highly efficient boilers will be incorporated during the renovation as part of the energy supply system. Large scale reductions in energy use will be accomplished by insulation of the façade, roof and floor of the blocks along with the installation of high performance glazing, low temperature heating and individual metering. In addition, in order to achieve optimum energy efficiency, the equipment in use will be carefully monitored. This allows the tenants to receive regular and accurate updates on their own use of energy."

### **What is innovative about your approach?**

"First of all the organisation of the project itself is innovative. The project is owned by two housing associations which have had to develop organisational techniques very different from those that would be employed by one association working alone. The approach used enable the associations to deal simultaneously with both the renovation and the 1,176 tenants currently living there."

Another challenge is the fact that the tenants will remain in their houses throughout the renovation. During the physical renovation of their own living space the tenants have the option of using so called 'holiday homes', which have been created in some of the blocks at the location.

A third innovation revolves around the smart use of the seasons within the year. This is a must, as the renovation will have a duration of 3 years. An example of this pragmatic seasonal method is the construction of a new heating distribution system during the summer period.



Fourth is the technique of detailing and avoiding mistakes wherever possible, because one mistake means 1,176 problems!"

### **How do you interact with the residents?**

"We introduced a mix of communication tools. A website, brochures, newsletters and meetings provide a 'running explanation' of the project to the tenants. The meetings are held on block level and module level (10 dwellings). If necessary, tenants will receive individual support. Constant and effective communication with the tenants is very important. According to Dutch civil rights a survey must be taken and a minimum of 70% of the tenants have to vote in favour of the proposed plan before work can be started. The construction of the measures mentioned in the previous paragraphs depends on the outcome of this vote."

### **How do people in the Netherlands think about energy savings and sustainable energy?**

"The policy for energy reduction and sustainable energy in the Netherlands is carried out on different levels (national, regional and local). Many joint initiatives, with parties from the building industry, knowledge institutes and consultants, and users of buildings, work on the awareness of people and their knowledge about energy saving and sustainable energy measures. The goal is to reduce the use of energy in buildings in the Netherlands by fifty percent in twenty years, compared with 1990. Home and building owners are stimulated to invest in energy saving measures. Investment windows (such as renovating, buying and selling) are good opportunities to implement energy saving measures."

### **What does the renovation mean for the city and neighbourhood?**

"The renovation makes good sense in several ways. First the refurbished housing complex and the neighbourhood will remain in use for more than 30 years after the completion of the project. It also means a vast improvement in the aesthetics of the dwellings and a much improved living environment. Further, the renovation contributes to the energy policy of the district council Amsterdam-North. And last but by no means least the renovation project will provide a real contribution by reducing the energy costs of the tenants and enhance comfortable living at the same time."





### Óbuda-Békásmegyer

Mr. Péter Puskás, deputy mayor district of Óbuda-Békásmegyer (Budapest, Hungary):

"In the 1960s and 70s, one of the most concentrated building estate zones of the capital was constructed in the district of Óbuda-Békásmegyer, which has a 2,000 year history and is currently the second most populated district of Budapest (126,000 inhabitants). Two thirds of the

population still lives in panel blocks, therefore the City Council considers the renovation of such buildings a priority in its development programme. The building in Óbuda was selected in June 2009: the renovation was planned in the so-called "Village Block" with its 884 flats (the building named after its 3,000 inhabitants, which easily makes up the population of a village), 43,500 square metres and 15 staircases."

#### *What elements will contribute to a (more) energy efficient building?*

"The elements:

- Complete insulation of the block, with an insulation capacity exceeding the standards of newly constructed buildings.
- 1,800 outdated windows were replaced with new ones (5 chamber plastic windows).
- A solar collector system for the production of hot water was mounted on the roof of the building with a surface of 1,500 square metres and 1,128 MWh capacity.
- Increase in the value and living quality of the flats.
- Reduction of CO<sub>2</sub> emissions as a result of better energy efficiency and the application of renewable energy sources."

#### *What is innovative about your approach?*

"The huge solar collector system, which is installed on top of the building, is the largest such system in Hungary and perhaps in Central Europe. We are very glad that the solar collector system of Faluház won the first prize in the category of settlements above 50,000 inhabitants in a contest organised by organizations promoting solar energy."

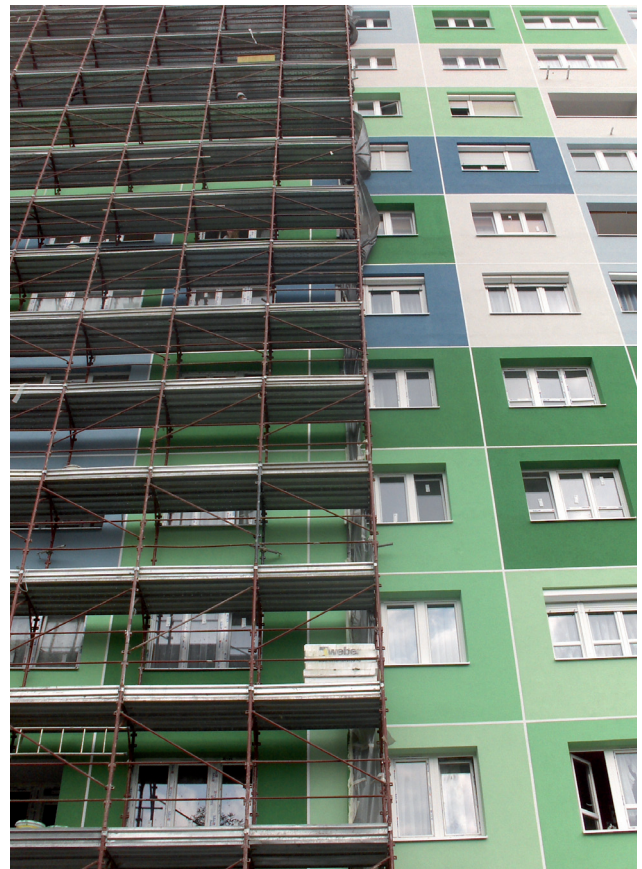
#### *How do you interact with the residents?*

"We have put great emphasis on communication all through the project. Now, we can say that the project is a success story from communication point of view as well. We regularly informed the tenants about the actual state of the project via newsletters, notice boards, telephone and e-mail. The project generated great attention and its development was followed by local and national press from start to finish. So, it became a real pilot project.

After the refurbishment, the communication has not finished; we are going to present our methods of implementation and share our experiences as well as the results with stakeholders in Hungary and Europe in order to help them launch further such successful projects."

#### *How do people in Hungary think about energy savings and sustainable energy?*

"So far, unfortunately, it seems that energy saving is not a primary aspect in public thinking. Nevertheless, more and more people are paying attention to using environmentally friendly, innovative and energy saving solutions in their flats, as energy prices increase."



#### *What does the renovation mean for the city and neighbourhood?*

"From now on the Faluház tenants live in an emblematic, modern building of Óbuda, which fits in the environment with its mosaic-like, green, blue, white shaded outer wall decoration. Beyond that the flats became more comfortable and the value increased by approximately 10%. Thanks to the investment the tenants can potentially achieve a 50% energy saving, consequently they can decrease the CO<sub>2</sub> emissions of the building."

# DEMONSTRATION SITES



## **Oborishte**

Mrs. Antoaneta Yoveva, deputy mayor  
District of Oborishte (Sofia, Bulgaria):

"This STACCATO site is in one of the central districts of Sofia, which includes several monumental buildings. The activities in the district are mixed, with 36,000 people living there and many more staying there during the week to work, to visit restaurants and theatres, etc. Basically all residential

buildings are apartment buildings, mostly built in the 20th century, although there has also been some more recent building activity, both residential and commercial, like a large shopping mall."

### ***What elements will contribute to a (more) energy efficient building?***

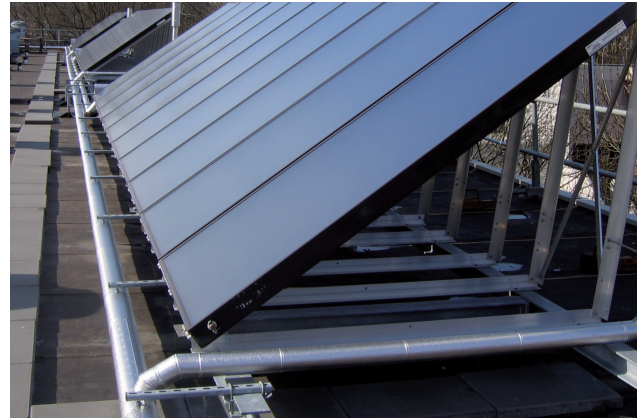
"We combine, for the pilot project, efforts with the national renovation programme of Bulgaria (reducing the energy losses from the building envelope, water proofing). Staccato goes further in expanding the requirements for (external) insulation and we plan to install solar thermal systems on the roof tops."

### ***What is innovative about your approach?***

"We have plans for a very innovative way of both regulating and monitoring energy consumption. The application of solar thermal systems on inclined, existing roofs on apartment buildings is also seldom seen in this part of Europe, while the potential is quite large, considering the number of hours of sunshine."

### ***How do you interact with the residents?***

"There is a strong desire among owners in our district to participate in renovation schemes. We have done a lot of work on building this interest and supporting home owners by funding, informing them about renovation schemes and helping them to form associations. In Bulgaria, preparation of renovation projects has to be carefully planned with the owners, as basically it is done on a voluntary basis. There are no real obligations for apartment owners, only some incentives to establish home owners' associations and set some money aside for renovation."



### ***How do people in Bulgaria think about energy savings and sustainable energy?***

"I think energy savings are mainly seen in the light of reducing household expenses. In recent years the price that people pay for energy has increased tremendously. As most apartments are owned by the occupants, energy costs now form a large portion of the household budget. For low income families and pensioners, these costs are sometimes more than 50% of the total. The poor financial position of many and the lack of information on how to invest now and save money later, along with the paucity of proper solutions 'from the market', leave a lot of work to be done."

### ***What does the renovation mean for the city and neighbourhood?***

"With all the limitations that we face, Oborishte is working hard to improve the residential neighbourhoods of Oborishte. Ownership does not automatically mean that the building quality, also in terms of energy conditions, is maintained very well. We are supporting different projects, with local partners as well as international partners and funding. I think with the STACCATO project we give a much needed impulse to show to Bulgarians how 20th century buildings could enter the 21st century - and Europe as well."





# A SUSTAINABLE FUTURE

Sustainability is high on the European agenda and climate programmes require sustainable buildings in order to reduce CO<sub>2</sub> emissions and save fossil fuels. With the residential sector currently accounting for around 27% of energy consumption in the EU, the potential reduction in CO<sub>2</sub> emissions that energy efficient housing would provide cannot be underestimated. But improving the energy efficiency of existing homes still represents one of the biggest challenges for local authorities. Improvements in energy performance will depend on widespread take-up of sustainable refurbishment for existing buildings.

An important driver for sustainable development of housing areas is the national legislation and the use of national standards. EPC (Energy Performance Coefficient) calculation models, standards and labelling schemes are being implemented in the projects that are involved in STACCATO. The three projects will generate a unique opportunity to discover the local approaches and lessons learned, and to work together on new solutions and disseminate this knowledge.

The STACCATO project will bring questions and solutions from Eastern and Western European countries together in one project.

## General objectives of Staccato

- More than 50% energy saving.
- Improved indoor climate by high quality building envelope upgrading.
- Large scale integration of sustainable energy into energy supplies.
- Preparation of district heating for future implementation of other sustainable energy solutions and efficient heat supplies.
- Capacity building for follow-up projects.



A - Amsterdam-Noord

B - Óbuda (Budapest)

C - Oborishte (Sofia)

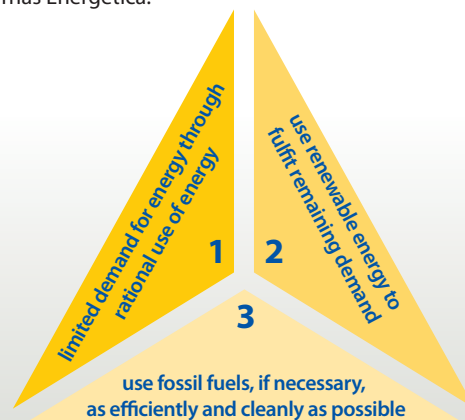
# HOW DO WE GET THERE

The most cost effective way of meeting our energy needs whilst tackling climate change is by using energy more efficiently and utilising sustainable energy. Improved building design, and improvements to existing stock by using higher levels of insulation, active and passive solar heating techniques, energy efficient boilers, better heating controls, natural lighting, integral power generation, etc. all contribute to reducing energy demand and make homes more comfortable. Houses must be (re)designed according to the Trias Energetica. The Trias Energetica is a way of dealing with energy according to a simple and logical concept that helps to achieve energy savings, reduce our dependence on fossil fuels and save the environment.

## The 3 elements of the Trias Energetica are:

1. Reduce the demand for energy by avoiding waste and implementing energy-saving measures.
2. Use sustainable sources of energy instead of finite fossil fuels or nuclear power.
3. Produce and use fossil energy as efficiently as possible.

All three demonstration sites have a similar approach according to the Trias Energetica.



## Trias Energetica

# CONCERTO

CONCERTO is a European Commission initiative supervised by the Directorate-General for Energy. CONCERTO is part of the 6th Framework research Programme, and funds various European projects, one of which is STACCATO. In all the participating CONCERTO projects the focus is primarily on demonstrating the environmental, economic and social benefits of integrating renewable energy sources together with energy efficiency techniques through a sustainable energy-management system operated on a community level. CONCERTO provides a platform for the exchange of ideas and experiences between the CONCERTO demonstration communities, and other cities that are committed to introducing similar strategies. Participating communities will benefit from the shared expertise of Europe's most advanced communities, active in the field of energy sustainability.

## STACCATO PARTNERS



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