



## **Renovations of multi-story buildings and establishment of new apartments in the attics**

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**Panel building in Budapest**  
**Pilot project in St. Petersburg**  
**Loft conversions in old buildings**

# Panel buildings in Hungary

Number of apartments in flat roof panel buildings built in Hungary from 1960 to 1990: **502 881** apartments

The most urgent problems are:

- bad insulation on walls and on the roof
- leaking flat roof (needs renovation in every 6-8 years)
- damaged connections between the panels
- old heating system
- bad condition of the facade windows

What could be the solution?

An overall renovation is needed to increase the value:

- New insulation on the facades.
- Better and long-term solution for the leaking roof.
- Change the old facade windows for new ones.
- Renew and protect the panel-connections.
- New installations.
- Up-to-date heating system with easy controlling.



# RAISE THE ROOF - Budapest



The changes on the street facade.



# RAISE THE ROOF - Budapest



Changes on the facade facing the garden.



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Attic construction.



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Placing the insulation.



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conference 21.22.10.2007. Budapest

# Pilot Project - St. Petersburg

**Existing and new building**  
**External and internal renovation**



# Pilot Project - St. Petersburg

## Outcome

- **New attic**
- **Heating and water supply lines renovated**
- **New heating center and water gauge unit**
- **Heating and water meters installed**
- **Thermostats installed in each apartment**
- **Facade and staircases renovated**
- **Existing balconies renovated**
- **Windows renovated**
- **Door phones installed**
- **Surrounding area renovated**



# Pilot Project - St. Petersburg

## Living room



# Pilot Project - St. Petersburg

## Kitchen



# Pilot Project - St. Petersburg

## Internal light





# Pilot Project - St. Petersburg

## General information

Ground floor:

Ground area: 676 m<sup>2</sup>

Living area: 570 m<sup>2</sup>

Total 5 Floors:

Living area before: 2.850 m<sup>2</sup>

Living area after: 3.349 m<sup>2</sup>

Increase: 18 %

Volume before: 6.954 m<sup>3</sup>

Volume after: 8.451 m<sup>3</sup>

Increase: 22 %

## Transmission coefficients:

	Before	After
<b>Roof</b>	U = 0,77	0,14 (W/m <sup>2</sup> K)
<b>External Wall</b>	U = 0,72	0,27 (W/m <sup>2</sup> K)



## Pilot Project - St. Petersburg

### Energy consumption

Total yearly energy consumption (before reconstruction): 919.388 kWh/year  
(the old building) 323 kWh/m<sup>2</sup>/year

Total yearly energy consumption (after reconstruction): 450.743 kWh/year  
(the old building) 158 kWh/m<sup>2</sup>/year

Total yearly energy consumption (new attic storey): 75.955 kWh/year  
152 kWh/m<sup>2</sup>/year

Total yearly energy consumption (the whole building): 526.698 kWh/year  
157 kWh/m<sup>2</sup>/year

**Reduction of the energy consumption: 43 %**

**Reduction when increase of the area is taken into account: 51 %**



# Pilot Project - St. Petersburg

## Before and after



# Loft conversion - Budapest



# Loft conversion - Budapest





Attic Award 2003 II. price  
architect: Jenő Kajdócsi



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Attic Award 2003 II. price  
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Attic Award 2003 I. price  
architect: László ifj. Benczúr



Budapest



Attic Award 2003 I. price  
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A black and white photograph of a snowy landscape. In the foreground, a tree branch with snow-laden leaves hangs down from the right side. The ground is covered in a thick layer of snow, with some faint tracks or lines visible. In the background, a building with a gabled roof is partially visible, its details softened by the distance and the overall monochrome palette. The lighting is soft, suggesting an overcast day.

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