

# A flat and detached house in Rožnov pod Radhoštěm

The following two applications were selected to be included among the reference buildings with installed electric heating - a flat, and a detached house in Rožnov pod Radhoštěm. In both of them, the heating was designed as large-scale surface heating, involving a combination of floor and ceiling heating with Ecofilm films, and in rooms with ceramic tiling, with Ecofloor heating mats. Control of the heating system is resolved via BMR central regulation in both buildings.

## A 4+1 flat; 135 m<sup>2</sup>

The first application is a 4+1 flat, with a total area of 135 m<sup>2</sup>, located on the 2nd floor of an apartment building, directly on the main square in Rožnov pod Radhoštěm.



It is a reconstructed four-room flat where an architectural agency took part in the design of the interior and in the development of the project documentation. The decision to involve an architect has paid back in the form of the very successful architectural design of the interior. The flat gives an airy and light impression, with an emphasis on free space.



Also, the fact that large-scale surface electric heating systems were chosen for the heating certainly contributed to the overall impression from the room. No heating elements or heating water distribution systems are in the way, and thanks to the absence of the source of heat (a boiler), the useable area of the flat, which is very much needed and which is often desperately lacking in flats, is not limited in any way. Floating floors prevail throughout the whole flat, and therefore the main heating element is Ecofilm films placed directly under the floating floors.



In the living room, Ecofilm ceiling films were placed in a suspended plasterboard ceiling above the sofa; they are used for the enhancement of thermal comfort, for example in the evenings when the heating system is in attenuation, or during periods when heating is not essential but the evenings are starting to get cold. They use the principle of infra-red radiation, as they don't heat the air but rather directly heat the people that are under the heated suspended ceiling. It is a much more economical method than heating the whole room, while the required pleasant thermal comfort is created for the users.

As has already been mentioned, heating is mainly provided by Ecofilm heating films. The only exception is the children's room where the free floor surface is limited and the output of floor heating could be insufficient during harsh winters. Therefore, the system is supplemented with a direct heating convector. Rooms with ceramic floor tiling (bathroom, WC, corridor), where Ecofilm films cannot be used for technical reasons, are equipped with Ecofloor heating mats in the sealing cement under the tiling.



BMR central regulation was chosen for the regulation of the heating system. The regulation is very accurate and it enables individual setting of temperatures and operation modes for each of the rooms. It can also manage separate control of the floor and ceiling heating in the living room, or the floor heating and the convector in the children's room.

In total, 8,8 kW of heating output (Ecofilm film 6 kW, Ecofloor mat 1,8 kW, convector 1 kW) were installed in this 4+1 flat with an area of 135 m<sup>2</sup>; the acquisition costs are listed in the following table:

Heating system	
Exchange rate 24,07 CZK / € (09/2008)	
MATERIAL: Ecofloor mats, Ecofilm films, BMR regulation	114 538
MATERIAL: cables, circuit-breaker elements, others	5 209
INSTALLATION: installation of the power distribution systems,	26 250
<b>TOTAL incl. VAT</b>	<b>145 997</b>

## A TWO-GENERATION DETACHED HOUSE

The second application is a two-generation detached house, designed as two connected buildings. Both have two floors. In one of them, the majority of the ground floor is taken up by a shared garage with two parking spaces.



In both buildings, the heating is designed exclusively as a combination of floor and ceiling heating with Ecofilm heating films. In rooms with ceramic floor tiling - WC, bathrooms and one of the kitchens - Ecofloor heating mats are used in the sealing cement under the tiles.



Ceiling heating with Ecofilm films is also installed in the double garage. This is an elegant and clean solution which doesn't limit the space in any way and yet provides effective warming of this space. Regulation is provided by BMR central regulation, similarly as in the previous application.



Shortly before an arranged visit to this detached house, a water connection problem was discovered, during which a large amount of water leaked into the construction of the floor on the ground floor of one of the buildings. The whole floor had to be taken into pieces, and a part of the base board had to be removed and repaired. After drying, the floor covering - the floating floor - will be put back. The fact that the Ecofilm heating films are laid under floating floors the dry way turned out to be an advantage here, because the films could be removed during the repairs and they will be put back after the repairs are complete.



In both buildings together, a total of 17.9 kW of heating output was installed, out of which 14.6 kW was in Ecofilm films and 3.3 kW in Ecofloor mats. The acquisition costs for the whole system are listed in the following table:

Heating system	
Exchange rate 24,07 CZK / € (09/2008)	
MATERIAL: Ecofloor mats, Ecofilm films, BMR regulation	160 632
MATERIAL: cables, circuit-breaker elements, others	5 859
INSTALLATION: installation of the power distribution systems,	38 500
<b>TOTAL incl. VAT</b>	<b>204 991</b>

#### **Creation of the design, and the execution of the heating system in both buildings:**

Tomáš Giebel- ELEKTRO Luis s.r.o.

Pionýrská 495

756 61 Rožnov pod Radhoštěm

tel. 571 626 468, 777 626 972

fax 571 626 468

[www.elektroluis.cz](http://www.elektroluis.cz)

e-mail: [t.giebel@elektroluis.cz](mailto:t.giebel@elektroluis.cz)