

## CASE STUDY: A SECOND LIFE FOR AN OLD FARMHOUSE



**PROJECT:**  
Farmhouse renovation

**LOCATION:**  
Frielinghausen, Germany

**COMPLETION:**  
2019

**APPLICATION:**  
Surface heating

**PRODUCT:**  
aquatherm black system

### THE CHALLENGE

When renovating a farm from 1896, an energy-saving surface heating system was to be installed. However, due to structural conditions, standard solutions were impossible.

### THE SOLUTION

Thanks to its flexible application method, aquatherm black system could be easily installed in ceilings, walls and floors, and since its installation has been providing pleasant warmth and low heating costs.

## AQUATHERM BLACK SYSTEM PROVIDED THE SOLUTION THANKS TO FLEXIBLE APPLICATION IN CEILING, WALL AND FLOOR

**O**ld houses hold many surprises. The family Masur had to realize that, as they undertook the rehabilitation of a farm from 1896. For example, standard heating solutions were almost impossible. Thanks to an innovative product from aquatherm, solutions were found even for difficult areas.

Tranquil. That's the right word for Frielinghausen, a district of Eslohe in the Hochsauerlandkreis. Nearly 100 inhabitants, an idyllic river, a chapel. And on the outskirts, directly by the forest, a 120 year old farmhouse. August and Käthe Koch bred cows, pigs and chickens here and offered their children and grandchildren a quiet, carefree place to grow up. One of these grandchildren is Tobias Masur.

*"I associate only positive things with this place. As a child, the farm was a big adventure playground for me," he recalls.*

After the death of the grandparents, the building, which consists of a main house and an adjoining barn, was empty for years, until the 43-year-old decided to give the farm a second life.

*"I wanted the family seat to be preserved and able to live on," Masur explains.*

His wife Lisa was initially sceptical; after all, the couple had only recently moved from Sauerland to begin a new life in Cologne. But when they learned that Lisa was pregnant, the quiet life in the countryside seemed a good alternative to big city life.

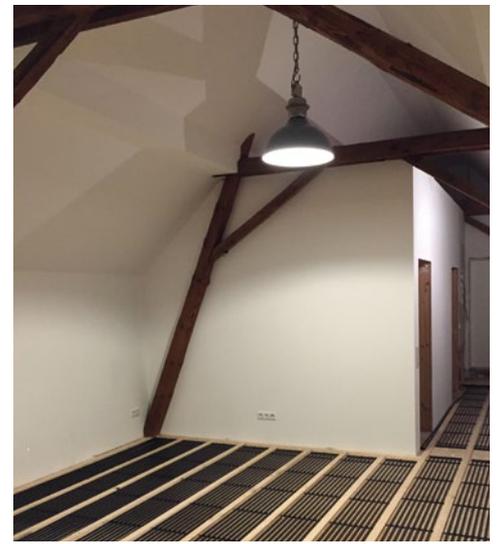
That was seven years ago – and the renovation work took just as long. The Masur family, meanwhile, with their daughters Clara, Paula and

Hilda, did a lot of work on their own and brought in a skilled tradesperson for the tricky jobs. The approximately 270 square metres of living space in the main building and on the upper floor of the barn were almost completely gutted and rebuilt, but still the charm of the house was preserved.

### FAST INSTALLATION EVEN IN DIFFICULT AREAS

The Masurs had many requirements for the new heating technology that was to be installed. It should be energy efficient and also create a pleasant indoor climate. The family had long dreamed of underfloor heating, which ensures a constant, pleasant warmth in winter. As it first appeared, however, this dream was difficult to realize: Due to the static, it was not possible on the upper floor of the barn to apply an additional layer of screed,





into which a floor heating system is traditionally laid. In the main house, the family wanted to preserve the old oak planks. Tobias Masur:

***“The use of radiators was not an alternative for us for visual reasons.”***

Therefore, the family was looking for a heating system that can be adapted very flexibly to the spatial conditions. The result of their search: aquatherm black system. In conjunction with an oil-fired condensing boiler, the surface heating system, which can also be used for cooling, is used throughout the building; it can be easily controlled using a smart home solution.

In the basement of the main house, which contains a living and dining room and kitchen, aquatherm black system was attached to the ceiling. Thanks to its low construction height, which is only 24.5 millimetres including collectors, mounting rails and connections, the loss of ceiling height is minimal and does not lead to any restrictions.

***“I was particularly impressed with how quickly the system installed. We were already living in the house at that time and were glad that we hardly had to restrict ourselves through the laying work,” Masur said.***

aquatherm black system, which consists of the corrosion-resistant plastic polypropylene, is delivered to the construction site as a finished grid, the customer determines the size. In the case of the farm, grids between one and five metres long were used. This meant that the system could be installed accurately, quickly and – thanks to its low weight – even in difficult areas such as the ceiling.

#### **COMFORTABLE HEAT IN THE SHOWER**

In the attic of the main house, where, among other things, the bedrooms are housed, the Masurs decided to use the system in the wall. Tobias Masur:

***“Since the house was well insulated, we need only a low heating capacity in the attic, which is completely covered by the installation on the wall. As in the basement, the old plank floors did not have to be dismantled.”***

In the bathroom, a special solution was chosen: The black grids were integrated into the shower and thus provide cosy warmth when entering the wet cell. The installation took place on two sides of the shower screen.

Thanks to the aquatherm black system, the family also found a solution to the static problem in the

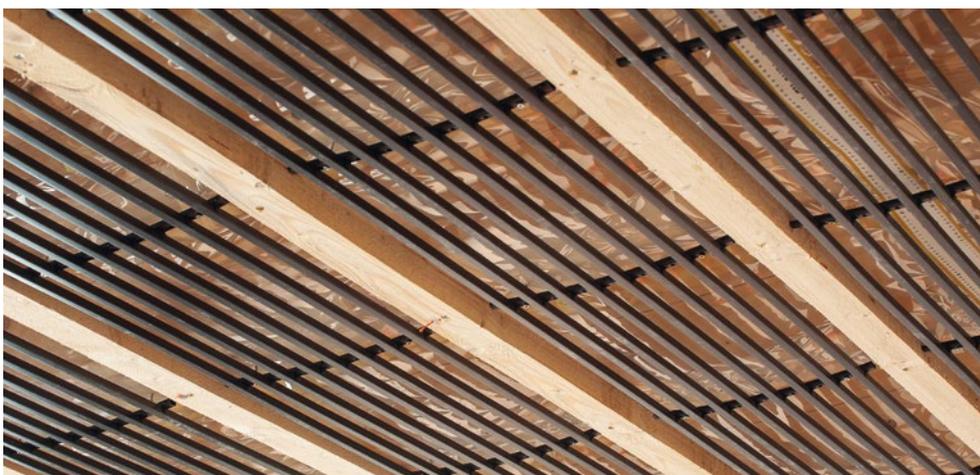
former barn: Instead of the impassable screed layer with classic underfloor heating, a floor made of OSB installation panels was mounted on the old floor vault next to the insulation, onto which the surface heating and cooling system was screwed.

#### **PLEASANT ROOM CLIMATE, LOW HEATING COSTS**

After completion of the construction work, the family of five is not only satisfied with the problem-free installation of the surface heating and cooling system, but also with the pleasant temperatures created by the system. The reason for this is the radiant heat: comparable to the sun, the aquatherm black system heats the objects and bodies that are in the room. These provide the temperature evenly to the room air, which is thus heated only insignificantly. This creates a natural, pleasant indoor climate without drafts. Thanks to the much lower flow temperatures used to run the system compared to classic surface heating systems, the family saves a lot of money during the winter months.

***“For such an old building we are very happy with the heating costs,” concludes Tobias Masur.***

The family is now enjoying their carefree – and comfortable – life in the country.



**aquatherm**  
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**aquatherm GmbH**

Biggen 5 | 57439 Attendorn | Germany

Tel.: +49 2722 950 0

Fax: +49 2722 950 100

info@aquatherm.de | www.aquatherm.de