

Case story

Healthy indoor climate and comfort in one energy-efficient solution

Complete Danfoss indoor climate solution

The indoor climate solution consists of a geothermal heating unit, in-floor heating and a ventilation system, all from one supplier.





Healthy indoor climate and comfort in one energy-efficient solution

In Skibet, near the city of Vejle, Denmark, environmentally-friendly geothermal heating, fast-reacting in-floor heating and energy-efficient ventilation from Danfoss are providing a healthy indoor climate and maximum comfort in a modern, low-energy home.

The house is designed as a class I, low-energy home. In other words, it already meets the energy requirements that will apply to new constructions as of 2015. They include special demands for energy and environmentally-friendly solutions, in which an extra layer of insulation and quality windows alone will not be enough, as modern indoor-climate solutions will soon be required. That is why the house in Skibet has been equipped with a Danfoss geothermal heating unit, which uses 250 meters of hose buried in the lawn to collect the heat from the ground. The hoses send the heat to the unit's heat pump, which then uses it to heat both water and the home itself.

Maximum comfort with in-floor heating in all rooms

The geothermal heating unit's heat pump produces environmentally-friendly heat, which is distributed to all corners of the house via Danfoss' fast-reacting SpeedUp™ in-floor heating system. The system lies just below the floor surface, and the heat is therefore not forced up through a thick layer of concrete before reaching the floor surface.

"In-floor heating provides comfortable heat that is quick and easy to adjust individually for each room. We simply set the system to the desired temperature, and a thermostat in each room automatically adjusts the temperature. The system also reacts quickly to changes in temperature so we avoid excess



temperatures when the sun hits the large, south-facing windows, which means that we don't use unnecessary energy for heating, but take optimal advantage of the free heat from the sun," says Maria Styrbaek, who lives in the house with her husband and two small children.

Healthy indoor climate adjusted to individual needs

The house in Skibet, like other low-energy homes, is well insulated to retain heat and thereby reduce energy consumption. In spite of the thick insulation, the family receives fresh air and a healthy indoor climate throughout the entire house via a Danfoss Air ventilation unit.

"The ventilation unit means that we don't need to worry about the indoor climate and we don't always have to remember to air out the house. The fresh air is supplied automatically as needed, and the exhaust air also increases automatically, for example, during activity in the bathroom. Danfoss Air provides us with a comfortable indoor climate year round, regardless of whether it is hot or cold outside," Maria explains.

The Danfoss Air ventilation unit can be preset to lower levels while the family is at work or on vacation, and it can also add extra circulation just before the residents return home.

Easy to operate

The complete Danfoss indoor climate solution for the family in Skibet takes care of itself and requires a minimum of maintenance. An easy-to-use control unit ensures maximum efficiency in everyday life.

"We have never had either geothermal heating or ventilation, so naturally we were a little anxious to see how it would work in the beginning. Fortunately, it's been extremely easy to learn how to operate the system and its various functions. It also gives us great peace of mind that the geothermal heating system, the in-floor

heating system and the ventilation system all come as a combined solution from Danfoss. This way we know that the systems work together and that we only need to call one place if we have a question or something goes wrong," Maria says.

The modern, low-energy house was finished in November of 2010, the same month Maria and her family moved in. The house is located in the town of Skibet, near Vejle, Denmark, and it is part of a special residential area with newly constructed passive-energy and low-energy homes.



The in-floor heating system provides comfortable heating, which is quick and easy to adjust individually for each room. We simply set the system to the desired temperature and the unit automatically adjusts the heat in each room.

Maria Styrbaek, low-energy homeowner in Skibet.



Overview of the installation:

Danfoss geothermal heating unit

The unit consists of a heat pump and 250 meters of hose that are buried in the ground. The environmentally-friendly heat provides heat for the home as well as for hot water.

Danfoss SpeedUp™ in-floor heating

Danfoss SpeedUp™ is installed just below the surface of the floor. This allows the system to react quickly and makes it easy to precisely control the temperature. Danfoss SpeedUp™ is suited for all types of floors.

Danfoss Air ventilation unit

The unit provides a constant flow of fresh air, which ensures a healthy indoor climate. By recycling the heat, the ventilation unit uses heat from the house to reduce energy consumption.



3 good reasons to choose Danfoss

Danfoss offers intelligent and energy efficient heating solutions for your home. Our products enhance comfort, reduce heating expenses and make your heating system easier to handle. With almost 8 decades of experience, innovation and development, we provide you with the best heating solutions for an optimal indoor climate.



1 Intelligent solutions which optimise indoor climate and comfort



2 Reduce heating expenses and enjoy the advantages of an energy efficient home



3 Intuitive and user-friendly products which are tailor made to suit your lifestyle

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Danfoss A/S · Heating Solutions · Ulvehavevej 61 · DK-7100 Vejle · Tel. +45 7488 8500 · Fax +45 7488 8501
E-mail heating@danfoss.dk · www.heating.danfoss.com

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