

Case | Flooding in private homes, Hinnerup, Denmark

The UNILIFT KP keeps family home dry and safe in Denmark



UNILIFT KP

Imagine being just about to go on holiday and as you go to your basement to fetch the suitcases, you find that they are covered in mold. That is what happened to John Sørensen in January 2024, and it turned out the problem was much bigger than that. Unfortunately, John's case is not unique.

GRUNDFOS 

Possibility in every drop



Homeowner John Sørensen and Global Product Specialist in Domestic Wastewater, Bjarni Rom-Jensen, inspect the basement walls for mold and cracks.

Situation

In fact, due to heavy rain and snowmelt in the Danish autumn and winter 2023, the groundwater had risen substantially, causing severe problems for home owners countrywide.¹ Because of poor evaporation in the cold months, the huge water masses had nowhere to go, causing groundwater floods and subsequent water damages in many homeowners' basements.²

This was also the case for John Sørensen whose house, interior and belongings were severely damaged. The house was inhabitable as long as the mold was still infecting the house and potentially causing health problems. For months, he had dehumidifiers installed in his basement and just recently, the groundwater level had fallen sufficiently to proceed with the renovation.

Typically, two factors ensure that the groundwater level stabilises at an acceptable level: Rising temperatures in the springtime cause the groundwater to evaporate, and trees and plants absorb more water through their roots as they start to grow.¹ Grundfos was able to help with a permanent drainage solution to prevent a groundwater flood from reoccurring.

¹⁻⁸ For resources, please click here for an overview on the Grundfos website



Heavy rain and climate change cause groundwater levels to rise

In Denmark as well as in Northern and Central Europe, there is an upward trend in heavy rainfall, and in 2023 the majority of Europe saw wetter-than-average conditions.⁴

Annual precipitation in Denmark has increased by approximately 20% over the past century,⁵ and precipitation levels in Europe were 7% above average in 2023, increasing the risk of floods in many areas of Europe⁶. Due to climate changes, extreme weather events such as heavy rain are expected to increase in numbers and intensity⁷.

When rainwater can't be absorbed by the soil, either due to heavy rain or high groundwater levels, it will flow on top of the ground and increase the risk of flooding low-lying areas. If the soil surrounding the foundation of a house is saturated with water, the hydrostatic pressure will rise and push against the foundation of the building. Eventually, the water will start to seep through cracks and openings in the concrete.⁸ This pressure can also cause the basement floor and walls to crack, making it crucial to take the proper precautions and secure the home.

¹⁻⁸ For resources, please click here for an overview on the Grundfos website



1 in 6 homes is at risk of flooding in Denmark⁹

Fan heaters and dehumidifiers have become fixtures in John Sørensen's basement the past nine months to help remove the moisture.



From the orange pipe, the grey water from the basement drainage system runs into the well. The blue level switch floating on top of the water causes the pump to start when the water reaches a certain level.

Solution

Needless to say, John Sørensen's home required a lot of repairs in which his insurance company was involved. But in order to prevent groundwater floods from reoccurring in the future, several preventive measures had to be taken.

A new drainage system was installed in the concrete floor of the basement causing the water to run off into an intermediate sand trap well and onwards into the drainage well. From the drainage well, the pump pushes the wastewater upwards into the municipal system. Grundfos supplied a UNILIFT KP to install inside the well – a compact stainless-steel submersible pump designed for pumping non-aggressive water and grey water.

The UNILIFT KP has a built-in level switch that starts and stops the pump as water enters the well. It is the most robust and suitable pump for this kind of job, handling both drainage water and surface water.

John Sørensen bought a separate alarm to be installed in the well that will go off if the water reaches a certain level indicating that the pump has not started. It is an additional safety precaution. This gives him ultimate peace of mind and pleases the insurance company which in some cases may refuse to cover damages if such preventive measures aren't taken.



UNILIFT and floods

Typically, the UNILIFT pump is ideal in two cases:

1. When you build a new house or take over an older house and want to install a proper drainage system around the house (perimeter drain) to prevent groundwater flooding and damage to the house. As this is a rather costly solution, it is, however, often deprioritised.
2. When a flood has already happened, and you need a pump to remove the water from the house and/or garden and into the municipal sewage system.

If you are experiencing problems with backwater, flooding or groundwater entering cellars, it is a sign that the wastewater is yet to disappear, and you need either a lifting station or a submersible drainage pump.

For more on UNILIFT KP, visit the website [→](#)

Outcome

Even though the renovation process has already been going on for 9 months and caused quite a few headaches, John Sørensen is pleased with the result thus far. He can now rest assured that basement floods are a thing of the past, and he is confident that doing the proper renovations with quality materials has increased the resale value of his house.



Some of John Sørensen's belongings were salvageable and some had to be discarded due to the extensive water damages. The insurance company covered only the damages which amounted to **approximately DKK 500,000**. He had to pay for the drainage system himself which will cost approximately DKK 250,000.

Not having a proper drainage system in place in case of a groundwater flood can be a costly affair. But now, the UNILIFT KP and the new drainage system keep John's family home dry and safe.

Grundfos supplied

UNILIFT KP 350 A-1

“We’ve had excellent counselling regarding the choice of wastewater pump and we went with the most robust and suitable pump for the job.”

John Sørensen, homeowner
Hinnerup, Denmark



Grundfos Holding A/S
Poul Due Jensens Vej 7
DK-8850 Bjerringbro
Tel: +45 87 50 14 00
www.grundfos.com

