

THE UNDERSTENSHÖJDEN PROJECT

– LOCAL WASTEWATER TREATMENT IN AN URBAN AREA

The Understenshöjden eco-village is situated in the suburb of Björkhagen, a few kilometres south of central Stockholm. The 160 residents are members of a tenant-owner association which includes all 44 apartments.

The estate, which was ready for occupation in 1995, meets high ecological standards with regard to waste management, construction materials, energy systems and the outdoor environment. Urine-separating toilets and a small treatment plant are important components of the local sewerage system.

The toilets are wall-hung Dubbletten models. The urine passes through a copper toilet seal (many of the seals were subsequently replaced by plastic seals) to a system of welded polyethylene pipes with a diameter of 75 or 110 mm. The urine is collected in two series-connected tanks with a capacity of 40 m³ each. When the first tank is full, the urine mixture overflows into the other one.

About once a year, the urine that has accumulated in the holding tanks is transported to storage tanks at Lake Bornsjön in Salem. The remaining toilet waste and greywater is treated in a local biological treatment plant, after which it undergoes further treatment in a system of ponds and ditches.

URINE SEPARATION AND LOCAL TREATMENT CLOSE TO THE MUNICIPAL WASTEWATER SYSTEM

In Understenshöjden the residents themselves made all the technological choices and decided on system solutions. The aim was to design a water-borne wastewater system that would be an alternative to the conventional treatment plants.

The residents wanted a local wastewater treatment system without



chemical precipitation, and this was why they chose a system with urine separation, a local treatment plant and subsequent treatment in ponds and ditches. This alternative was adopted despite the option of connecting up to the nearby municipal wastewater system.

THE CURRENT SITUATION IN UNDERSTENSHÖJDEN

Since the residents moved in, all the urine has been used as fertilizer for cereal crops. However, the Environment and Health Protection Administration

has not granted permission to release the wastewater treated in the local plant into the system of ponds and ditches. At present, therefore, the water is pumped into the municipal wastewater system. The reason for this is that the treated water does not meet the limit value for phosphorus (0.5 mg per litre). It does, however, meet both the hygienic requirements and the BOD requirement of 15 mg per litre.

The residents are currently discussing the future of the local treatment plant. They have, however, decided to keep their urine-separating toilets, which they are satisfied with.

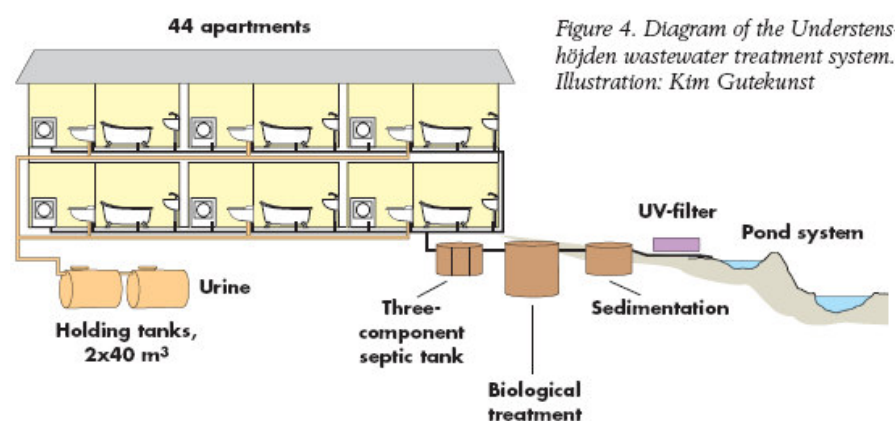


Figure 4. Diagram of the Understenshöjden wastewater treatment system. Illustration: Kim Gutekunst