

How does the Finnish legislation affect the design of onsite wastewater treatment systems?

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Abstract

A comprehensive new Environmental Protection Act came into force in Finland in March 2000. The Act covers all small discharges that may cause pollution of surface waters or groundwater. Based on the Act it was possible to enact a special decree concerning onsite wastewater systems and their effluents. The Government Decree on Treating Domestic Wastewater in Areas Outside Sewerage Networks (OWSD) was given in 2003. The scope covers such onsite systems that receive domestic or similar wastewater from individual homes, small businesses, and clusters of homes with a population equivalent of less than 100.

The OWSD includes several new principles and features, not generally used in other countries. One important definition, formulated exclusively for this Decree, is the person-equivalent load for dispersed settlements. Per capita values are given for this load, namely, 50 grams for organic loads expressed as BOD₇, 2.2 grams for total phosphorus and 14 grams for total nitrogen. The treatment requirements are given based on these specific person-equivalent load values. The basic reduction requirement is that a decrease of 90% of BOD₇, 85% of phosphorus and 40% of nitrogen must be achieved. If a zoning of less sensitive areas within the municipality is done, lower reduction values of 80% for BOD₇, 70% for totP and 30% for totN may be used.

According to OWSD, proper plans for the wastewater system must be included in the application for a building permit. There are certain general requirements for a system and for the designer as well as design and dimensioning requirements. Proper operation and maintenance is highlighted with requirements of operation and maintenance instructions.

For the selection of an effective and site-specific treatment method it is necessary to know enough about the performance of different treatment methods, both soil treatment systems and prefabricated treatment plants. In order to help the designers and home-owners, the Decree requires that the Finnish Environment Institute SYKE collects independent, reliable and up-to-date information on commonly used treatment methods and the performance of such methods. Such information must be accessible to everybody. To ensure this, SYKE has published this information on the Internet since 2004 and the files are updated a few times a year.

It was assumed that the growing interest among the Finnish manufacturers will bring many new products to the market. This has also been the case. Many promising products have been monitored in research projects and a test procedure and the infrastructure for carrying out tests based on the European standard EN 12566-3 was developed.

The Decree entered into force on January 1, 2004. Anyone building a new house after that date must fulfil the requirements. The Decree also covers the wastewater systems in existing houses but it would have been impossible to carry out the needed improvements simultaneously. Therefore, the Decree includes a provision for a transitional period of ten years for those having a treatment system fulfilling the requirements of the time of construction.

During 2010, a political-technical-environmental debate caused a lot of confusion in the implementation of the decree. The Ministry of the Environment has proposed some changes concerning the Environmental Act and the OWSD. The Parliament makes a decision of revisions during February 2011.