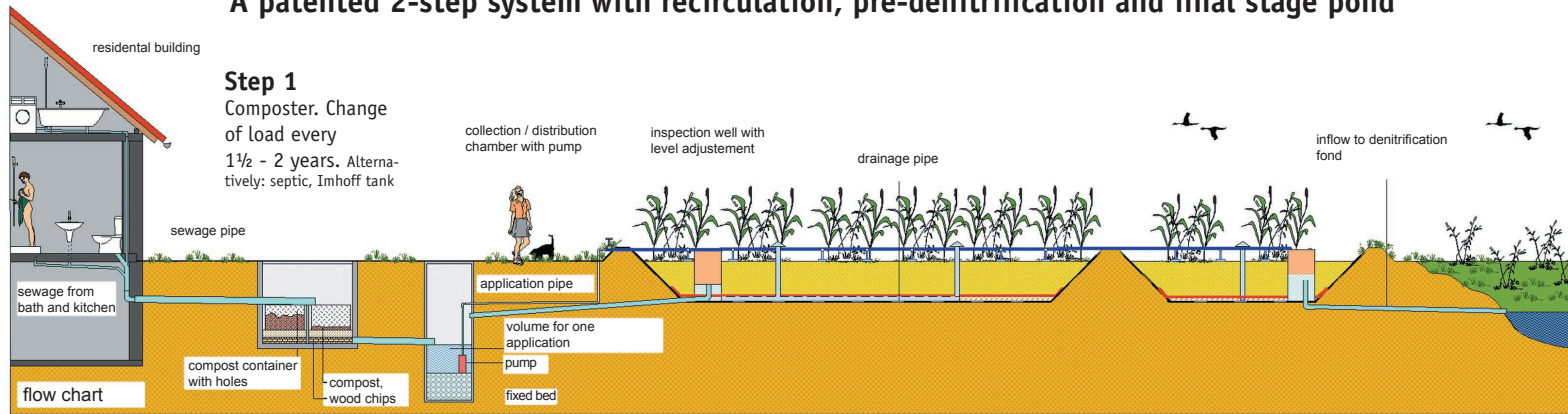


And thus you can easily fulfill the special requirements concerning the disposal of nitrogen!

Soil filter for municipal waste water treatment with improved removal of nitrogen
A patented 2-step system with recirculation, pre-denitrification and final stage pond



Step 1
Composter. Change of load every 1½ - 2 years. Alternatively: septic, Imhoff tank

Step 2
Denitrification in a permanent bed (structural material as a growth medium for the bacterial biofilm) in the collection and distribution basin.

Step 3
Rapid infiltration, high oxygen input, minimized odor load, breakdown of organic substances, nitrification

Step 4
Breakdown of remaining organic substances, residual denitrification, increased retention time through damming

Step 5
Residual denitrification



Functioning principle

In the plant bed (step 2) almost all the ammonium in the waste water is transformed into nitrate through an effective distribution of the water and a vertical flow through the body of the filter. Recirculation causes it to reach the collection basin. Under the anoxic conditions of the permanent bed, the microorganisms extract oxygen from the nitrate in order to break down the organic substances in the fresh waste water, thereby producing atmospheric nitrogen which

is released into the air. The second bed is partially dammed. Here a further cleansing occurs. Due to the damming, the retention time is increased, making it possible to break down compounds that are difficult to break down. Thanks to an added de-nitrification pond, the nitrogen concentration in the effluent can be lowered to below 13 mg/liter and can be kept stable at that level.

Through the combination of a planted soil filter, pre-denitrification, and a final stage pond, the following average effluent values can reliably be achieved:

Parameter	Soil filter effluent	Concentration limits* for ground water infiltration in Brandenburg
COD	≤ 40 mg/liter	≤ 110 mg/liter
BOD ₅	≤ 10 mg/liter	≤ 25 mg/liter
Total nitrogen	≤ 18 mg/liter resp. 13 mg/liter (with pond)	Limit: 24 mg/liter Average annual concentration: 13 mg/liter
Ammonia-N	≤ 5 mg/liter	--- (≤ 10 mg/l ≥ 5000 PE)

*according to the special regulations for the protection of drinking water for the state of Brandenburg for plants for more than 50 inhabitants.

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