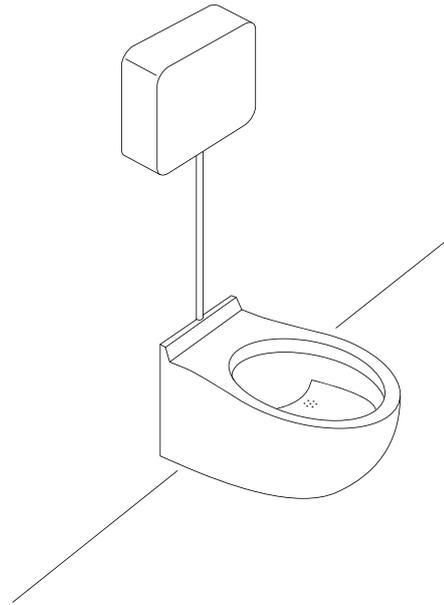
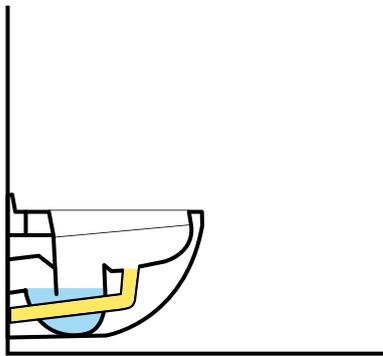
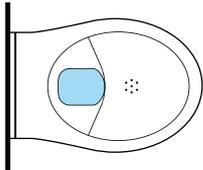


	Inputs:  Faeces  Urine  Flushwater  Anal Cleansing Water  Dry Cleansing Materials
	Outputs:  Brownwater  Urine



The urine-diverting flush toilet (UDFT) is similar in appearance to a Cistern Flush Toilet (U.5) except for the diversion in the bowl. The toilet bowl has two sections so that the urine can be separated from the faeces. Both sitting and squatting models exist.

Urine is collected in a drain in the front of the toilet and faeces are collected in the back. The urine is collected without water, but a small amount of water is used to rinse the urine-collection bowl when the toilet is flushed. The urine flows into a storage tank for further use or processing, while the faeces are flushed with water to be treated.

Design Considerations The system requires dual plumbing, i.e., separate piping for urine and brownwater (faeces, dry cleansing material and flushing water). The toilet should be installed carefully with an understanding of how and where clogs may occur so that they can be prevented and easily removed. For the discharge of urine, plastic pipes should be used to prevent corrosion. To limit scaling, all connections (pipes) to storage tanks should be kept as short as possible; whenever they exist, pipes should be installed with at least a 1%

slope, and sharp angles (90°) should be avoided. A pipe diameter of 50 mm is sufficient for steep slopes and where maintenance is easy. Larger diameter pipes (> 75 mm) should be used elsewhere, especially for minimum slopes, and where access is difficult.

Appropriateness A UDFT is adequate when there is enough water for flushing, a treatment technology for the brownwater and a use for the collected urine. To improve diversion efficiency, Urinals (U.3) for men are recommended.

UDFTs are suitable for public and private applications, although significant training and awareness is required in public settings to ensure proper use and minimize clogging.

Since this technology requires separate pipes for urine and brownwater collection, the plumbing is more complicated than for Cistern Flush Toilets. Particularly, the proper design and installation of the urine pipes is crucial, and requires expertise.

Health Aspects/Acceptance Information cards and/or diagrams are essential for ensuring proper use and for promoting acceptance; if users understand why

the urine is being separated, they will be more willing to use the UDFT properly. Correct plumbing will ensure that there are no odours.

Operation & Maintenance As with any toilet, proper cleaning is important to keep the bowl(s) clean and prevent stains from forming. Because urine is collected separately, calcium- and magnesium-based minerals and salts can precipitate and build up in the fittings and pipes. Washing the bowl with a mild acid (e.g., vinegar) and/or hot water can prevent the build-up of mineral deposits and scaling. Stronger (> 24% acetic) acid or a caustic soda solution (2 parts water to 1 part soda) can be used for removing blockages. However, in some cases manual removal may be required.

Pros & Cons

- + Requires less water than a traditional Cistern Flush Toilet
- + No real problems with odours if used correctly
- + Looks like, and can be used almost like, a Cistern Flush Toilet
- Limited availability; cannot be built or repaired locally
- High capital costs; operating costs depend on parts and maintenance
- Labour-intensive maintenance
- Requires training and acceptance to be used correctly
- Is prone to misuse and clogging
- Requires a constant source of water
- Men usually require a separate Urinal for optimum collection of urine

References & Further Reading

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