HEALTHY HOMES AND COMMUNITIES

ANTHC Portable Alternative Sanitation System (PASS)

The Portable Alternative Sanitation System (PASS) addresses basic sanitation needs: handwashing, clean drinking water, safe human waste disposal, and quality of life improvements in the home. It is not a replacement for, nor provides the same capabilities, as a piped water system.

Portable

The biggest drawback of a typical piped water and sewer system is that it is not portable. Many Alaska communities are vulnerable to flooding and erosion; therefore, some funding agencies have been reluctant to invest in infrastructure in these communities.. The Portable Alternative Sanitation System can be disassembled and reassembled in a new location as needed.

Alternative

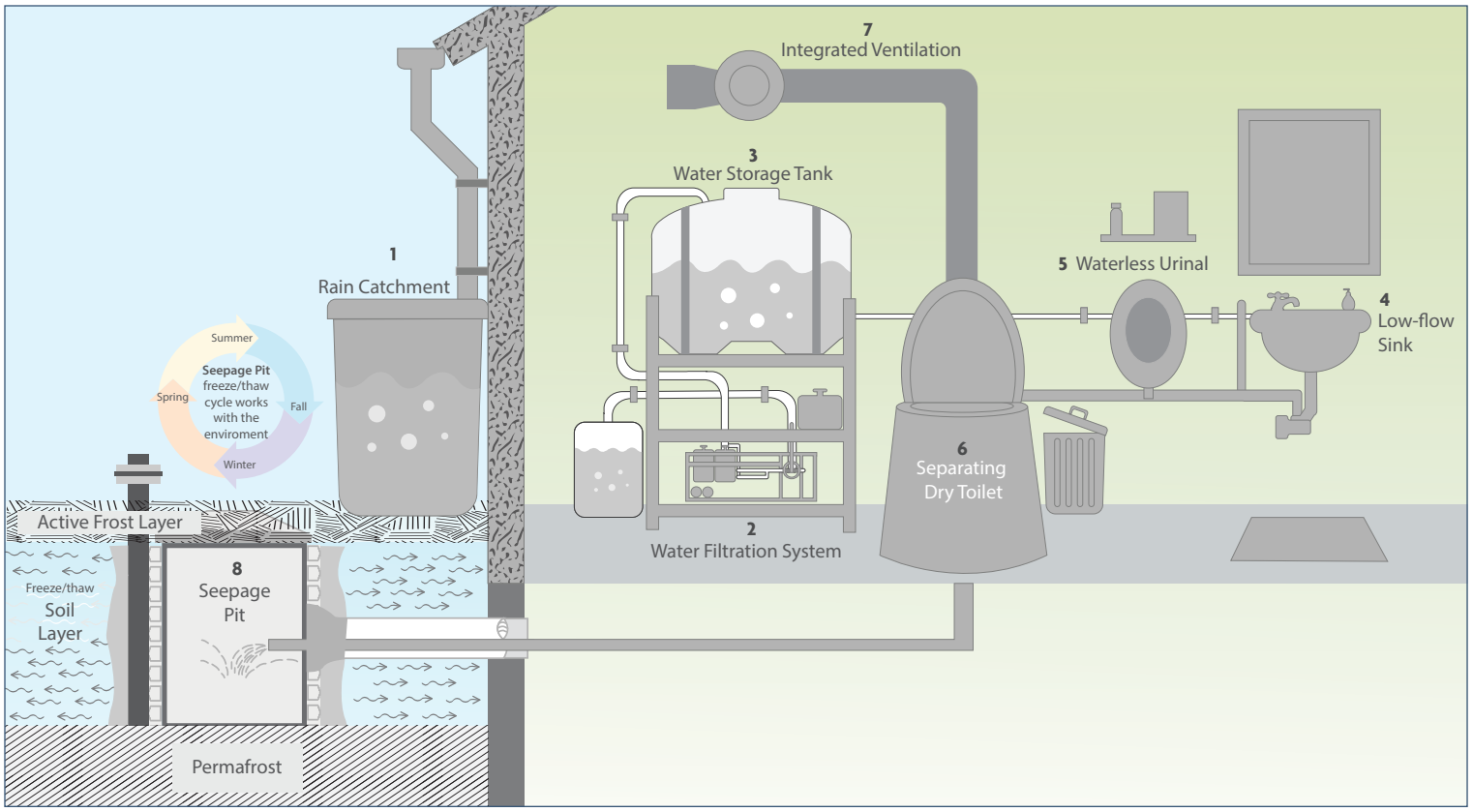
The Alaska Native Tribal Health Consortium and partners – Cold Climate Housing Research Center, Lifewater Engineering and Camp Water Industries – have designed and implemented a low-cost sanitation alternative for communities impacted by climate change and lack of sanitation. The PASS systems allow homeowners a safe, effective approach to water treatment and sanitation without the high operations and maintenance costs associated with piped infrastructure.

Sanitation

The PASS has been implemented in three Tribal health regions: Maniilaq, Tanana Chiefs Conference and Yukon-Kuskokwin Delta. These regions currently have communities that use self-haul, honey buckets or outhouses. Exposure to raw sewage places community members at risk for contact with pathogens. This innovative system vastly improves hauling waste by limiting exposure, minimizing odor, and reducing frequency and weight of hauls.

System

The system is entirely homeowner-based, designed to address the most basic sanitation needs and can be moved with the individual or community. The systems are stand-alone modules; as homes are moved to the new village site away



Typical PASS system layout and components

1. Rain catchment

For a roof catchment area of approximately 1,200 square feet, it is possible to recover nearly 3,000 gallons or more of rain each year to supplement the quantity of water that must be hauled to the home.

2. Water filtration system

The water treatment system incorporates filters and chlorination for point-of-entry treatment to ensure safe, pathogen-free drinking water. Typical raw water sources include: rain catchment, rivers, springs, community watering points and snow and/or ice.

3. Safe water storage tank

The 50-gallon or 100-gallon tanks provide filtered potable water storage and feed the handwashing sink by gravity instead of requiring electricity.

4. Low-flow sink

The sink conserves water while providing for better hygiene by eliminating the wash basin.

5. Waterless urinal

The urinal provides a separate waste option for liquid waste.

6. Separating dry toilet

Waste is separated into liquid and solid components where the liquid is disposed of into a seepage pit and dry solids are disposed of with solid waste. This toilet provides the option to capture urine in a container or to use as a ventilated honey bucket.

7. Integrated ventilation fan

An energy-efficient combined ventilation system dries the solid waste, reduces odors, and ventilates the home.

8. Seepage pit

Liquids are disposed of into a seepage pit which works with the natural environment to dispose of waste.

For more information, contact ANTHC Environmental Health and Engineering
(907) 729-3600 | anthc.org

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ALASKA NATIVE TRIBAL HEALTH CONSORTIUM