

⊕ CLEAN WATER AND SAFE WASTE DISPOSAL SOLUTION

PORTABLE

The biggest drawback of a typical piped water and sewer system is that they are not portable. Some Alaskan communities are vulnerable to flooding and erosion; therefore, some funding agencies have been reluctant to invest in infrastructure. The PASS systems can be assembled and reassembled if a community has to relocate.

ALTERNATIVE

The Alaska Native Tribal Health Consortium and the Cold Climate Housing Research Center have designed and implemented a low cost sanitation alternative for communities that are affected by climate change. The PASS systems are approximately \$26,000 per household as compared to a traditional piped system that costs approximately \$168,000 per household.

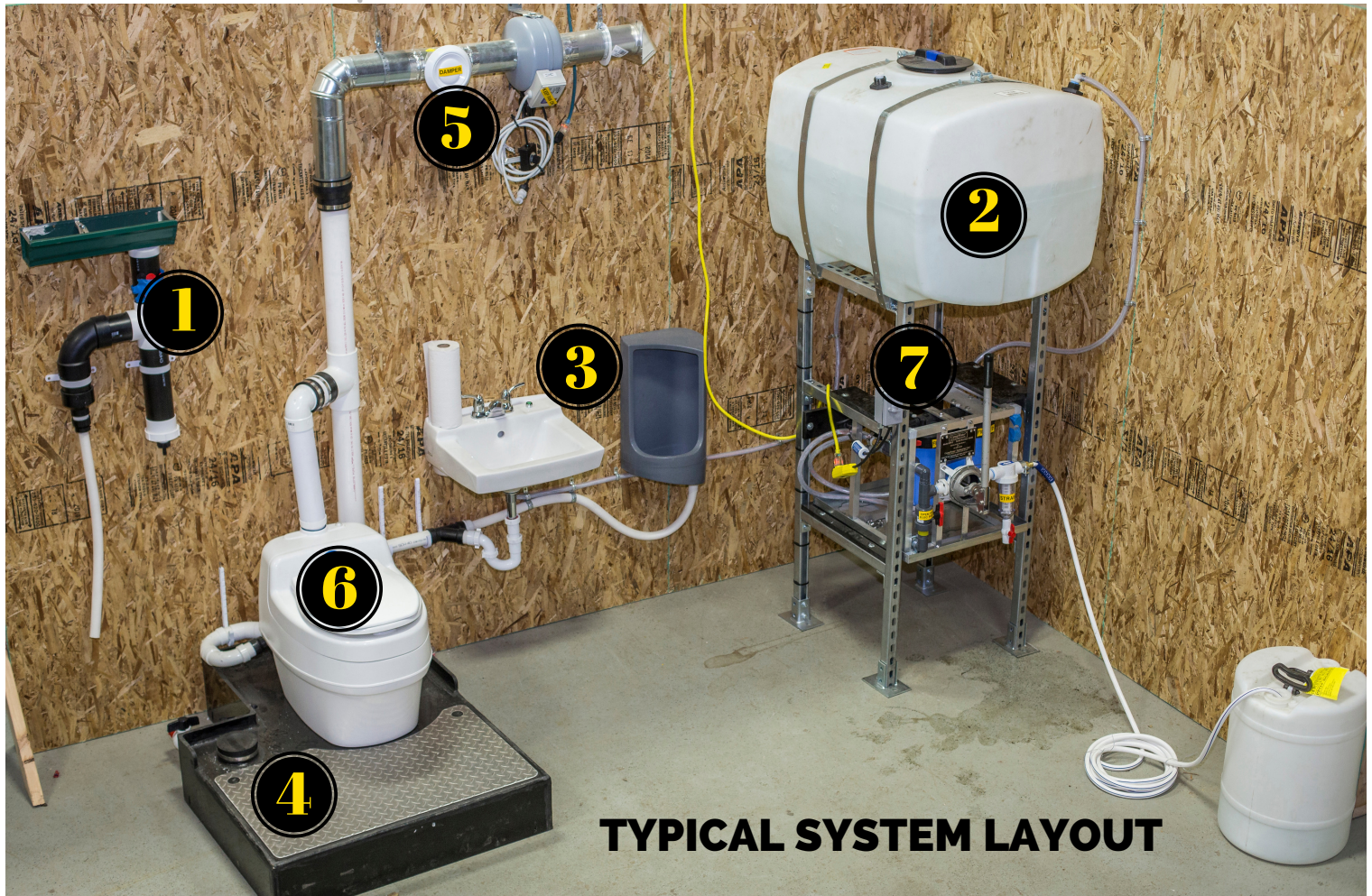
SANITATION

The PASS was implemented in nine homes in Kivalina, Alaska. Kivalina has been operating on a self-haul system. This exposure to raw sewage places community members at risk for waterborne pathogens. The innovative systems vastly improve hauling by limiting exposure to waste, 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 community. The systems are stand-alone models; as homes are moved to the new village site away from the eroding coastline, residents can bring their clean water and safe sewer systems with them.





TYPICAL SYSTEM LAYOUT



2. WATER STORAGE TANK

The 100-gallon, gravity-fed tank does not require electricity.

3. LOW-FLOW SINK AND WATERLESS URINAL

The sink and urinal conserves water while providing for hygiene and sanitation needs.

4. GREY WATER TANK

The grey water tank purges into the seepage pit below when full.

5. INTEGRATED VENTILATION

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

6. SEPARATING TOILET

Waste is separated into liquid and solid components where the liquid is disposed of into a seepage pit and dried solids are disposed of in the landfill.

7. WATER TREATMENT SYSTEM

The water treatment system incorporates membranes and chlorination for point-of-use treatment to ensure the water is safe to drink despite its condition upon entering the system.



1. RAIN CATCHMENT

For an 800-square-foot home with a 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 hauled to the home.