

# BEHIND THE WALL (BTW)

## Urine-Diverting Conveyor Toilet



Zion National Park, UT



The environmentally-compliant Toilet Tech BTW conveyor is the superior choice for waste management in the North American Backcountry. The BTW separates liquid and solid waste at the source, reducing odor, maintenance load, and operator exposure to hazardous waste. It has been proven at hundreds of locations, from rocky alpine terrain to barren desert.

- Self-sustaining & hassle-free
- Reliable & low-maintenance materials (stainless steel)
- >99% diversion of liquid waste
- Significant odor reduction
- No bulking agent required
- Gains compliance over pit toilets



Mt. Rainier National Park, WA



Mt. Rainier National Park, WA



Smith Rock State Park, OR

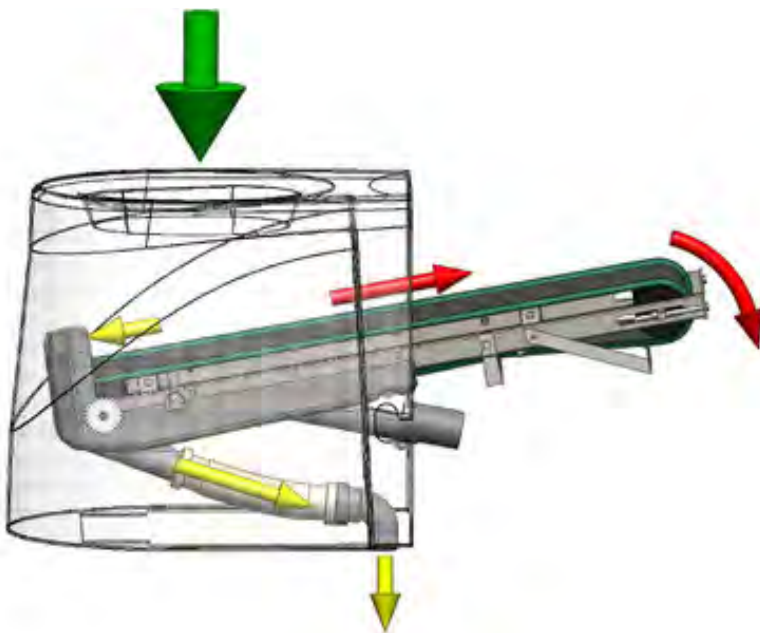




## Design

Separating liquid waste from solid waste is the key to easy, low-cost management of human waste in remote areas. The BTW toilet achieves >99% urine diversion using an inclined conveyor belt with a foot pedal flush mechanism. Liquids run down to the front of the conveyor and into a tray, then plumbed into a urine dispersion field and absorbed by native plants. Solids move along the conveyor when the foot pedal is pumped, eventually falling into one of two types of waste vaults - the decompose vault (DCV) or a solid waste container depending on the system in place.

BTW conveyors are available in Short (15" belt) and Medium (30" belt) sizes. From the user's perspective, this toilet is no different from a standard flush toilet—aside from the fact that the “flush” is achieved by pumping a foot pedal.



**TST TOILET TECH SOLUTIONS**

[www.TOILETTECH.com](http://www.TOILETTECH.com)

FLUSH



5x



Camp Tamarack, OR

## Materials

The BTW toilet is built exclusively with stainless steel, high quality plastic, and a long-lasting rubber conveyor belt. It will not rust or corrode. With hundreds of units in operation for many years, there have been very few part failures and malfunctions. The units are robust and built by hand in France. There are three small wear parts that are recommended to be replaced after many uses (100,000+) or preventatively every 3-5 years.

# Maintenance

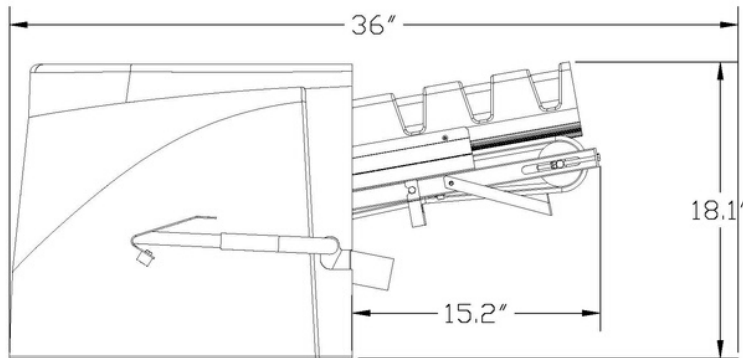
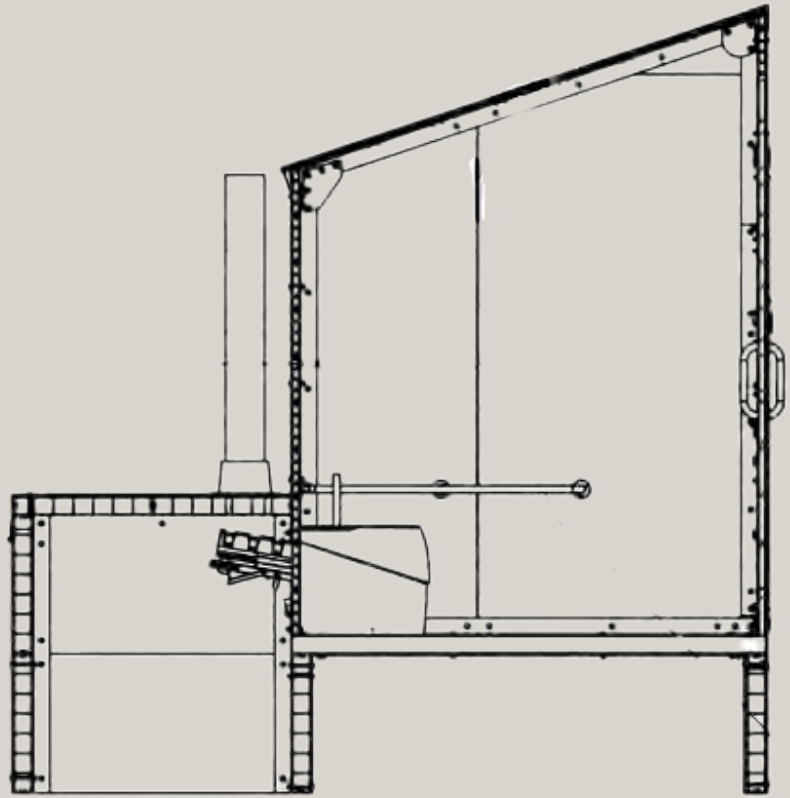
The frequency of maintenance depends on the volume of users and type of use. A few maintenance trips per year is often sufficient – sometimes even less at low-use sites.

Recommended **quarterly** maintenance:

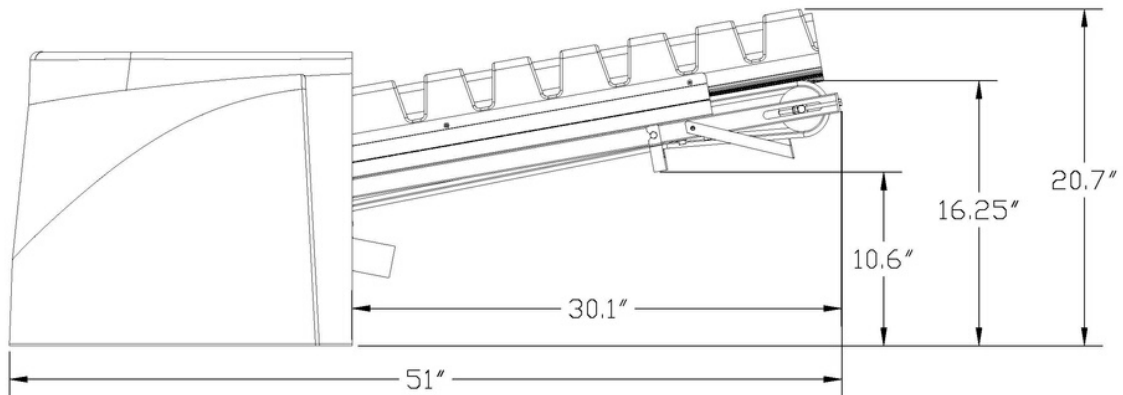
- Removing, cleaning, and reinstalling the urine tray. This ensures there is no long-term build up of solids that might inhibit urine flow.
- Leak-test the plumbing.
- Cleaning debris from the belt scrapers at the rear of the BTW unit.

Recommended **annual** maintenance:

- Raking and wetting down the solid waste pile to encourage decomposition.
- Cleaning the urine plumbing with microbial enzyme drain cleaner.



TTS SHORT CONVEYOR



TTS MEDIUM CONVEYOR

-		-	
NO	REVISION		
<b>PROPIETARY INFORMATION</b>			
This drawing is the property of EES and shall not be used, copied or reproduced in whole or in part, nor shall the contents thereof be revealed in any manner to anyone unless written permission is obtained from Engineered Compost Systems, Inc.			
UNDESIGNED DETAILS SPECIFIED:		THIRD ANGLE PROJECTION	
2 PLACE DIMENSIONS	25.00		ALL DIMS ARE IN INCHES DO NOT SCALE DRAWING
2 PLACE DIMENSIONS	25.00		
FRACTIONS 1/16	1/16		



# DECOMPOSE VAULT (DCV)

The burly, lightweight, prefabricated fiberglass Decompose Vault (DCV) replaces a concrete foundation at backcountry and frontcountry toilet sites. It forms a solid waste collection and treatment area designed to integrate with the Toilet Tech BTW urine-diverting conveyor toilet.

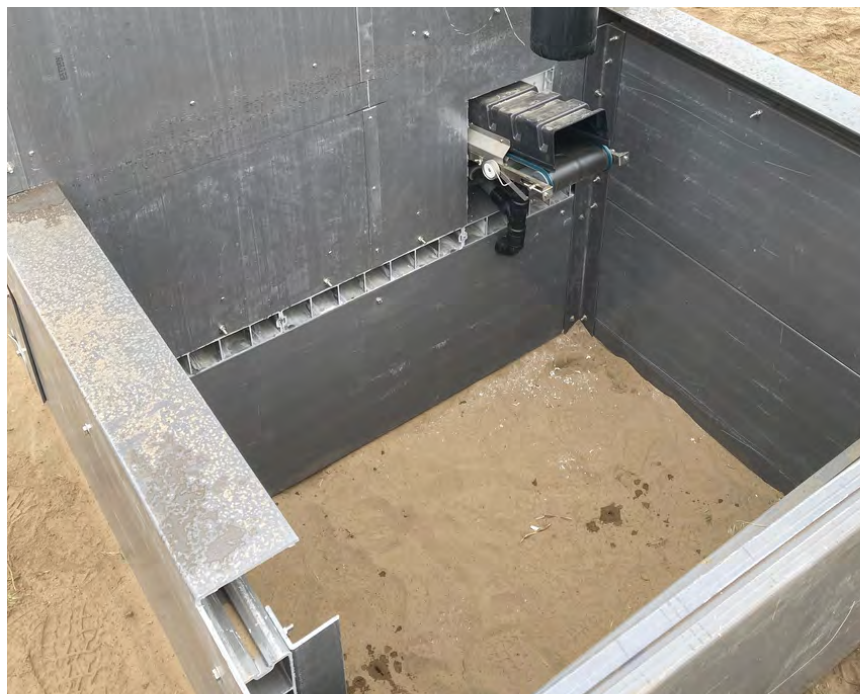
- Cost-effective
- Prefabricated and lightweight
- Easy transportation and install
- No concrete needed
- Stainless Steel hardware
- Minimal excavation required
- Custom sizing available
- Available in 2' and 4' depths



Antelope Island State Park, UT



Mueller State Park, CO



Rocky Flats Campground, WA





Rocky Flats Campground, WA

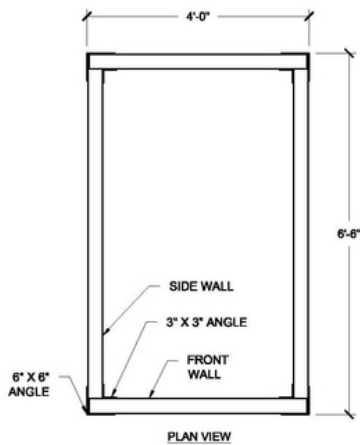


Kitsap Peninsula, WA

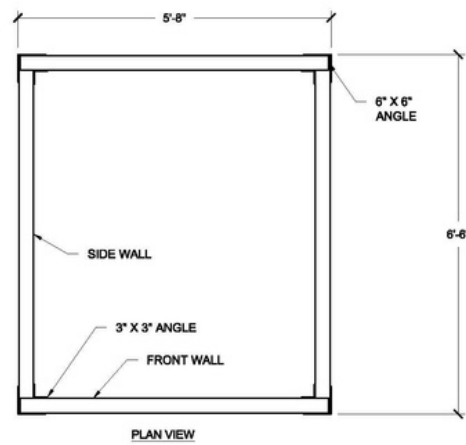
The DCV integrates with Toilet Tech's BTW urine diverting conveyor toilet and prefabricated toilet buildings. It serves as the foundation for the toilet building and provides a sturdy enclosure for the solid waste decomposition area. The DCV is made from fiberglass reinforced plastic (FRP) and prefabricated at Toilet Tech's shop in Seattle. Each section is light enough to be handled by a single person and is pre-drilled for easy assembly on site. The DCV is designed to last many decades, even in harsh environments.



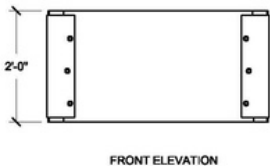
Rocky Flats Campground, WA



Standard



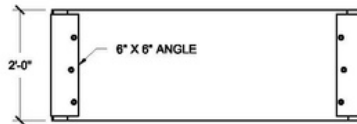
ADA



FRONT ELEVATION



SIDE ELEVATION



FRONT ELEVATION



SIDE ELEVATION



# POOBAH

## & Grand Poobah



Rocky Flats Campground, WA



The Poobah (Standard size) and Grand Poobah (ADA size) are Toilet Tech's flagship toilet structures designed for backcountry and remote frontcountry sites. The structures are prefabricated, require little to no maintenance, and flat pack on a pallet. The fiberglass materials are lightweight, non-corrosive, and incredibly durable.

- Made in the USA
- Fully prefabricated and sectional
- Assembles in one day with two people
- Heavy duty, 4-season use
- Withstands high snow and wind loads
- Superior to concrete (cost, ease of construction, required maintenance)



## Design

The Poobah and Grand Poobah integrate seamlessly with Toilet Tech's fiberglass Decompose Vault and Behind-the-Wall (BTW) urine-diverting conveyor toilet to create an environmentally-friendly, odor-free, and pleasant outhouse experience. With all materials and tools on site, the structure can be erected in one day with two people.

Inside the Poobah, a BTW conveyor toilet moves solid waste through the rear wall of the toilet structure for decomposition by soil invertebrates. Urine is plumbed through the rear wall or through the floor to a local dispersion field for treatment. A door on the back side of the toilet structure allows operators to access the conveyor belt for maintenance while keeping solid waste separated from the public.

## Materials

All structural materials are fiberglass reinforced plastic (FRP), which will not corrode, rot, or decompose. Each piece is no more than 8' long and can be handled by two people. All hardware is stainless steel. Toilet Tech offers a 5-year warranty on all materials in the structure.

## Options

- Standard (Poobah) or ADA-sized (Grand Poobah)
- Decompose or Waste Away toilet system
- Numerous wall material choices
- Classic gable roof (below, right) or shed roof (below, left)



2022 Version



2021 Version



Deschutes State Park, OR



Meuller State Park, CO



Kids Camp, WA



# URINE DRAINFIELDS



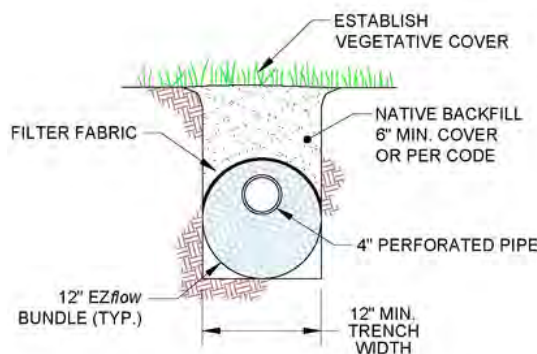
Silver Drainfield - Rocky Flats Campground, WA

## Silver Drainfield

The Silver drainfield is the most popular package offered by TTS. This system features a 20L stainless steel settling tank that contains the urine for 1-2 days depending on toilet usage. Urine will then seep into the EZflow for even distribution - a styrofoam chip layer wrapped around a perforated corrugated pipe. Gravel is not required and native backfill can be used instead of imported or site-cleaned fill, making installation easier and quicker. This drainfield delivers the best value for most customers. All parts are supplied by TTS.

### Example sites:

- Rocky Flats Campground, WA
- Antelope Island State Park, UT
- Deschutes State Park, OR



Toilet Tech Solutions urine-diverting conveyor toilets are the next generation of human waste management for remote sites. They separate >99% of urine at the source, diverting 75-80% of total waste mass into the soil. TTS offers three approved urine drainfield packages, ranked by environmental impact.

- Environmentally compliant
- Not a pit toilet
- Very low maintenance
- Eliminates odors and operational challenges
- All three drainfield packages approved by county/state agencies
- EPA approved installation (Bronze) at Two Sentinels Girl Scouts Camp

Each drainfield package is designed with a 10' distribution area which can accommodate more than 5 gallons of urine daily (approximately 100 users). Larger drainfields can accommodate additional users.



Silver Drainfield - Rocky Flats Campground, WA

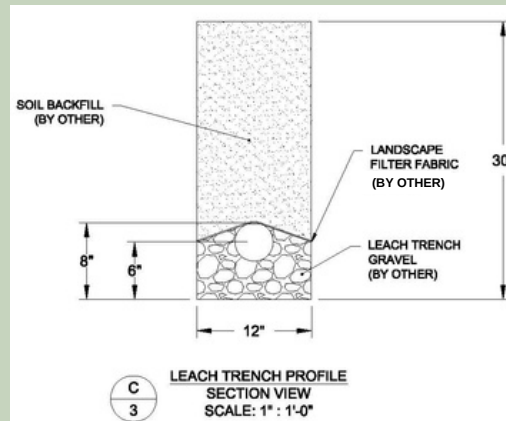


## Bronze Drainfield

The Bronze drainfield package is the most simple workhorse of drainfields. This system replaces the EZflow of the Silver drainfield with a 4" perforated corrugated pipe on top of a layer of gravel to ensure distribution. The pipe and gravel downstream of the settling tank are not provided by TTS.

### Example Sites:

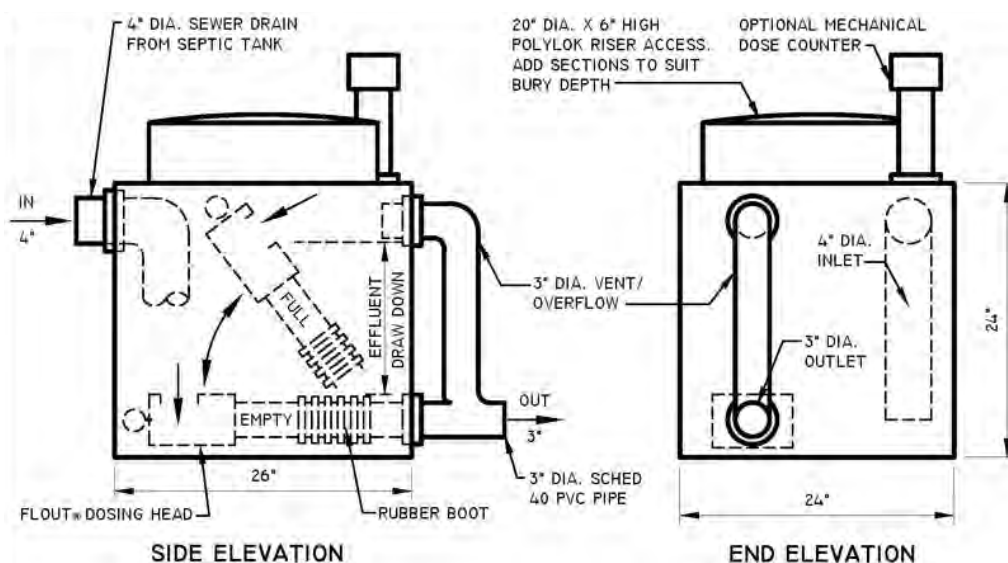
- Zion National Park, UT
- Angeles National Forest, CA
- Mueller State Park, CO
- Two Sentinels Girls Scouts Camp, CA



Bronze Drainfield - Zion National Park, UT

## Gold Drainfield

The Gold drainfield is the most environmentally responsible drainfield package. This system replaces the urine settling tank of the Silver drainfield with a dosing tank. The dosing tank accumulates urine until it is full, providing ample opportunity for ammonia and pH to kill pathogens. The urine is released into the EZflow all at once, ensuring the entire length of the drainfield is saturated. The soil is then allowed to rest for weeks before the next dose, giving soil microorganisms time to absorb and transfer nutrients to nearby plants. All parts are supplied by TTS.



Gold Drainfield - Kids Camp, WA

### Example Sites:

- Bryce Canyon National Park, UT
- Liberty Lakes Regional Park, Spokane County, WA



# DECOMPOSE vs WASTE AWAY

## Solid Waste Management Systems



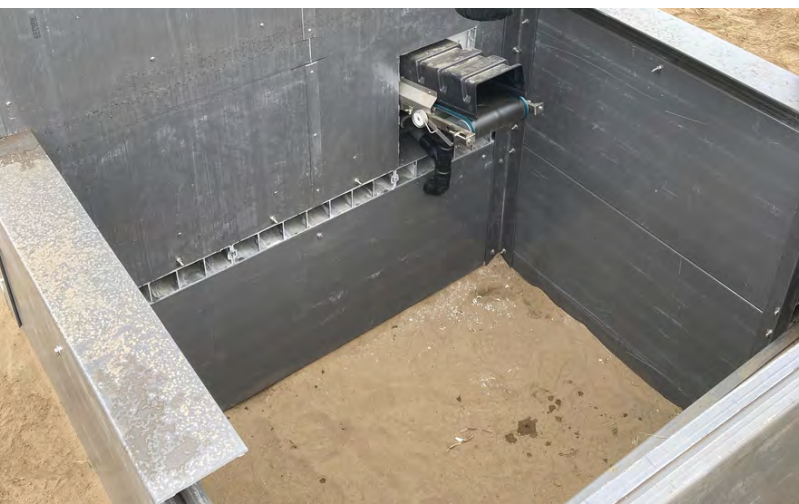
Decompose - Camp Tamarack, OR



Waste Away - Rocky Mountain National Park, CO

**Toilet Tech urine-diverting conveyor toilets excel at human waste management at remote sites, reducing waste mass and volume by 75-95%. Urine is diverted to a drainfield and solid waste can be managed by either a Decompose or Waste Away system.**

The Decompose system for vegetated environments allows native invertebrates to break down solid waste. The Waste Away system for rocky, desert, or alpine sites collects solid waste in containers. Both systems require eventual removal of solid waste.



Decompose - Rocky Flats Campground, WA



Waste Away - Zion National Park, UT

### DECOMPOSE

**Soil type:** Some organic soil, not bare rock  
**Surrounding vegetation:** Plants other than moss to support invertebrate life  
**Number of snow-free months:** At least 3  
**Annual visitors:** Less than 30,000

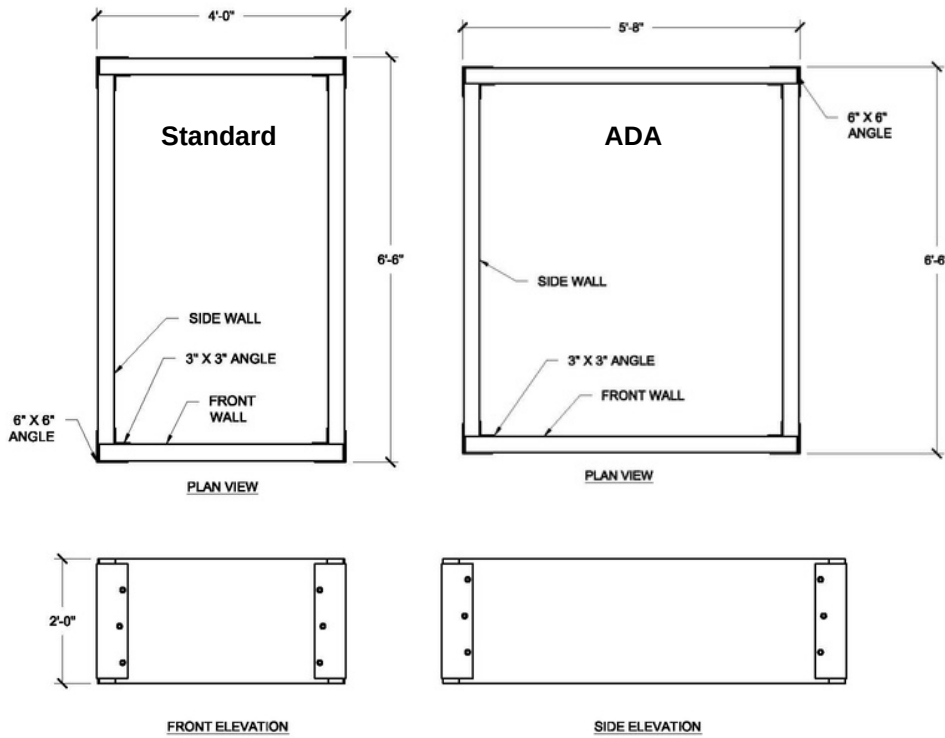
### WASTE AWAY

**Soil type:** Only bare rock, limited soil  
**Surrounding vegetation:** Only moss and lichen on rocks. Soil has insufficient invertebrate life  
**Number of snow-free months:** Less than 3  
**Annual visitors:** 30,000 or more



# DECOMPOSE

## Decompose Vault:

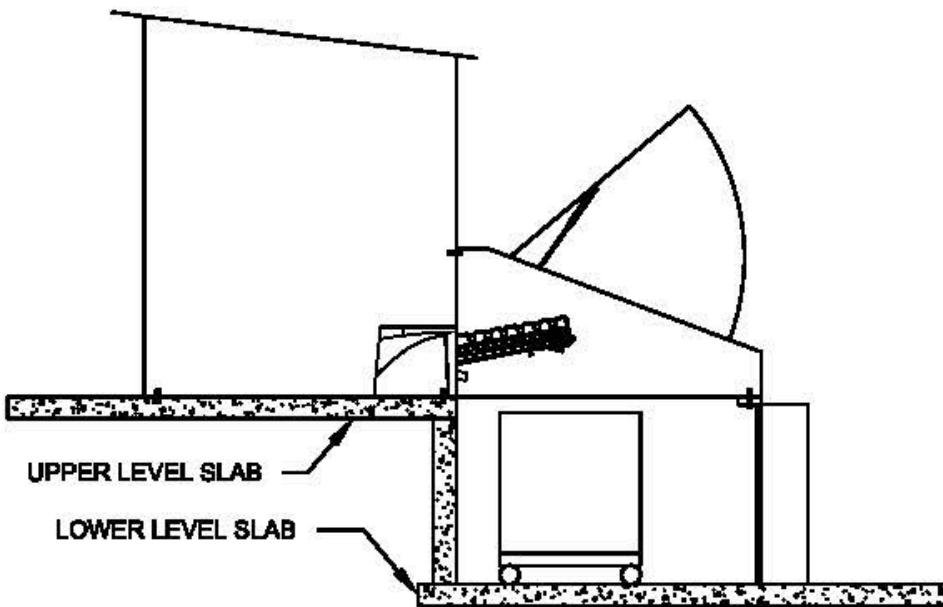


Kids Camp, WA



Rocky Flats Campground, WA

# WASTE AWAY



5040 Peak, BC



Rocky Mountain National Park, CO



## DECOMPOSE VAULT



Terwilliger Hot Springs, OR

The Decompose system collects solid waste in the Decompose Vault (DCV). The DCV is installed below ground or at grade, and serves as the foundation for the toilet structure as well as an area for solid waste decomposition. The DCV is made of fiberglass reinforced plastic (FRP) and is prefabricated at Toilet Tech's shop in Seattle. Each section is light enough to be handled by a single person and is pre-drilled for easy assembly on site. The DCV is designed to last many decades, even in harsh environments.

**Benefits:** Lowest waste volume; onsite storage capacity of 10-20 years; pre-fab; lightweight; durable, 50+ year life

**Drawbacks:** Requires excavation 2-4' into soil

**Site suitability:** Forests, campgrounds, sub-alpine, remote parking lots, some frontcountry sites



Terwilliger Hot Springs, OR

## WASTE AWAY VAULT



Zion National Park, UT

The Waste Away system collects solid waste directly into structural bags or bins for hassle-free removal. Operators report a 75-80% reduction in waste volume and hauling costs as compared to the previous system of mixed waste collection in fly-out drums. Waste can be collected in bags small enough for llamas to carry (Rocky National Park) or in large 1 cubic yard stiff sided haul sacks (Zion National Park). A single large tote bag can capture the waste of up to 10,000 toilet users.

**Benefits:** Safe, easy, no-touch waste storage and removal

**Drawbacks:** Needs a slab & retaining wall; decomposition does not occur

**Site suitability:** Remote backcountry, high alpine, extreme desert



Zion National Park, UT