

*COMPOSTING SYSTEMS
AND TECHNOLOGIES*

TOP Austin Windrow Composting Facility



SAWS/TLM Leon Creek Biosolids Compost Facility



Examples of Composting Systems & Technologies

- C/N Composting – CH2M Hill
- Ag-Bag Environmental – Poly-Flex Composting
- IPS Composting System – US Filter/Siemans
- GORE Cover System - W. L. Gore Associates, Inc
- Engineered Compost Systems (ECS)
- NaturTech – Renewable Carbon Management
- International Composting Corporation
- X-Act Systems
- Green Mountain Technologies (GMT)

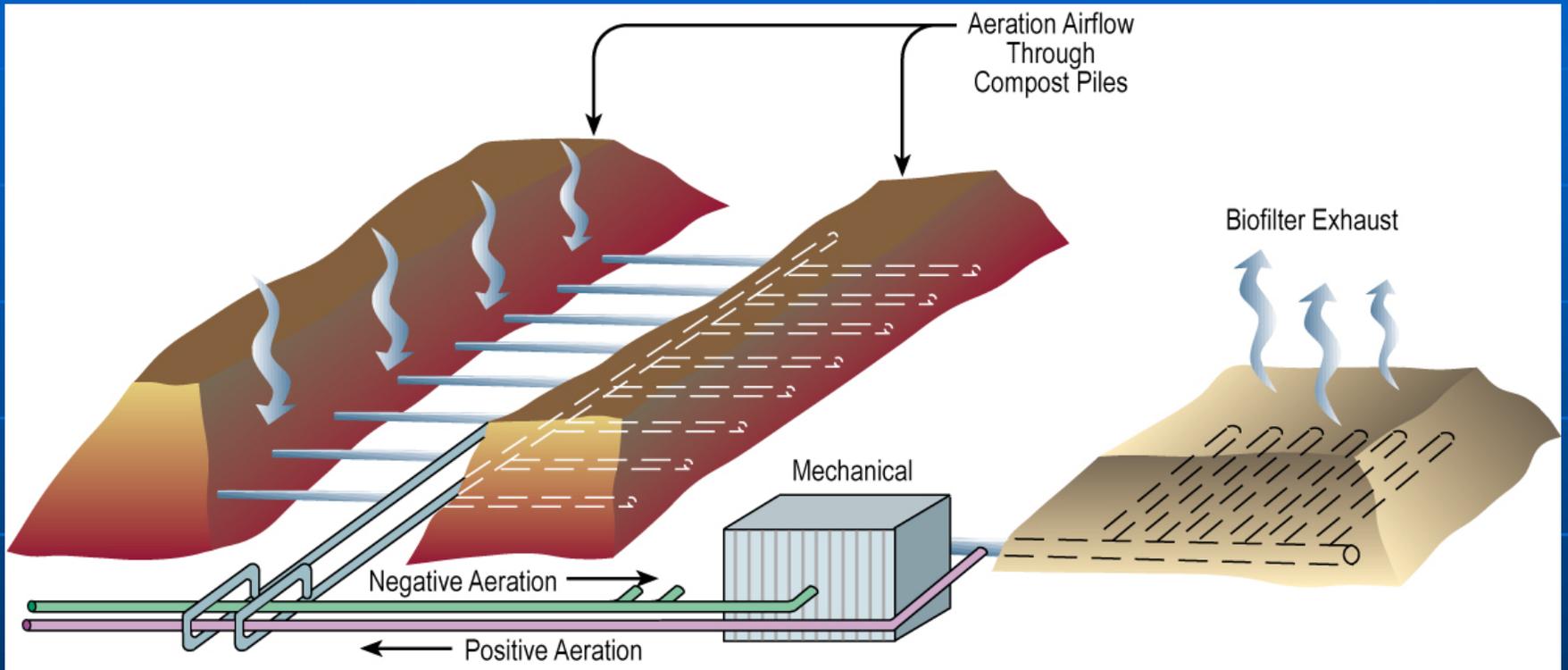
Note: the following information was provided by the system suppliers listed above. System features and performance should be verified with the manufacturer and existing clients and operating facilities.

C/N Composting System

CH2M HILL

Low-Cost Aerated Static Pile Technology

Equipment Design



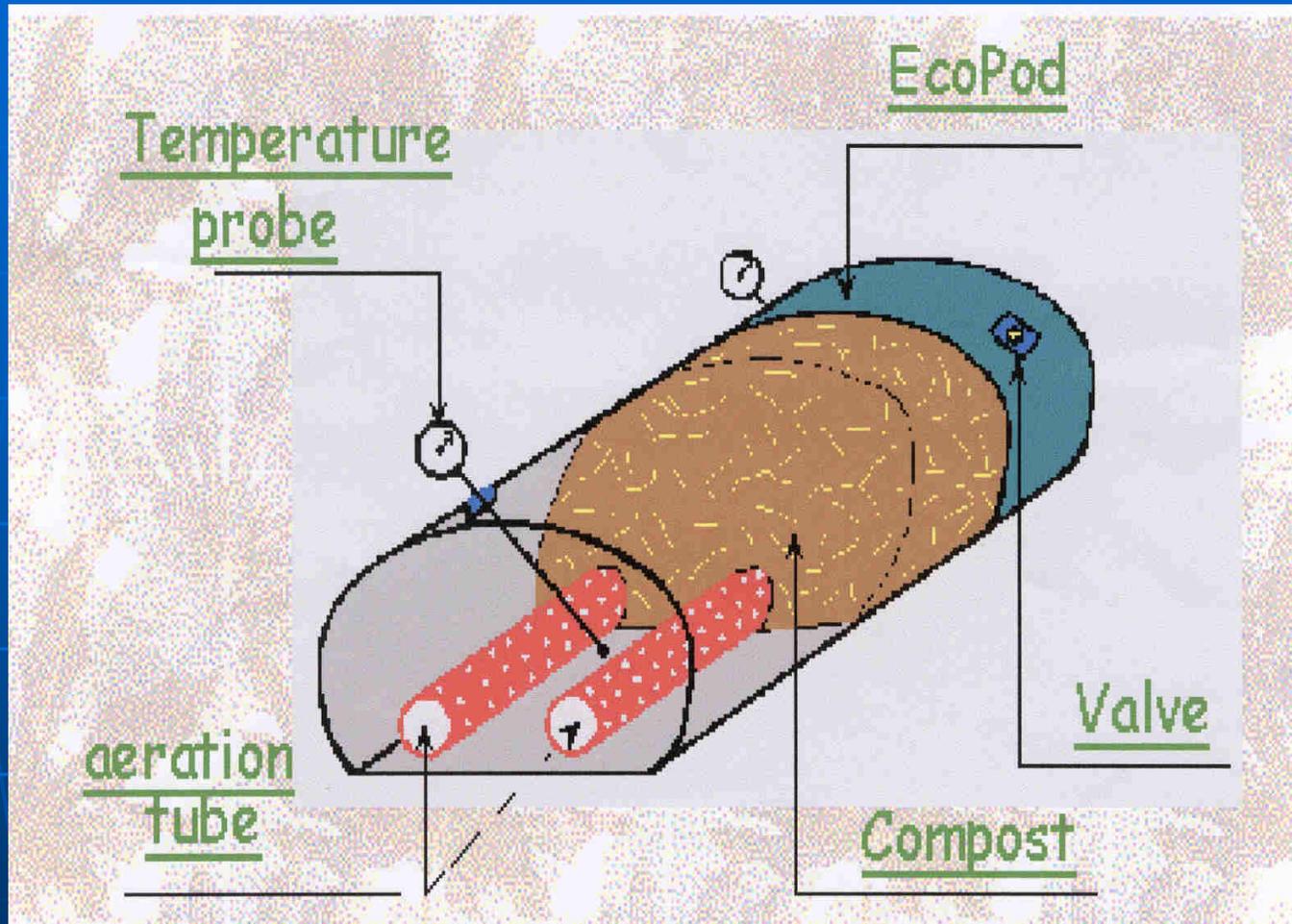
Turnkey system – perforated plastic pipe for aeration; blowers provide for positive or negative aeration; biofilter to control odor

Equipment Design



Ag-Bag Environmental





Composting in Pods (windrows enclosed in a plastic tube); aeration is accomplished through perforated plastic piping at the bottom of the pile



Ag Bag System at Norcal

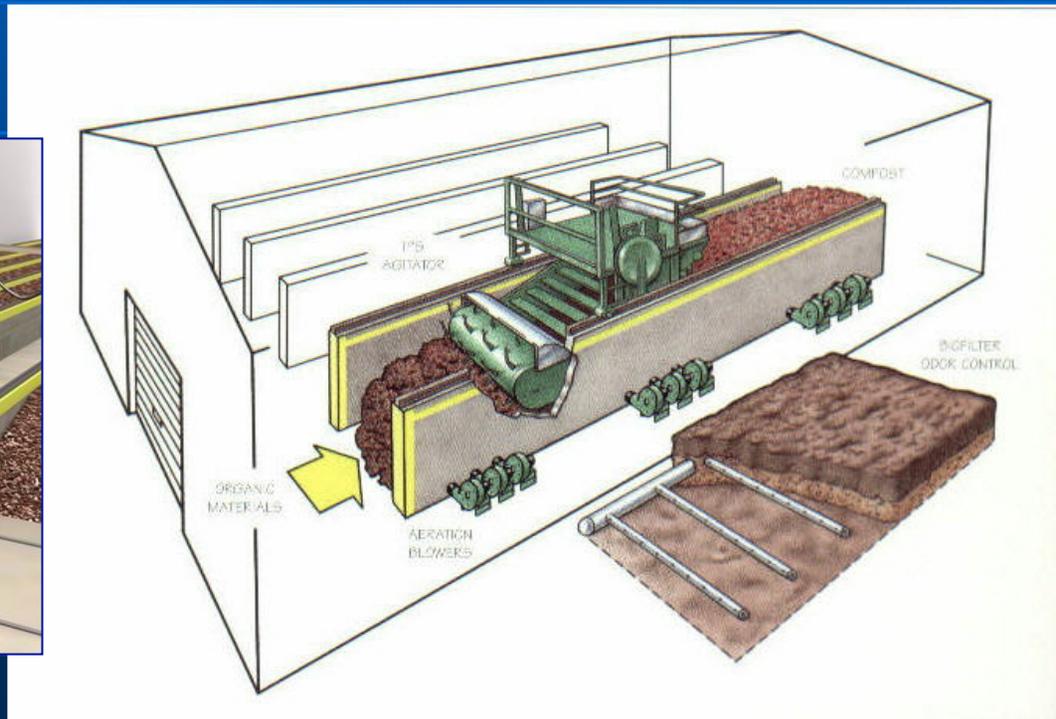
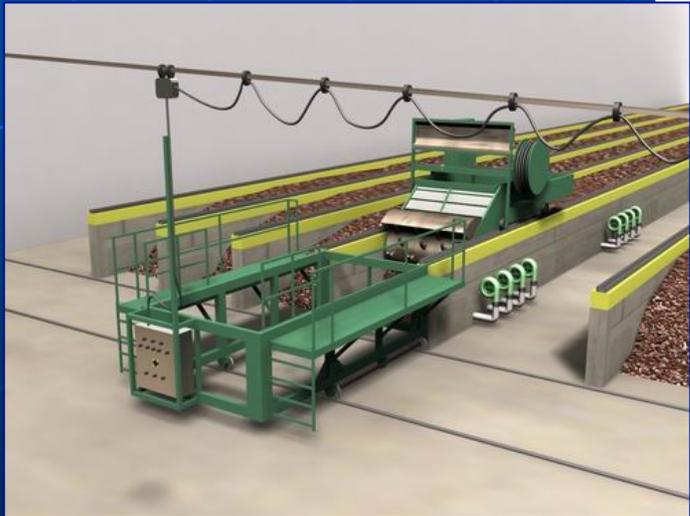


IPS Composting System

USFILTER
a Sieman's business

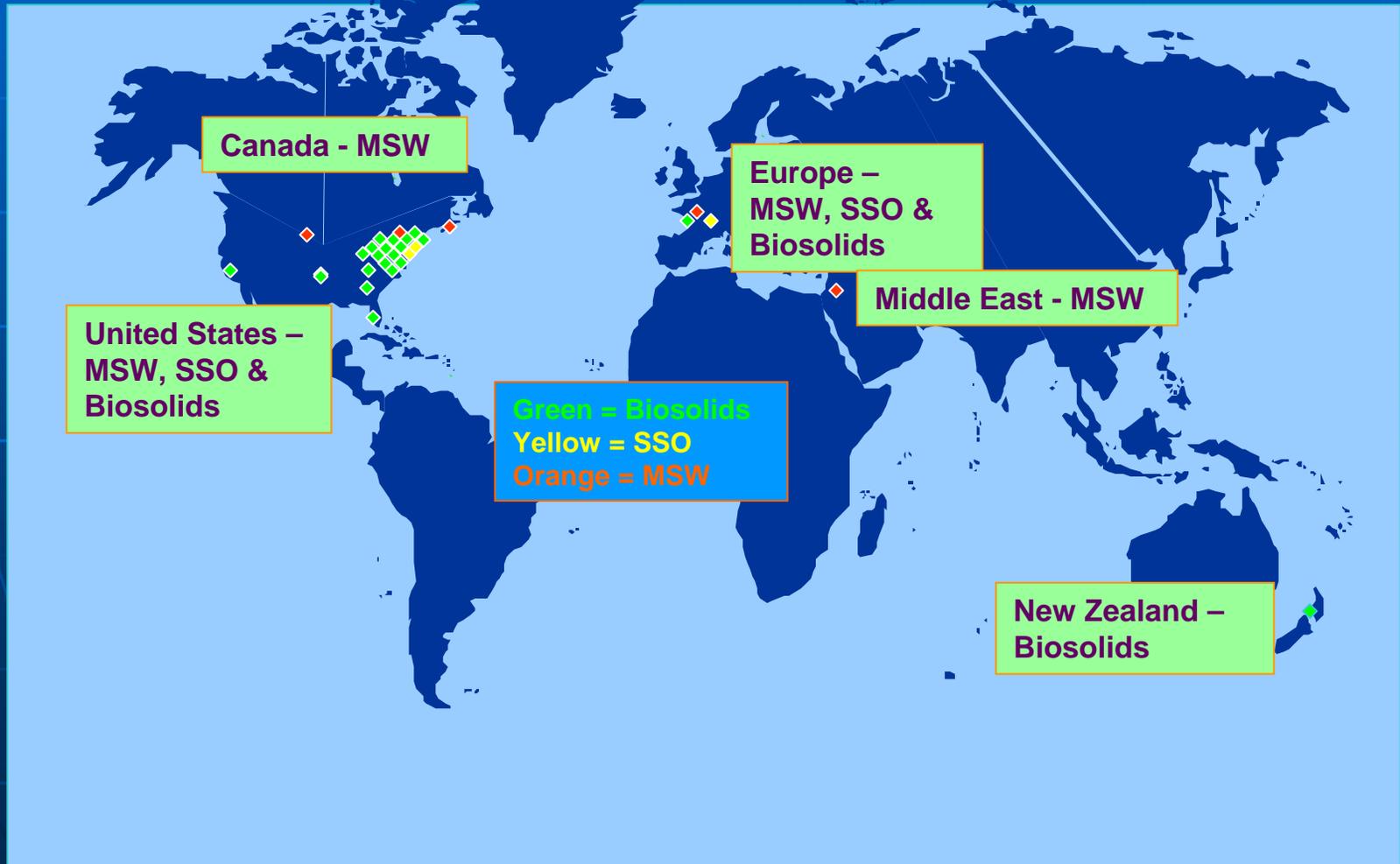
IPS Composting System

- Enclosed, Automated, Agitated Bin
 - long narrow channels
 - agitation device runs on rails mounted on the channel walls
- Processes MSW, SSO and Biosolids

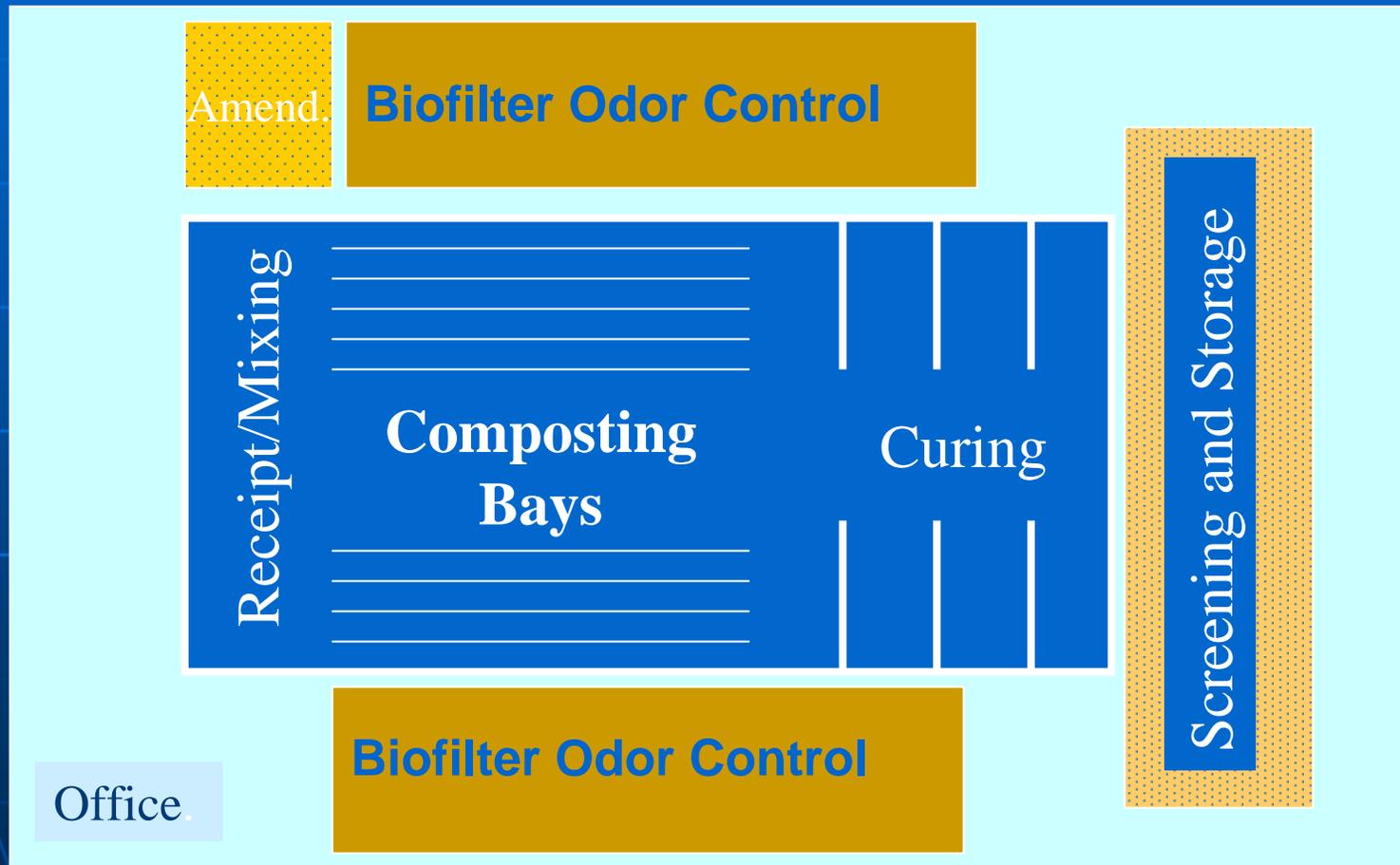


IPS Composting System

- Installations – 26 Operating & 3 Design/Construction
- Processing Range; 4.5 to 275 tons per day (operating)
700 to 1500 tons per day (proposed)



IPS Composting System - Typical



IPS Composting System

- Exhaust Air Management/Odor Control – Biofilter and/or Scrubber





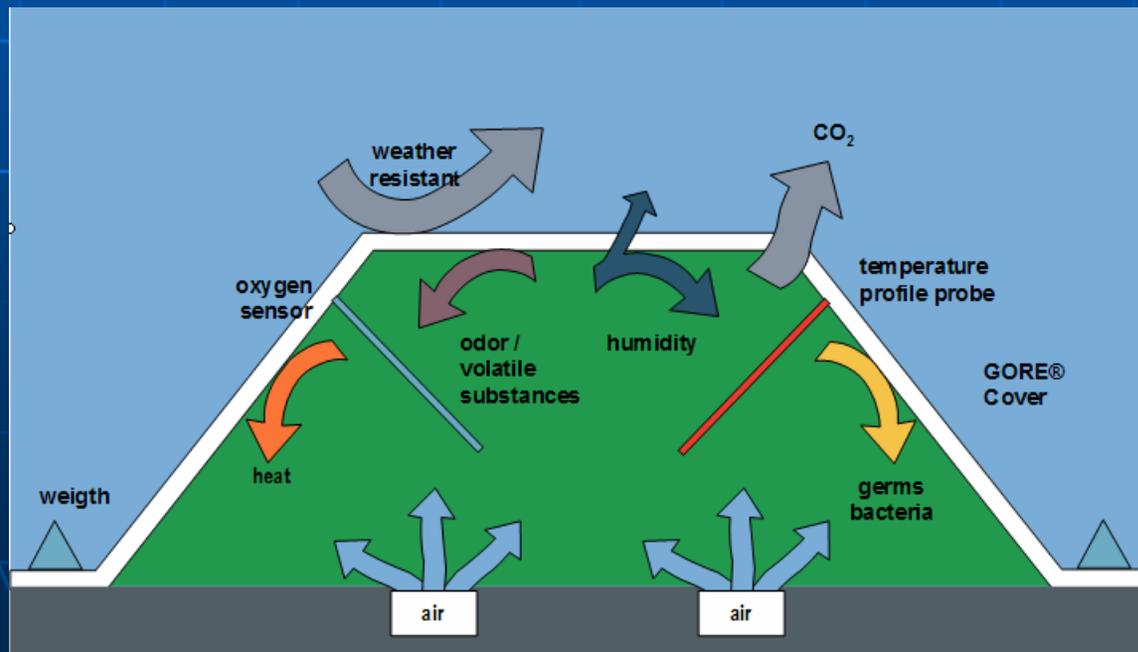
The GORE™ Cover System



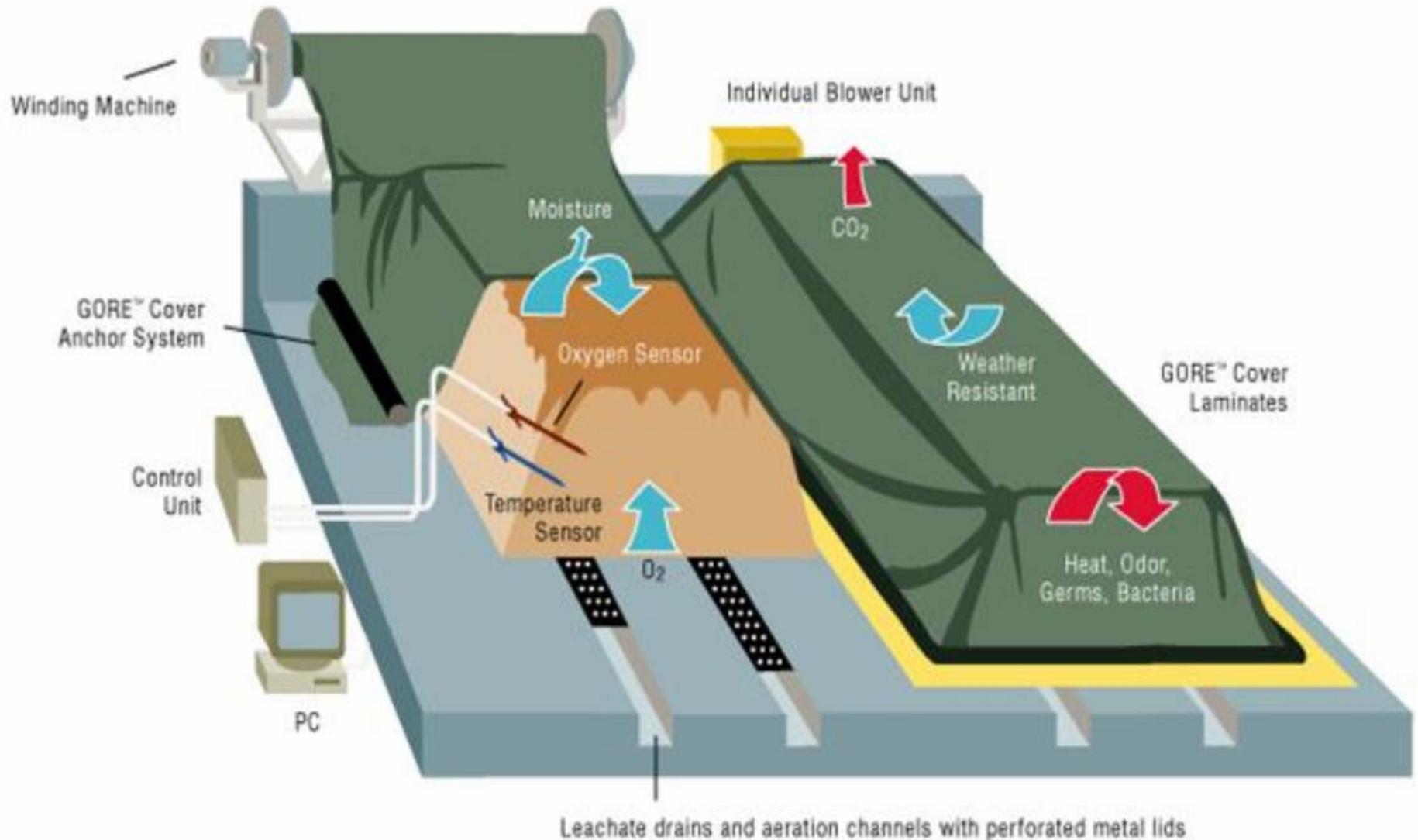
Covered, In-Vessel, Positive Aeration System

BENEFITS: BREATHABLE & WEATHERPROOF

- Protection against rain and sun/moisture control
- Separation of storm water from leachate water
- Positive pressure under cover improves air distribution
- Produces stable compost in 8 weeks
- High degree of odor control
- High throughput on small footprint
- Site capacity range from 5,000 tpy to >200,000 tpy
- 150 systems in operation in different 25 countries worldwide



The Complete GORE™ Cover System



Handling of Covers (50 m x 12 m)



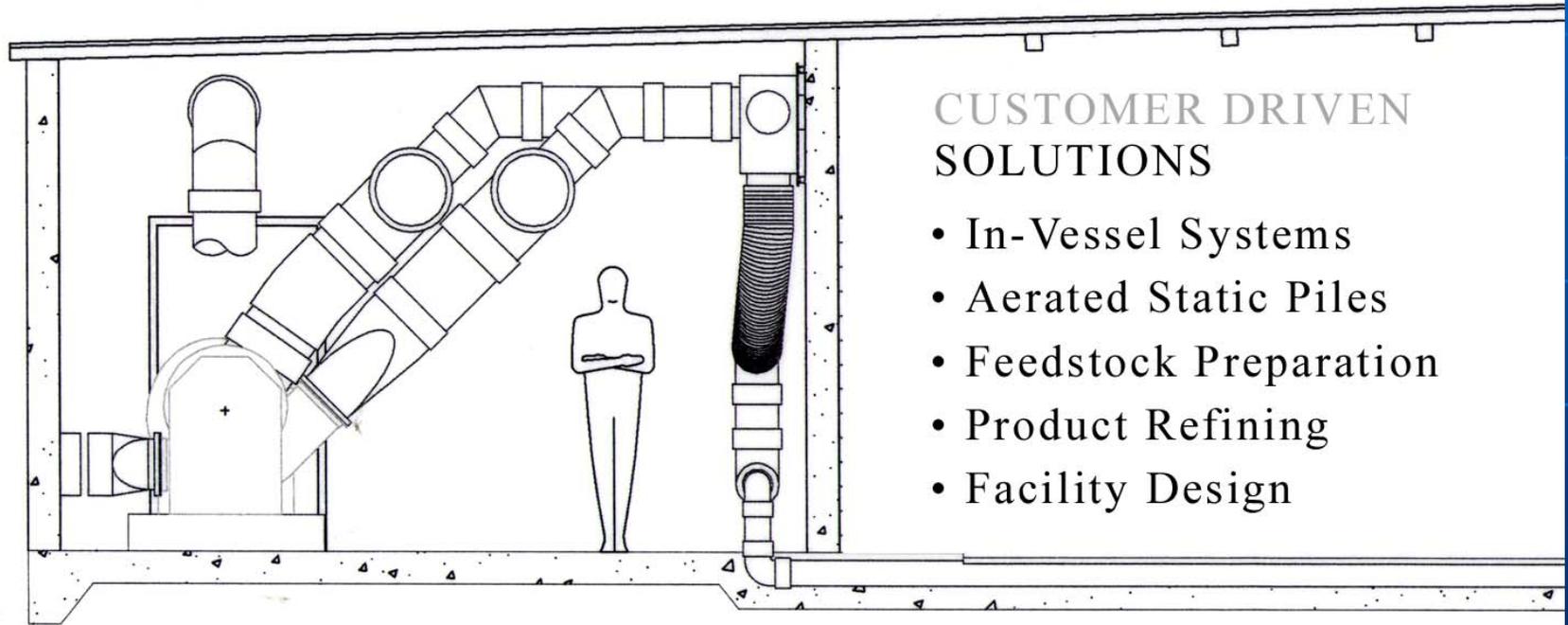
Wall Winder

Mobile Winder





ENGINEERED COMPOST SYSTEMS



CUSTOMER DRIVEN SOLUTIONS

- In-Vessel Systems
- Aerated Static Piles
- Feedstock Preparation
- Product Refining
- Facility Design

www.compostsystems.com 206.634.2625



ENGINEERED
COMPOST SYSTEMS

Over 20 compost facilities in North America use ECS technology. Through-puts range from 1-250 wet tons per day.

ECS Systems Include:

- CV Composter™ (containerized in-vessel system)
- SV Composter™ (stationary in-vessel system)
- Aerated Static Pile System (ASP)
- AC Composter (covered ASP)



ENGINEERED
COMPOST SYSTEMS

CV Composter™

An in-vessel composting system (container) for composting facilities with through-put of 2–20 tons/day

The vessels are insulated and are made with stainless steel interiors and exteriors for a service life of 20+ years



The vessels are moved and emptied using roll-off trucks



System recirculates process air to reduce moisture loss.
A biofilter scrubs exhaust air and controls odors





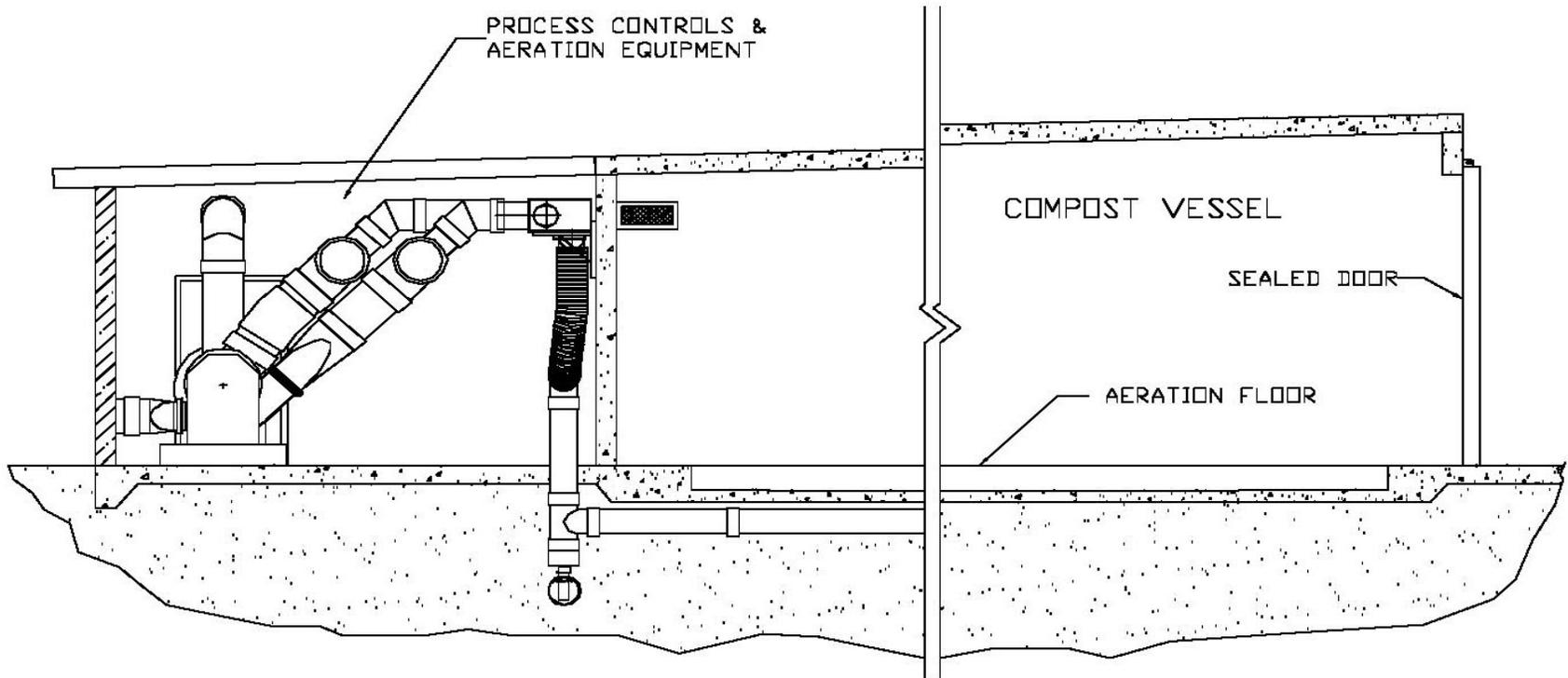
ENGINEERED
COMPOST SYSTEMS

SV Composter™

The Stationary in-vessel (tunnel) system with concrete floor, ceiling and walls and stainless steel doors and aeration components. Can accommodate daily volumes from 0.5 to >500 tons per day

System Features

low-headspace design, recirculation of process air, automatic loading of vessels, reversible blowers for aeration, biofilters for odor control



Vessels are contiguous providing optimal use of available space



Process air is scrubbed with a site-built biofilter



The West Yellowstone facility is designed to process 45 tons/day of mixed organic waste. All process functions (pre-processing, composting, curing and product refining) are conducted within this building.



AC Composter: Covered ASP



Impervious cover reduces pile drying

The in-floor negative aerated system collects leachate and holds the cover onto the pile

International Composting Corporation

In-Vessel Rotating Drum system

Feedstocks processed:

- Food Residuals
- Bio-solids
- Green waste

ICC uses a modular system that can process from 9,000 tons per year up to 300,000 tons per year



System Features

- In-vessel flow through composting process
- All the organic materials are received and composted within one building
- Building uses negative air pressure and of bio-filters for odor control
- Continuous flow system adapts to fluctuation in daily waste stream volumes
- One composter is able to process between 25 and 110 tons of organic material/day
- Modular design enables facility to be sized to accommodate any number of composters



X-Act Systems



Composting Process & Operations Model

