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PANEL: Composting Systems

CULTIVATING COMMUNITY COMPOSTING FORUM
January 23 2023
Ontario, California

Truly Living Well Center for Natural Urban Agriculture - Atlanta

Urban farm committed to bringing good food, good health and well-being to Atlanta's urban community.

Mission: Feeding people right where they live, create a welcoming space where people can gather and find harmony with the earth.

Image source: Instagram: thinkgreen_kd & trulylivingwell

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Source: Khari Diop, Think Green Inc. & Truly Living Well Center fo
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Walter Davis

K Diop

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SOLARIZED AERATED STATIC PILE COMPOSTING

Aerated static pile composting (ASP) is the process of pushing or pulling air through the pile via perforated pipes placed at the bottom. The pipes are attached to a blower, a battery, and a timer that signals air to be delivered on a preset schedule into the pile to "turn it." A typical cycle is 30 seconds on, 30-60 minutes off. This mechanical process keeps the pile oxygenated, expediting the normal composting process. It also maintains the population and diversity of beneficial oxygen-consuming bacteria and has the benefit of controlling any foul odors that come when not enough oxygen (anaerobic) is getting into the pile. Composting with an aerated static pile also minimizes the need for human labor.

Why solarize it? To operate the timer, battery, and blower that mechanically aerate the compost pile, an energy source must be present. Adding a renewable energy like solar to the process eradicates the need to "pull" energy from the utility grid thus mitigating climate change and saving money.

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APRIL 2018

Source: Khari Diop, Think Green Inc. & Truly Living Well Center for Natural Urban Agriculture

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APRIL 2022

Source: Natasha Dyer, Zero Waste Atlanta

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ECO City Farms - Bladensburg, MD

Urban farm with mission to provide equal access to healthy and affordable food to communities often neglected by traditional food distribution networks

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ECO City Farm Compost Outpost – partnership w/ Compost Crew

ECO City Farms, Bladensburg, MD

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ECO City Farm Compost Outpost

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ECO City Farm Compost Outpost

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ECO City Farm Compost Outpost

The blowers and their associated electronics

ECO City Farm Compost Outpost

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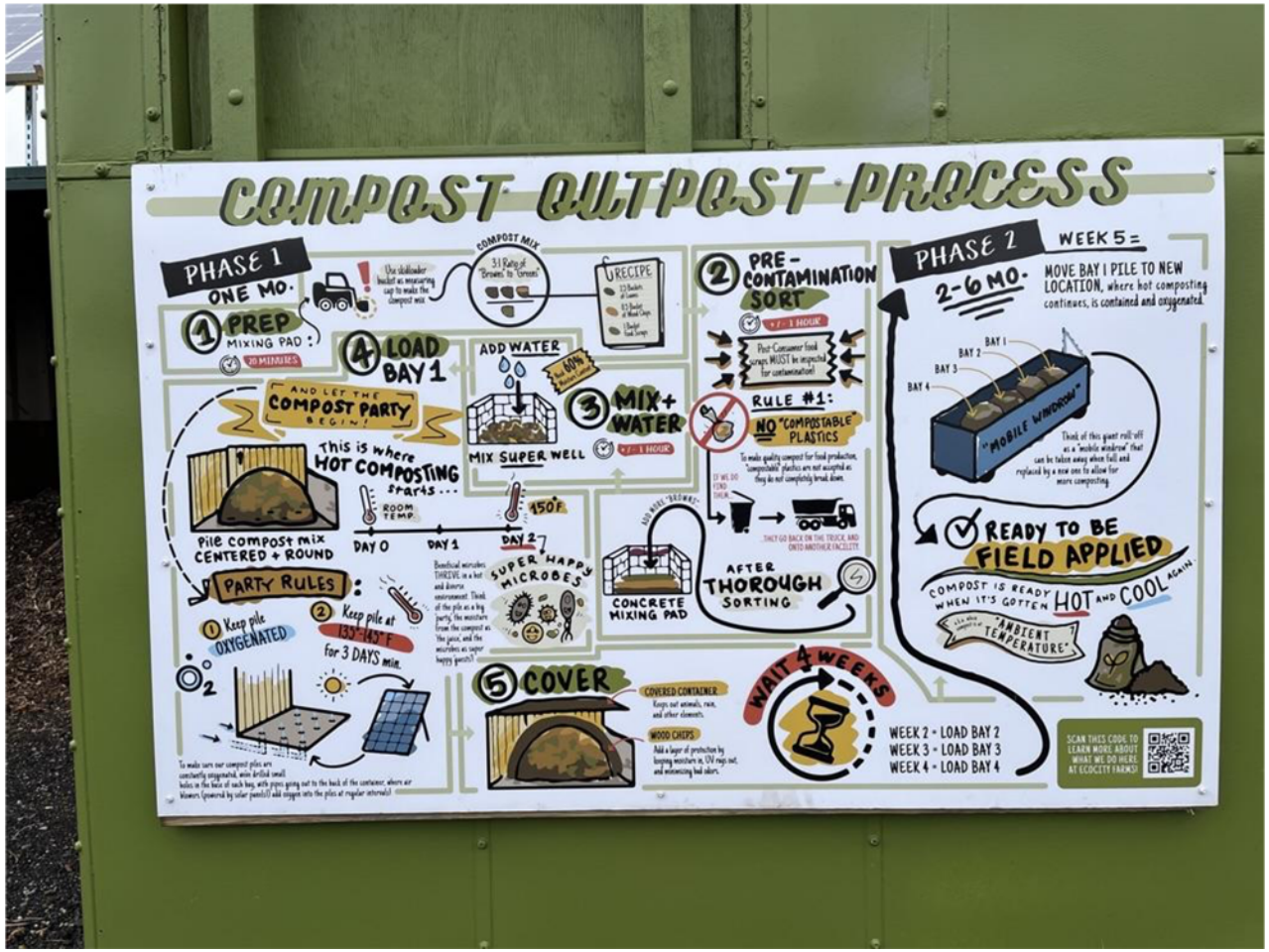
ECO City Farm Compost Outpost



ECO City Farms, Bladensburg, MD

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ECO City Farm Compost Outpost

After four weeks in the shipping containers, compost is moved to a roll-off container for further decomposition

ECO City Farms, Bladensburg, MD

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ECO City Farm Compost Outpost

ECO City Farms, Bladensburg, MD

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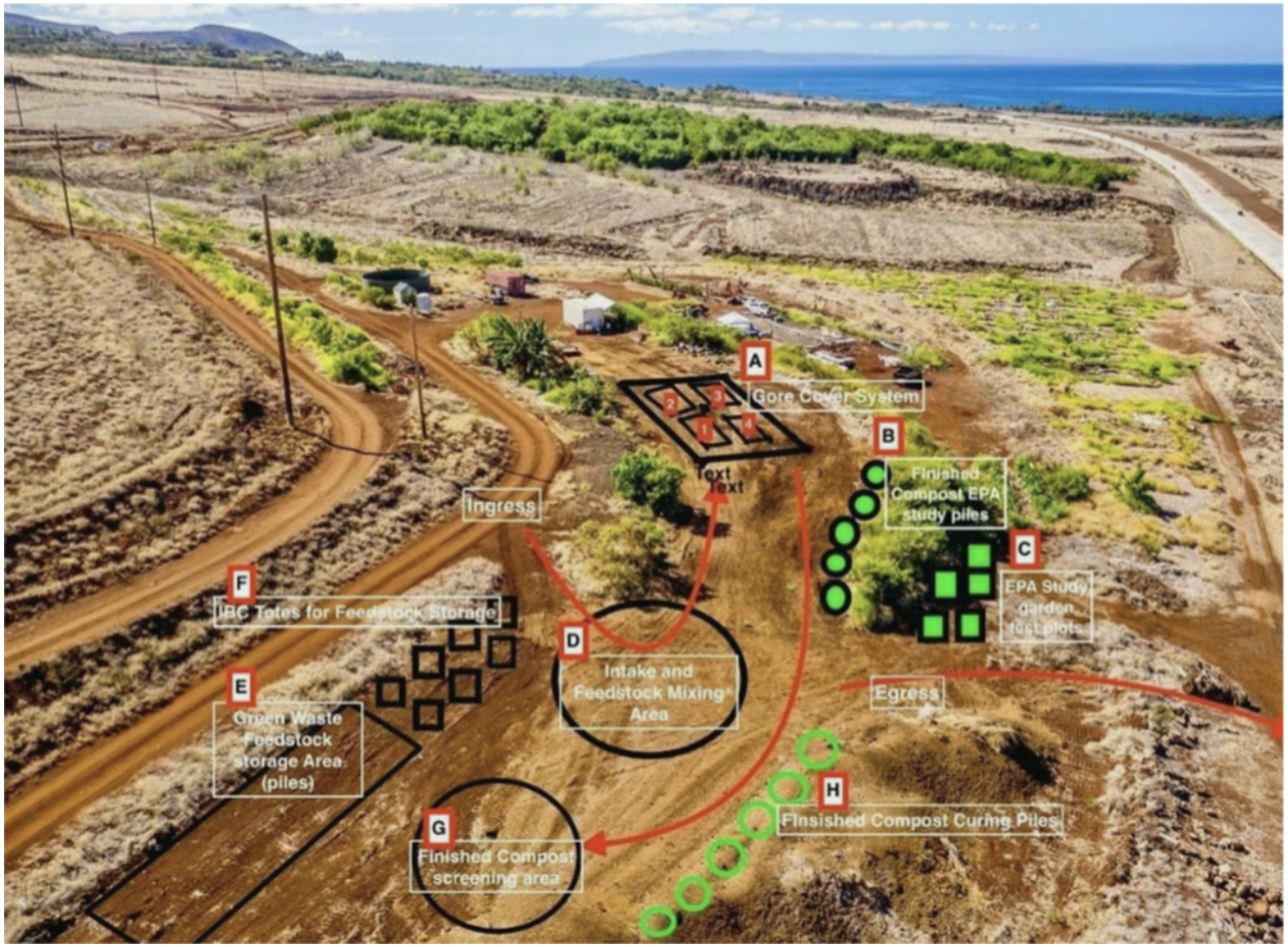
West Maui Green Cycle – Small ASP Piles for Schools

West Maui Green Cycle is collecting food scraps at schools and can compost onsite. It also operates a commercial scale operation at Ku'ia Farm.



https://westmauigreencycle.com/

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West Maui Green Cycle – Small ASP Piles for Schools

Source: Gretchen Lasano, West Maui Green Cycle, https://westmauigreencycle.com/

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Happy Trash Can Curbside Composting - Bozeman, Montana

Residential & commercial compost collection services.

Makes compost for local farmers, gardeners, and its subscribers using ASP Sustainable Generation GORE system.

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Happy Trash Can Curbside Composting – Rural Farm-Scale ASP System

Source: Ryan Green, Happy Trash Can Curbside Composting, Bozeman, MT

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Super Cube Design & Making Vessels from Reclaimed Materials - Green Mountain Technologies + Van's Own Creations

Green Mountain Technologies makes in-vessel composting systems such as the Earth Cube & Earth Flow.

Van is also passionate about making systems out of devalued materials.

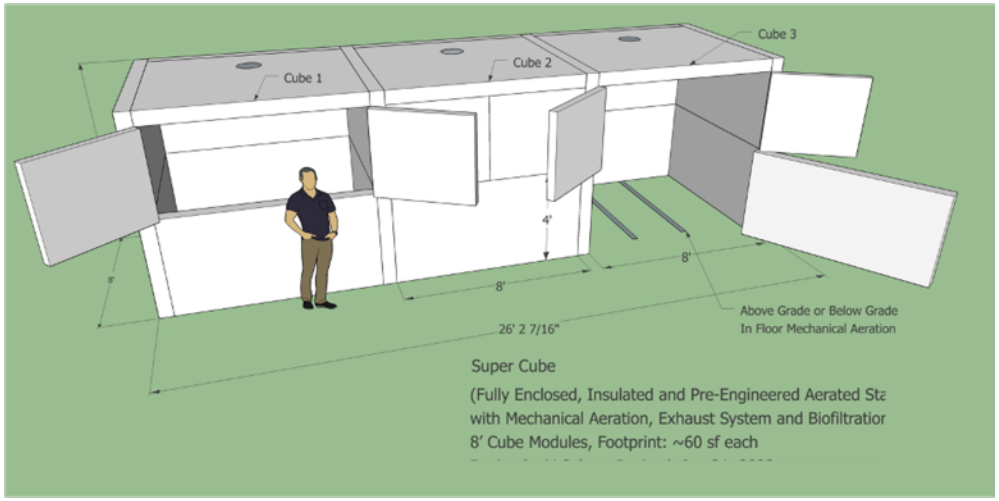
Earth Cube

Earth Flow

Super Cube Design & Making Vessels from Reclaimed Materials - Green Mountain Technologies + Van's Own Creations

Super Cube – Design Goals

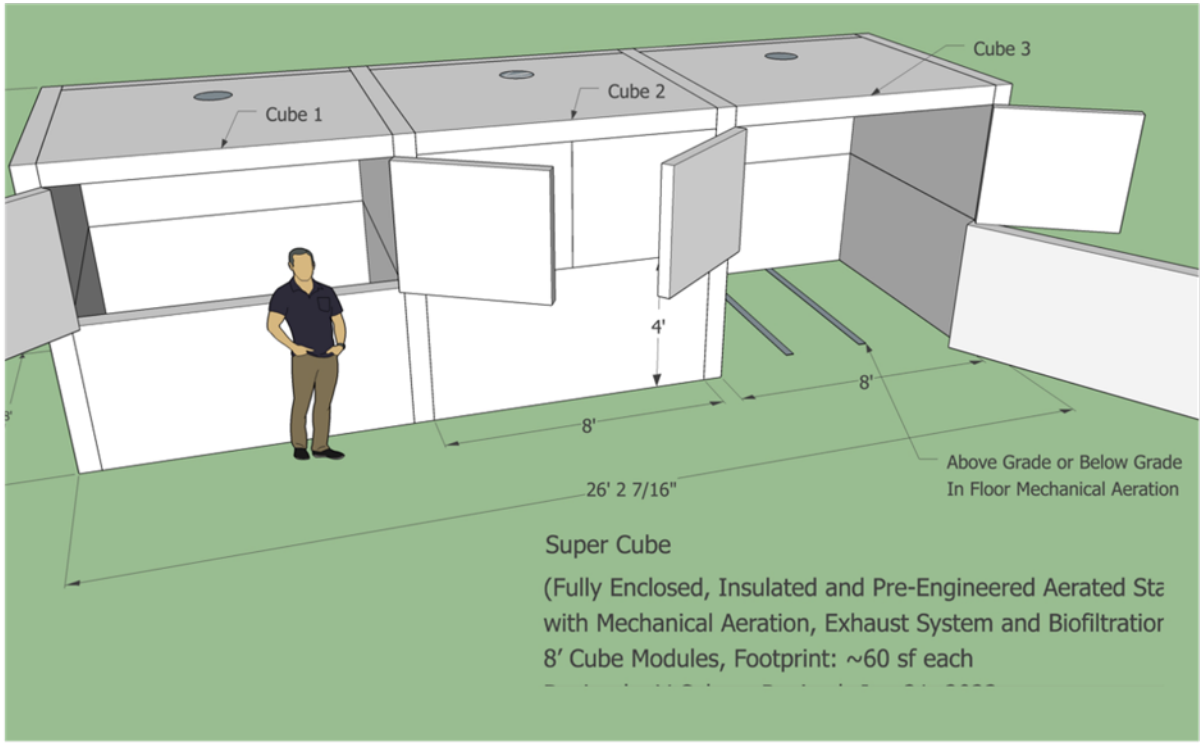
- Community-Scale In-Vessel Composting of Food Scraps
- Fully Enclosed – critter proof
- Sweet spot: avg 300-700 lbs/day total feedstocks (55-125 TPY)
- Aerated Static Vessel – "laissez faire composting"
- 60-90 days retention (30 days with diligent mixing)



Super Cube Design & Making Vessels from Reclaimed Materials - Green Mountain Technologies + Van's Own Creations

Super Cube Concept

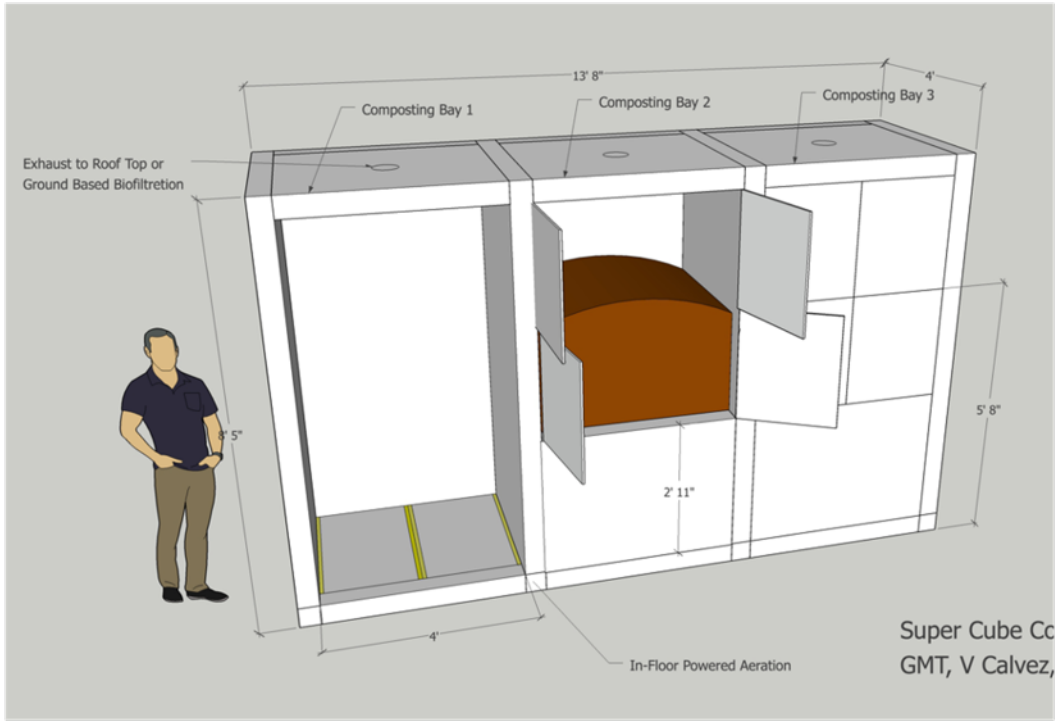
- 8' x 8' x 8' Module:
  - 1 Module = 150-230 lbs/day
  - 2 Modules = 300-460 lbs/day
  - 3 Modules = 450-690 lbs/day
- Standard Construction
- Reduce Capital Costs
- Community Labor/"Barn Raising"
- Open Source



Super Cube Design & Making Vessels from Reclaimed Materials - Green Mountain Technologies + Van's Own Creations

Super Cube - Variations

- Customized to Site Needs
- 4' modules - loading/ discharge by hand
- **6-7' compost depth**



Super Cube Design & Making Vessels from Reclaimed Materials - Green Mountain Technologies + Van's Own Creations

Super Cube Demonstration Project -Bainbridge Island

Super Cube Design & Making Vessels from Reclaimed Materials - Green Mountain Technologies + Van's Own Creations

Making Compost Vessels Out of "Garbage" (Devalued Materials)

- Structure - reclaimed wood when possible (e.g., pallets)
- Carton-Style Eco-Bricks – stuffed with clean plastic scraps (aka "trash")
- Eco-bricks insulate the compost mass.

660 eco-bricks installed so far (1000+ capacity)

Super Cube Design & Making Vessels from Reclaimed Materials - Green Mountain Technologies + Van's Own Creations

Making Compost Vessels Out of "Garbage" (Devalued Materials)

- Used political signs line the interior of compost vessel and provide cladding
- White cladding down low in compost is best (to keep paint out of compost)

Super Cube Design & Making Vessels from Reclaimed Materials - Green Mountain Technologies + Van's Own Creations

Super Cube – Aeration Floor

- Reclaimed Composite Decking for Floor/Foundation
- Natural or Solar-Powered Aeration
- Above or Below Grade Aeration

- Floor Level Air Vents on Exterior

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Super Cube Demonstration Project

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Super Cube Demonstration – Next Steps

- Start-Up Feb 2023
- Greenhouse on South Face of Super Cube
- Biofilter heating of greenhouse
- Art and Growing Plants
- Solar aeration testing