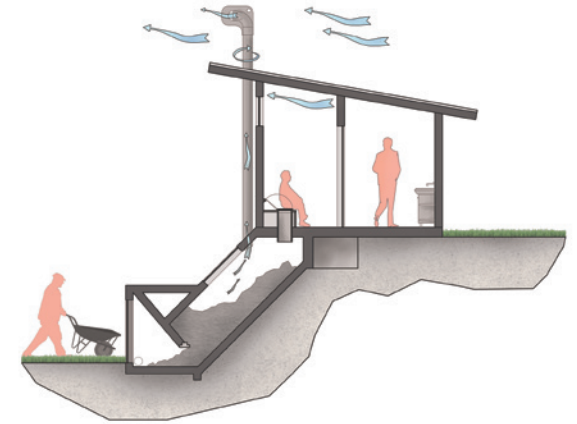




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Compost Toilets

What Is a Compost Toilet and How to Build One?

Module for Water Saving and Decentral Humanure Management

Tamera, SolarVillage
Valerio Marazzi - Arcò





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A compost toilet is one of the simplest and most effective methods to save water and to use the valuable biomass we produce to make the land more fertile instead of flushing it away as is done in a water closet.

To run a compost toilet it is necessary to change some of our habits concerning toilet use and care. If you follow the points below and if the compost toilet is constructed in the right way it will not produce any bad smell and you will gain valuable compost for your garden.



Bringing the compost toilet into service

- A compost toilet functions best when used by 10-15 people. If there will be more users it is better to build several toilets.
- Construct the seat in a way that the funnel (30x30cm) is at least 60 cm deep.
- Worms, wood lice and micro-organisms transform the fresh excreta quickly into good compost, especially when they are comfortable. They feel the most comfortable in humid, cool, dark, loose surroundings at 5 to 25 degrees Celsius. This leads to cool composting.
- No light should fall into the funnel, neither through an open nor through a transparent roof. The funnel should be at least 60 cm deep to prevent flies from entering and reproducing. The catchment tanks should be built as well protected from flies as possible.
- The “air-proof chute” should also be rainproof as the biomass would otherwise become too humid.
- Aeration takes place through the air pipe which draws air through the composting space. This works best when the toilet lid is always kept closed.
- To start running the toilet it is necessary to put a



bed of horse or cow dung into the catchment tanks to introduce the start of the population of worms.

If this is not possible to organise, it is also possible to use finely chopped straw.

- Instead of flushing after using the compost toilet you put one cup of fibrous material into the toilet: dry,

absorbent material like sawdust, finely chopped straw or hay must cover the excrement.

***New solution:**

When available this should be changed to a mixture composed of one third rotten woodchips, one third bio char, one third already matured compost, prepare it and put a bucket next to the seat – ready to be used. This turns the toilet into a Terra Preta Toilet; the bio char neutralizes the smell of the urin!

Together with the excreta the cellulose forms a balanced mixture which can rot cleanly.

Forest soil or dry leaves can also be used to absorb the humidity and cover the smell.

- This mixture of excreta and fibrous material (it is also possible to add kitchen compost) should be stirred and humidified every 2 to 3 weeks.

This keeps the milieu humid and airy for the worms.

- Animal dung, especially from herbivores, can be added to the compost toilet every now and then. This brings the right bacteria in to the catchment tanks.

- The compost toilet functions best when it is kept almost airtight as explained above.

This also helps to keep unwanted animals and insects like flies, mice or rats away. To chase or even kill such animals is of no use.

Never put poison into a compost toilet.

- Good compost has a smell of soil, is dark, humid and loose - ideal material for landscape gardens.

(Consider not using it for direct fertilizer for leafy vegetables for human consumption.)

- If the toilet needs to be emptied before the material has the desired consistency a compost pile should be made out of the material removed, which should be covered and kept humid by organic material like straw and branches.

Then a composting process of another six months is possible.

- Compost toilets need to be looked after. The “compost harvester” will learn to bring the cycles of humidity, frequency of use, weather and added fibres into a living balance that gives good compost.



Storage for sawdust
or mixture of fibrous material

Box dimension of 1,45 x 1,49 m
For use by 10 to 15 people

Box dimension of 1,20 x 1,49 m
For use by 7 to 12 people

Plan

Section

Chimney top rotates automatically
with wind direction

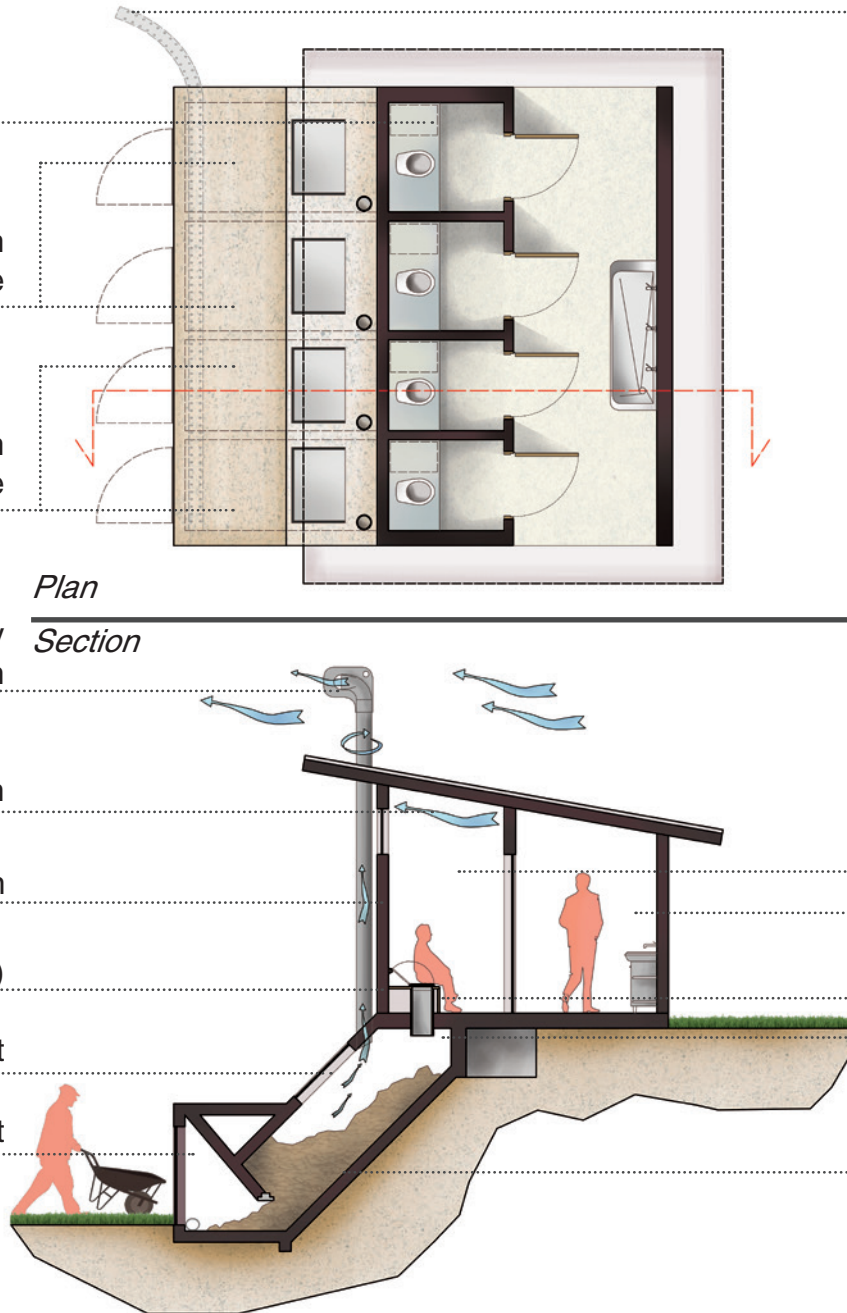
Natural ventilation

Painted black to increase ventilation

Air exhaust (chimney)

Opening to add water to the compost

Opening to empty the compost



Drainage pipe to carry fluid to waste water treatment system. Urine and other liquids leave the compost toilet through a 10 - 16 cm diameter drainage tube near the lowest point in the system. These liquids then enter the plant-based water treatment system. This is valid – and can be done differently, especially after adding bio char to the mixture of the fibrous material as the liquid does not smell badly or aggressively.

***New solution:**

The liquid flows into a first covered tank (ca 50x50x80cm), there the solid parts sink to the ground (must be cleaned from time to time). The overflow goes to a next covered tank of same size. From there the liquid is reused to keep the compost in the toilet humid. The extra can be used as valid fertilizer.

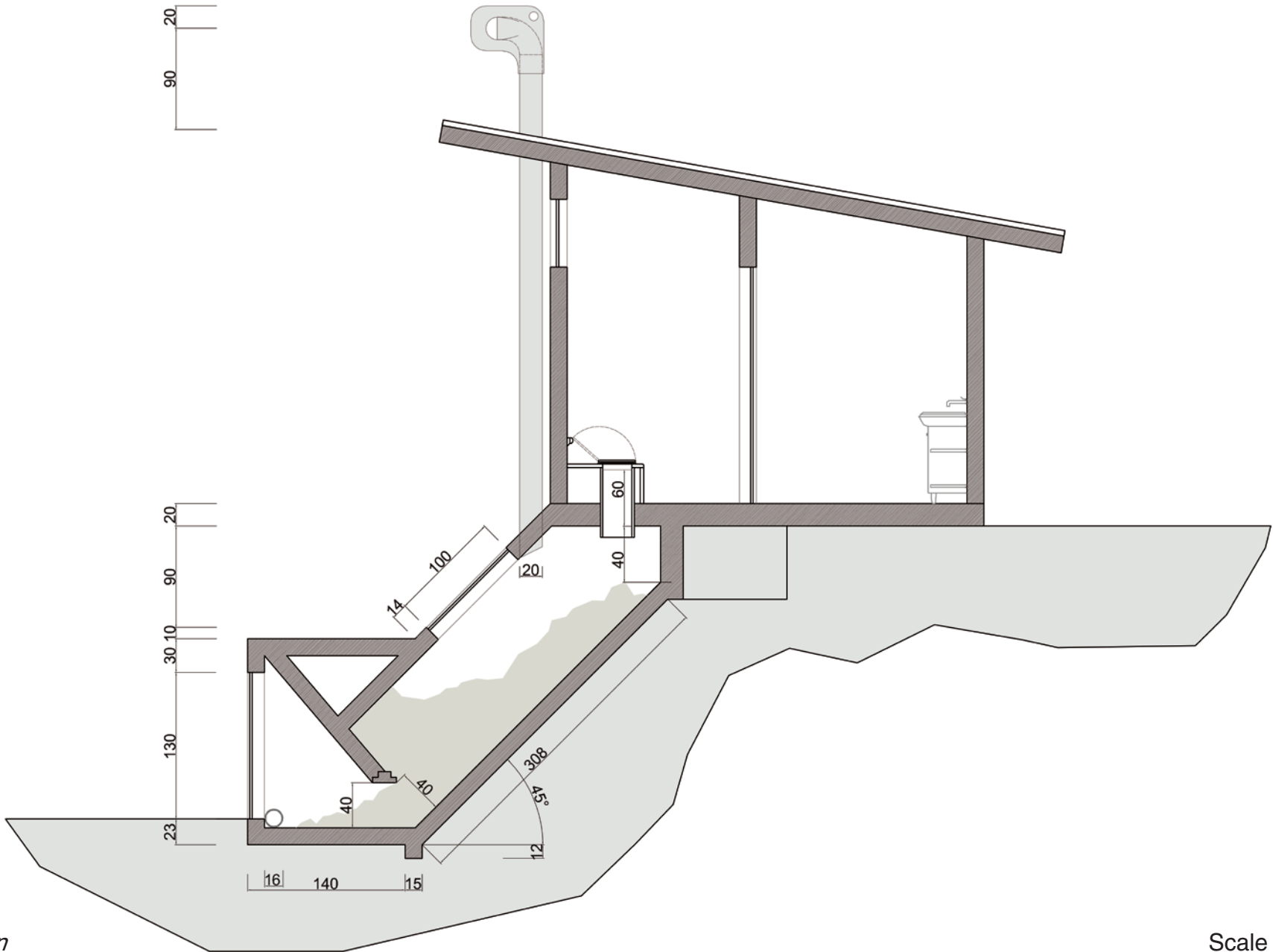
Toilet room should be slightly darker than outside so that no flies enter

Hand-washing area

The toilet lid has to be closed when not in use
funnel

Air-proof chute

Scale 1: 100



Section

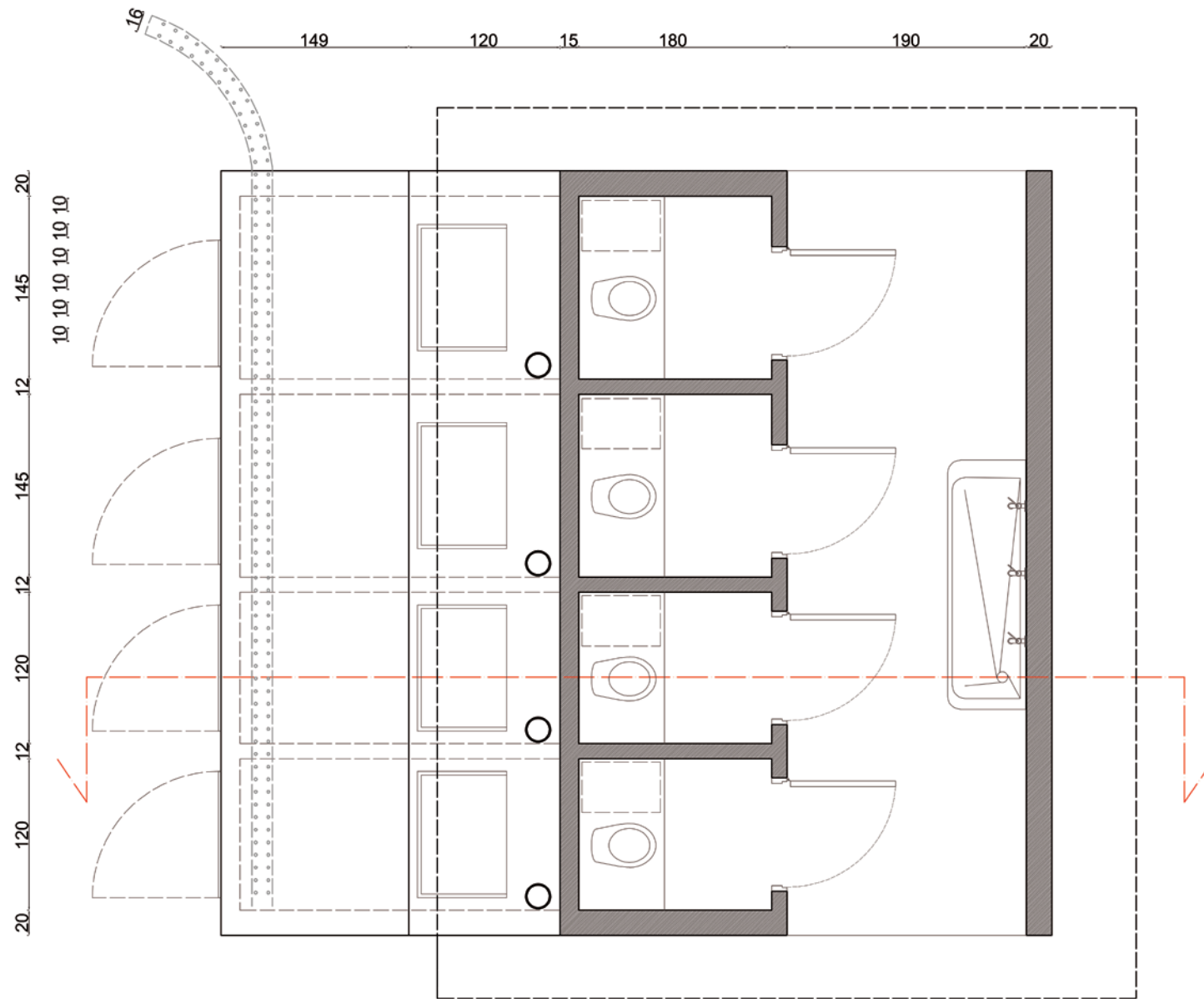
Scale 1: 50





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Plan

Scale 1: 50



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