GL 55 composting toilet

Installation and user manual



Waterless Toilet Shop

Essential Safety Guidelines for Use and Maintenance

For Users:

Follow Manufacturer's Instructions: Always adhere to the specific guidelines provided by your composting toilet's manual regarding use, maintenance, and compost removal.

Do Not Dispose of Inappropriate Items: Only human waste and toilet paper should be added to the composting toilet. Avoid disposing of items like sanitary products, chemicals, and non-biodegradable materials, as they can disrupt the composting process or damage the system.

Maintain Adequate Ventilation: Ensure the ventilation system is always functioning correctly to prevent odors and promote aerobic decomposition. This is crucial for the composting process and for keeping the environment safe and pleasant.

Use Composting Additives as Recommended: Some composting toilet systems require bulking agents like sawdust, hemp, or peat moss to help balance moisture levels and carbon-to-nitrogen ratios. Follow the specific guidelines provided by your composting toilet's manual regarding use of additives.

Monitor Moisture Levels: The compost should be moist but not wet. Excess moisture can lead to odor issues and improper composting, so adjust as necessary according to your system's instructions. Trust your instincts when monitoring moisture levels; if the compost looks and feels too wet, it likely is, and conversely, if it appears too dry, you may want to decrease the amount of used dry material.

Practice Good Hygiene: After using the composting toilet, wash your hands thoroughly with soap and water to prevent the spread of pathogens.

For Service and Maintenance:

Wear Protective Gear: When servicing the waterless toilet, always wear gloves, and suitable clothing that protects your skin to avoid direct contact with waste material.

Regular Inspection and Maintenance: Regularly inspect the system for signs of wear or malfunction, including the ventilation system, and perform any recommended maintenance tasks according to the product manual.

Handle Compost Properly: Mature compost should be handled according to local regulations regarding human waste compost. It often needs to be cured outside the toilet for several months before it can be safely used in non-food gardens or disposed of.

Avoid Using Harsh Chemicals: Do not use chemical cleaners or pesticides in or around the composting toilet, as these can kill the beneficial bacteria responsible for decomposition.

Report and Address Issues Promptly: If you notice odors, leaks, or any malfunctioning parts, address these issues immediately to prevent health hazards or damage to the system.

Emergency Situations:

In case of a spill or accidental exposure to raw waste, clean the area thoroughly with a disinfectant suitable for biological waste and follow local health guidelines for such exposures.

If the system becomes damaged or malfunctions in a way that poses a health risk, cease use immediately and contact the manufacturer or a professional for repair or advice.

In case of a life-threatening situation, prioritize safety by calling 911 immediately to get professional assistance.

Following these safety instructions can help ensure that your composting toilet operates effectively, promoting environmental sustainability while minimizing health risks.

Dear Friend,

Thank you very much for choosing our waterless toilet!

We hope that you enjoy many years of fruitful, waterless and trouble-free use. Please don't hesitate to contact us with any questions or suggestions, we are here to help. Feedback is always welcome and is an invaluable part of providing an excellent product and service!

Finally, thank you for being an integral part of the environmental solution. The Earth will thank you too!

Sincerely on behalf of the whole Waterless Toilet Shop team



Eemeli Palo

Dry Toilet Expert at the Waterless Toilet Shop

2041 Pabco Road

Henderson, NV 89011

United States of America

Waterless Toilet Shop

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Please note that many of the pictures and schematic drawings in this manual are of the GL 90 system – the composting containers of the GL 90 are wider and more squat than the GL 55's containers. However the same steps and principles apply for your GL 55 installation.

1. INSTALLATION PLANNING

It is all in the planning!

For proper operation of the toilet, you should consider several issues during the building design stages to enable the natural composting processes the best chance to give trouble-free operation.

The design of the site and building needs to allow for:

• The location of the toilet pedestal in the building and any structures that may be required to have the composting container below floor level.

• Space for the composting container and a firm, dry and sheltered base for it to sit.

• Adequate access to service and maintain the toilet.

• Good ventilation to provide oxygen and evaporate liquids.

• Electrical supply (240V or 12V) to the fan location (unless the whirlybird option is selected).

The GL 55 is supplied as a kit containing most of the components required and can be installed using basic building tools and materials available at plumbing suppliers or hardware shops.

Space Required

There is no ideal set of measurements which will suit all applications, but you do need to provide enough space to locate and install the composting container, enough space to fit and maintain the air vent piping and fan and enough space to access and exchange the containers, so allow space to maneuver the bins. The GL 55 has been designed to achieve this with a 22" minimum space requirement. However, the multi-chute allows for installations up to 1.1 yards high - and this can even be further extended with optional additional chutes.

General considerations and tips

- The composting container must be located directly below the toilet pedestal.
- Do not plan to install a light directly over the pedestal/waste chute as this will attract flying insects.
- Always close the lid of the toilet after use
- Do not use your bathroom fan! Its suction works against the suction of the fan of the GL 55.

a) Assembly of the GL 55 System's Composting Containers

For transport reasons, the GL 55 system arrives without the second excess liquids drain camlock nipple in place. Simply lift the bin out and hand tighten the fitting and seal supplied:





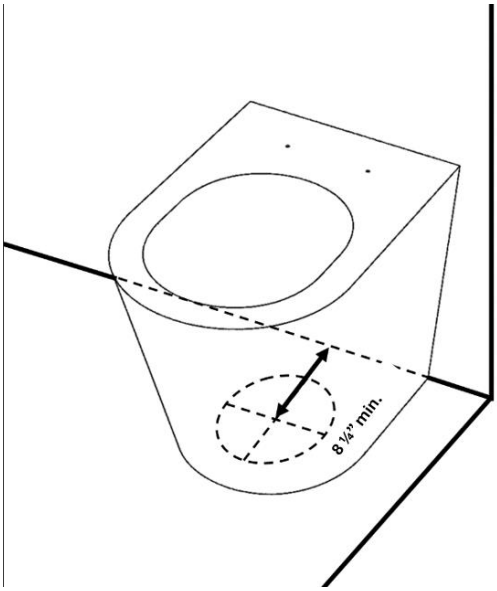
b) Positioning the Pedestal and composting container to ensure a vertical drop from the pedestal to the waste bins

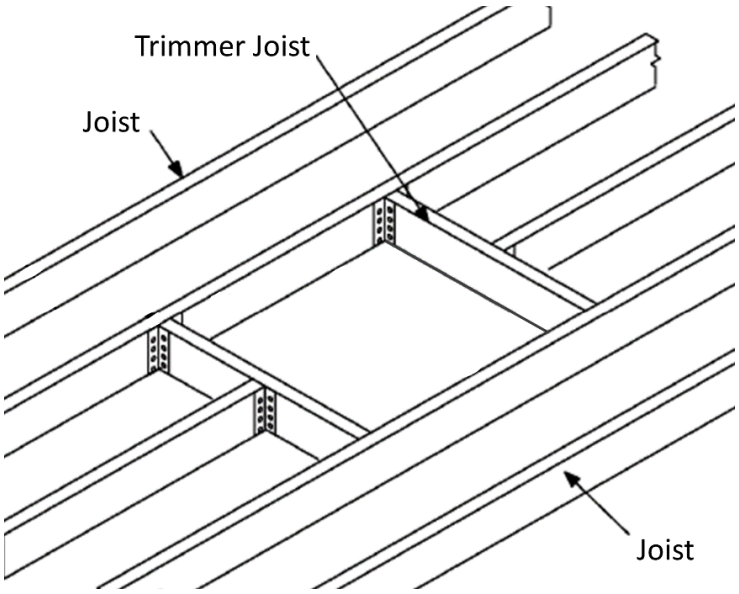
The GL System is installed sub-floor. It may be installed under a concrete slab or bearer and joist floor, in a full or partial cellar as desired in the building design.

The first thing to do is to decide where in the toilet room you want to place the pedestal. Mark a centre position for the waste chute using the pedestal as a guide. Drill a small hole through the centre point and through the floor. Go to where the GL 55 is to be located below floor. Attach a plumb bob through the centre point hole and consider the position and ensure there is enough room to fix the vent piping and fan and there is adequate access to service the container via the hatch.

Consider the spacing of joists or concrete slab penetrations to allow for the waste chute. Check you have clearance in the joists for the waste chute to pass through the floor. Install trimmer joists if necessary (this has to be carried out by a licensed builder). Ensure no piping or wiring encroaches on the cut out.

Do not cut out the waste chute hole in the floor until you are sure you have everything lined up in case you need to adjust the position.





c) Prepare a flat, level, and firm base for the composting container to sit on.

This can be a concrete pad but need not be - the main purpose is to have a level and firm foundation to support the composting container to slide the containers in and out.

A level dirt or gravel area will do just fine. Just ensure that the container is level, or even better – **slightly sloping towards the excess liquids outlet**.

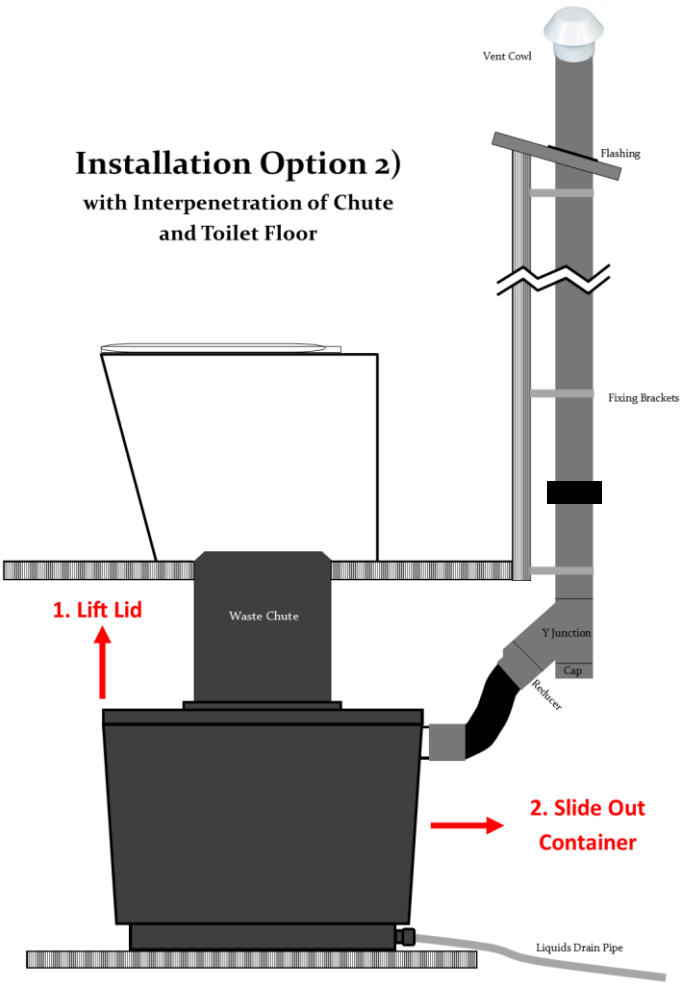
2) Choose Your Installation Options

The ingenious multi-chute that is included with the GL 55 system allows for 2 basic installation options. Which one you choose is up to you but as a general guideline, **installation option 1)** should be preferred if there is limited underfloor space, as it allows for the whole composting container to slide out, which facilitates access to the fastening mechanism when exchanging containers. Installation option 1) is unique to Green Loo's GL and GT systems & there is no interpenetration of the chute with the bathroom floor. In this option the supplied wooden rails are used to create a sliding guide (see insert picture below) that holds the chute flange firmly against the underside of the floor when slid in place.

Installation option 2) is the more common of the 2 options, in which the chute is fixed in place and interpenetrates the bathroom floor. In this case the lid of the composting bin is slid up the chute when exchanging containers and the composting container is pulled out without the lid attached.

Choose your preferred installation option, taking installation height into consideration and personal preference.





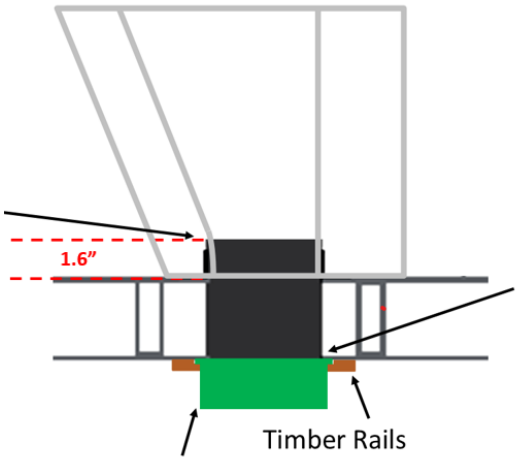
2.1 Installation Option 1

Placing the Pedestal and Cutting the Waste Hole:

Cut the waste chute hole in the floor. This hole should be larger than the throat of the toilet pedestal but smaller than the GL 55's chute, to ensure free fall of solid matter & clean drainage for liquids. We have supplied a short length of black 8" pipe, this should line the hole with as bridging chute. This must not protrude below floor level in order not to foul up with sliding in and out the chute of the composting system (shown in **green**) when exchanging containers.

Above floor leave bridging chute 1.6" proud to connect with the waste chute of the pedestal.

Leave 1.6" proud above floor to connect with the waste chute of the pedestal



The supplied 8" bridging chute which connects to the pedestal must not protrude below floor level in order not to foul up with the chute of the composting system, when exchanging containers.

Mount the chutes with screws and fixing angles (not supplied).

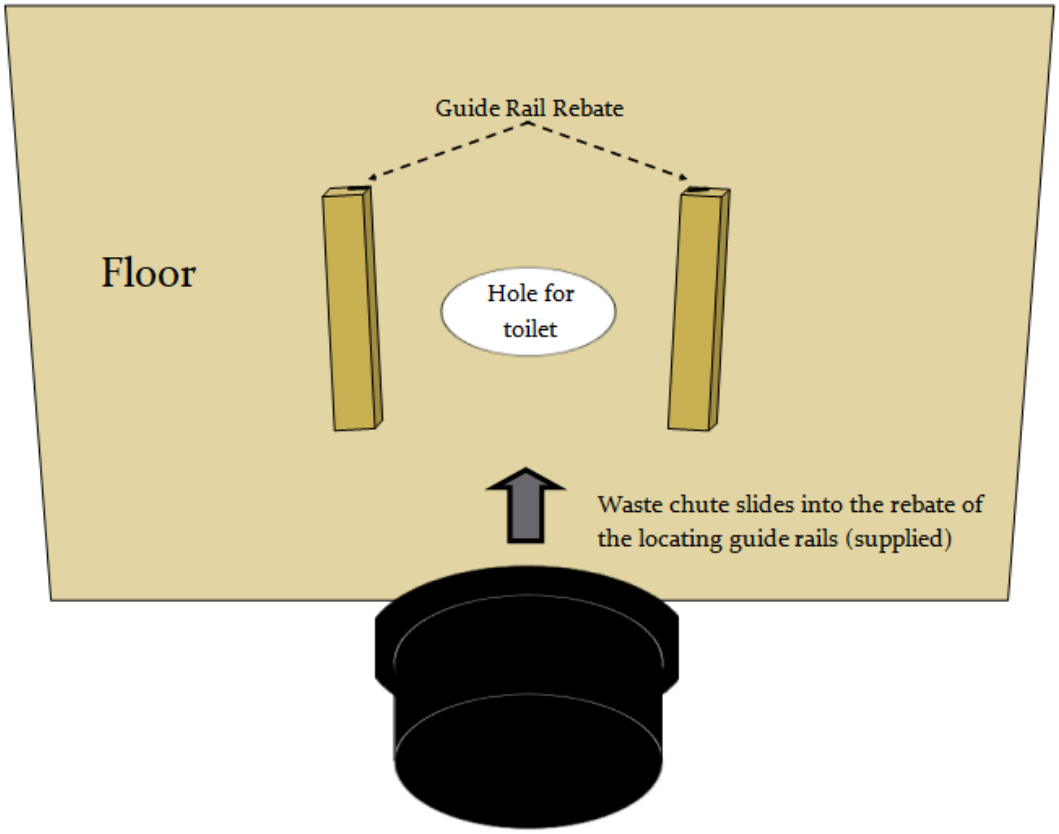
Installing the Guide Rails:

In this installation option, the most common way to install and service the GL 55 System is to push the container from the back of the toilet room to its position under the seat. To locate the waste chute, there are rails in the package to be installed on either side of the toilet waste chute hole (see picture below). These rails ensure that the shaft holds firmly in its place during use.

Install the rails parallel & exactly symmetrical either side of the hole allowing for the parallel sides of the waste chute flange (around 11.4") to glide in and out of the rebate of the timber guide rails.

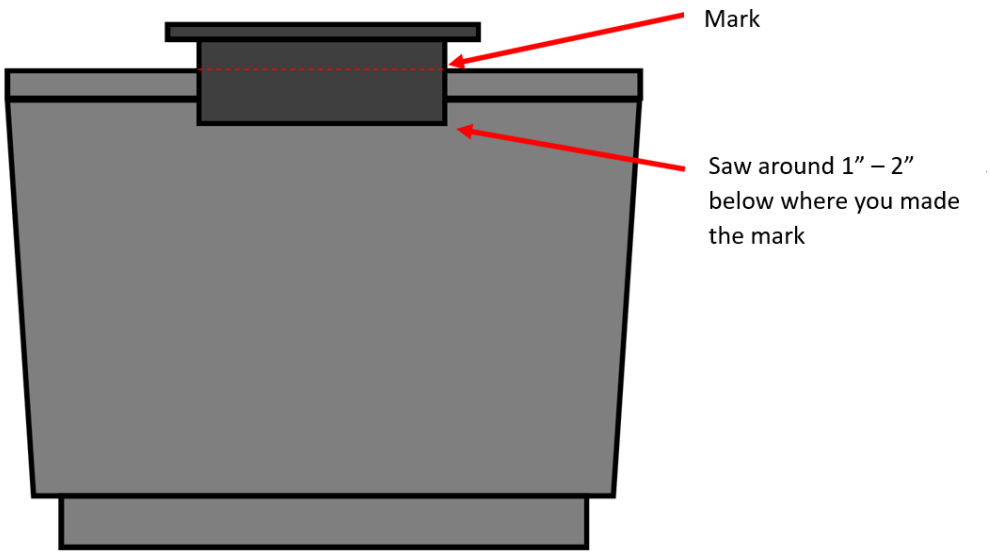
Consider installing a 'stop' so the waste chute cannot be pushed in too far.

Underside View



Sizing the chute:

Cut off the tapered end of the chute, allowing plenty of length remaining. Re-insert into the container. Slide the chute & container into place and mark where the chute meets the lid. Slide back out and cut off the excess length of the waste chute with a saw around 1" – 2" <u>below</u> where you made the mark.



See schematic drawing for installation option 1) over page.



Installation Option 1)

with Rails (see picture above - but not shown in sketch below) & Sliding Chute for minimum height requirement

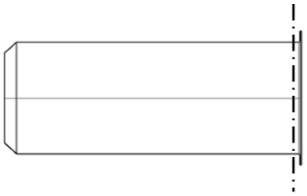
2.2 INSTALLATION OPTION 2)

Placing the Pedestal and Cutting the Waste Hole:

Cut the waste chute hole in the floor - the size of the GL 55's chute - 9.8" (+/- 0.2")

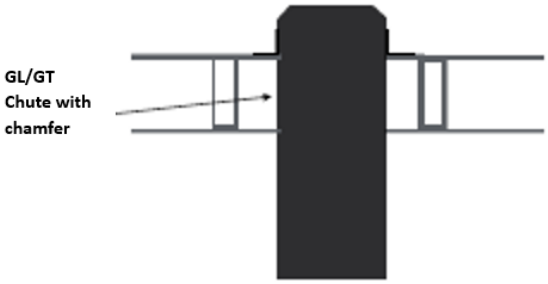
Sizing the chute:

The purpose of this section is to cut the waste chute at the correct height for the pedestal, and correct depth for the composting container.



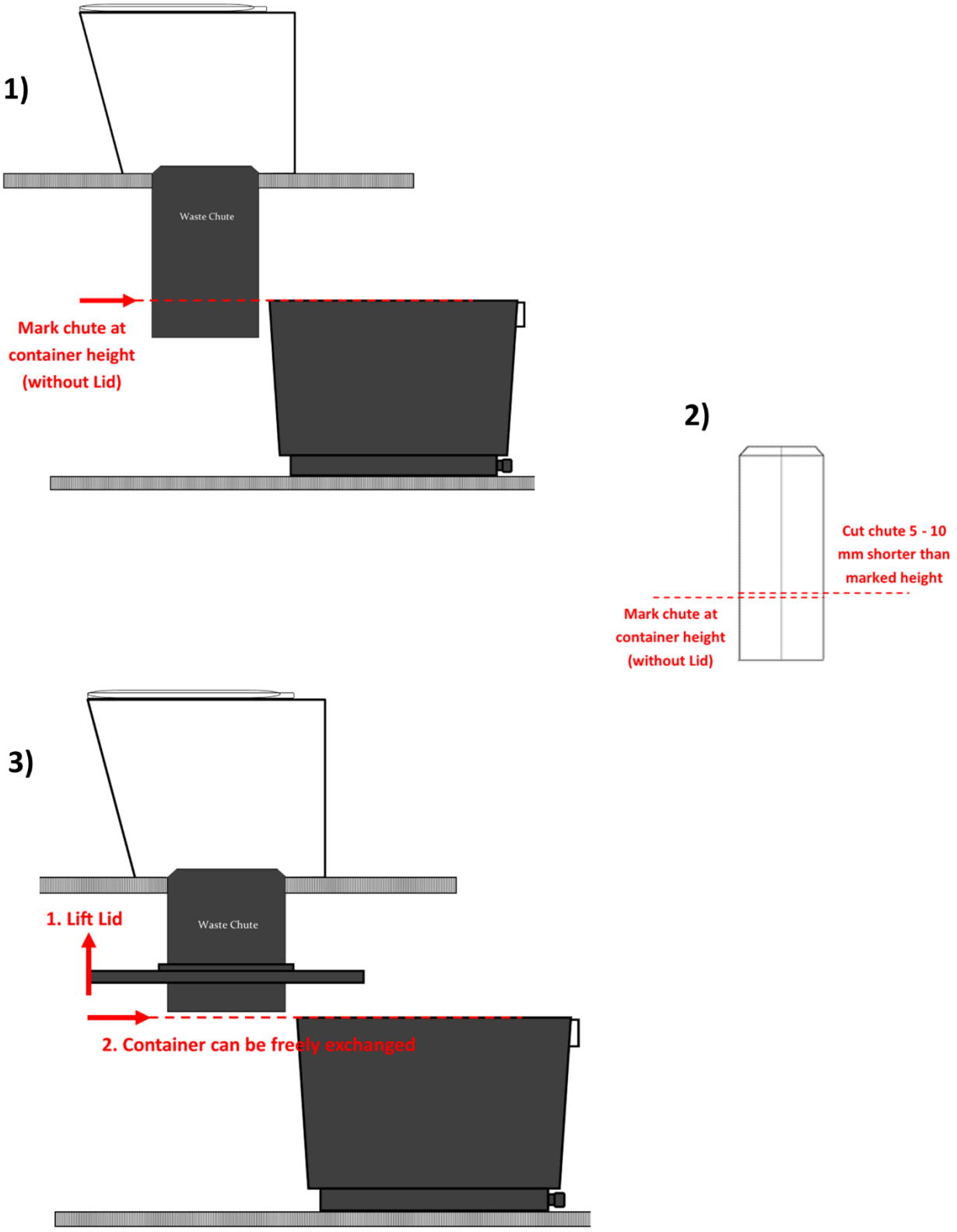
Cut the flange off the chute. Retain the tapered end of the chute. The porcelain pedestal's throat is around 200 mm - which is the same as the diameter of the taper. Affix the chute temporarily - protruding 40mm from the floor. See example below:

Installation Option 2



The chute of the GT/GL system (9.8" multi-chute) supplied chute should finish flush up against the pedestal, over the top of the pedestal throat. Mount the chute with screws and fixing angle (not supplied) or wedge into place with polyurethane sealant – roughing up the surface to be glued first.

Slide the composting container <u>without lid</u> next to the chute and mark where the chute meets the top edge of the container. Slide chute back out and cut off the excess length of the waste chute with a saw around 0.2" – 0.4" <u>shorter</u> than where you made the mark. This means that the chute will clear the composting container when slid out at exchange of containers.

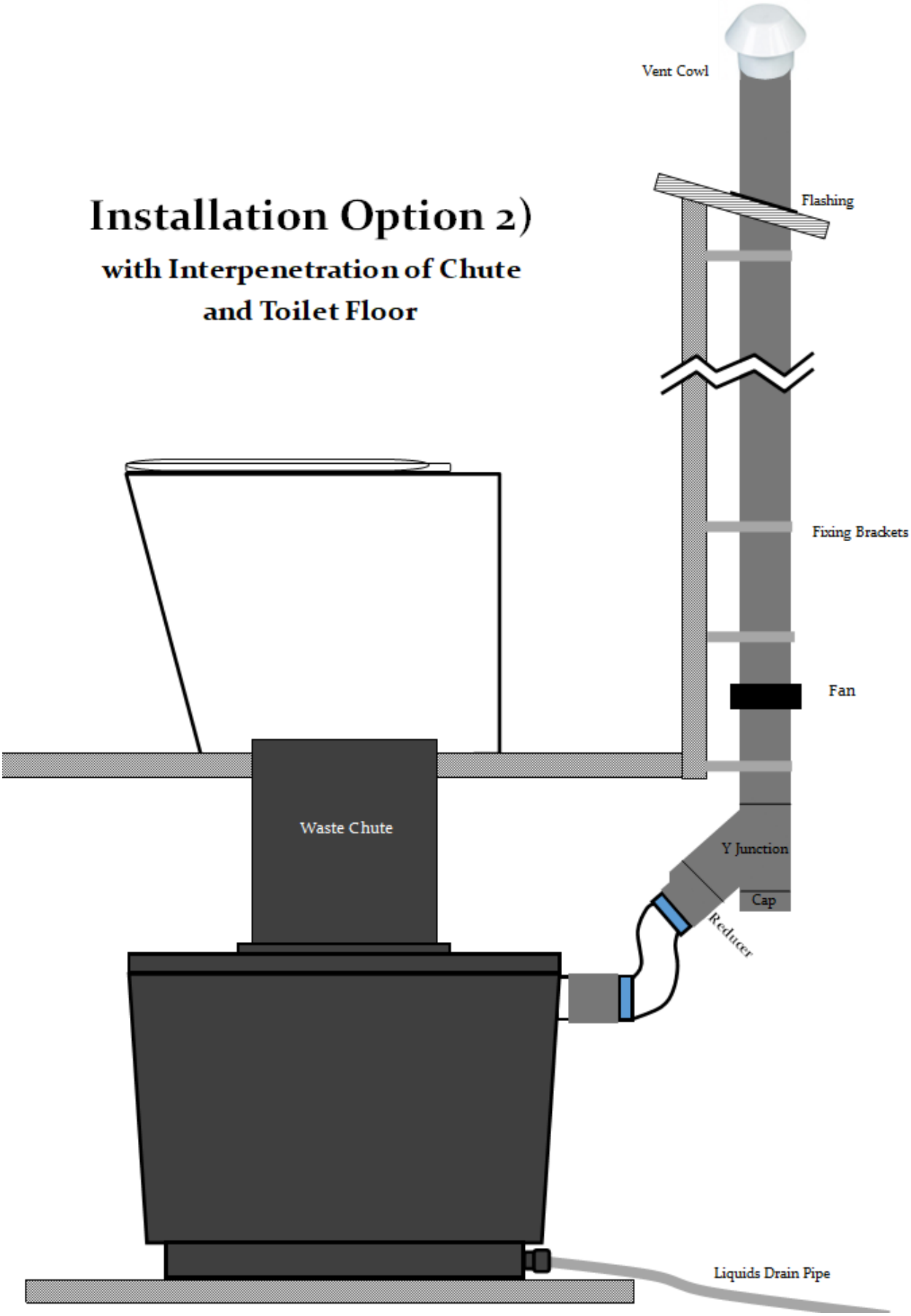


Re-insert the chute into the hole you cut. Fix to the floor at the previously measured height. Use metal brackets and Selleys Armour Flex to permanently fasten the chute to the floor.

See schematic drawing for installation option 2)

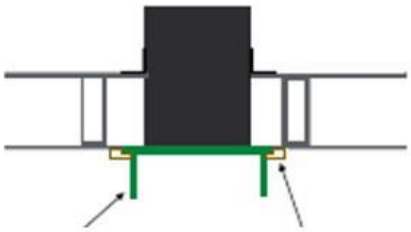
Installation Option 2)

with Interpenetration of Chute and Toilet Floor



3. PEDESTAL INSTALLATION

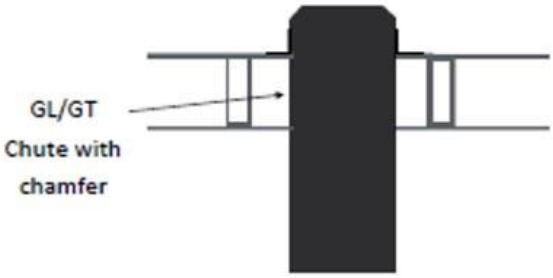
Installation Option 1



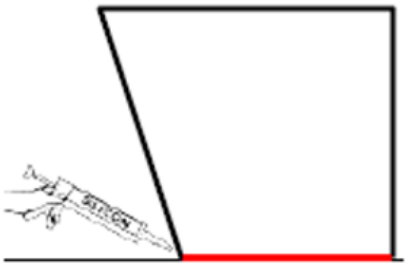
Green Loo GT/GL Chute Timber Rails

The supplied 8" chute should finish flush up against the pedestal, over the top of the pedestal throat. Mount the chute with screws and fixing angle (Not supplied) or wedge into place and glue with polyurethane sealant – roughing up the surface to be glued first.

Installation Option 2



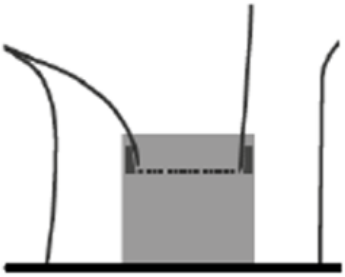
The chute of the Gt/GL system (9.6" multi-chute) supplied chute should finish flush up against the pedestal, over the top of the pedestal throat. Mount the chute with screws and fixing angles (not supplied) or wedge into place and glue with polyurethane sealant – roughing up the surface to be glued first.



Use silicone or similar to fix the pedestal to the floor & fasten with supplied brackets.



Fix the supplied insulation strip between the chute and the outside of the porcelain outlet – making sure it is behind the porcelain outlet, not visible and not subject to soiling



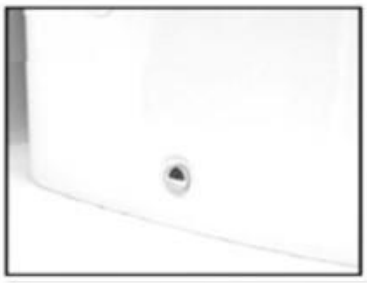
The strip ensures maximum efficiency of the ventilation

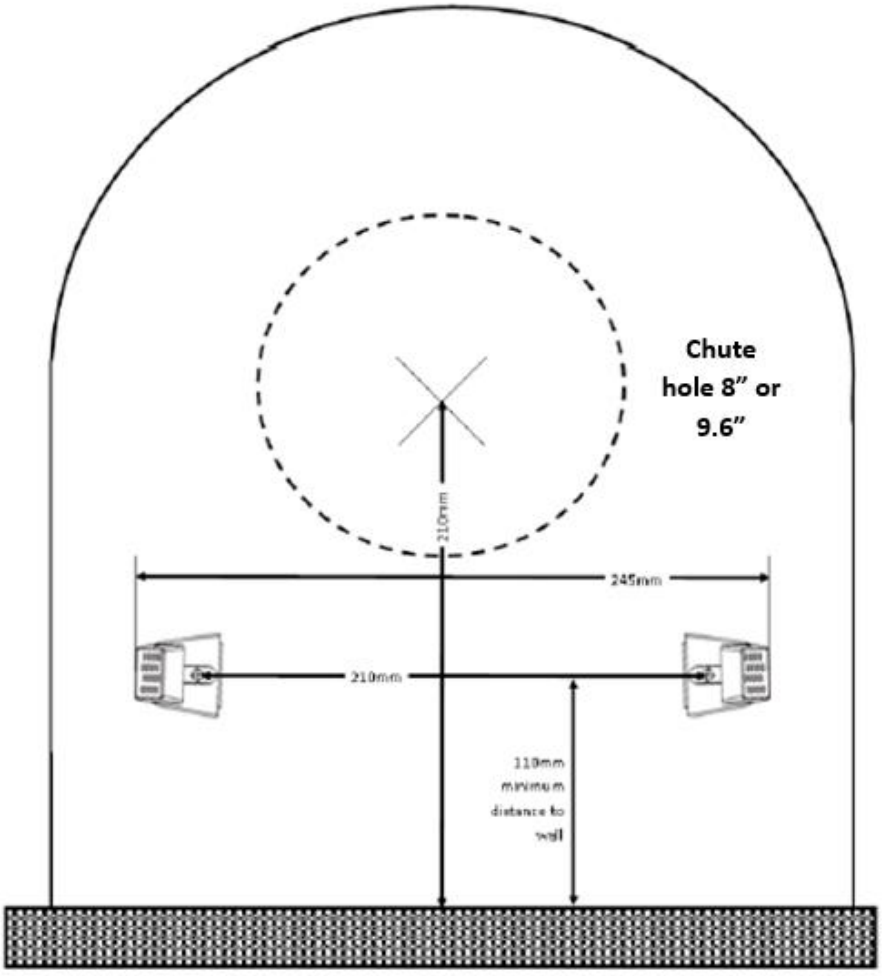
Oslo Pedestal Floor Installation

1) Determine whether you would like the pedestal to sit against the back wall, or some distance out from the wall
2) Ensure you have enough space either side pf the pedestal to affix the fastening screws. This is typically 12.6" to accommodate the screws and drill
3) Mark your chute hole centre 8.25" from the back position of the pedestal
4) Affix mounting brackets as per the drawing below, 4.33" from the back position of the pedestal
5) When totally satisfied that everything is in the correct place, cut chute hole (8" or 9.6"), depending on installation option 1 or 2
6) lace pedestal into position, glue down with silicone or similar
7) Screw pedestal into place and cap with supplied white covers









4. VENT SYSTEM INSTALLATION

The GL 55 airflow requirement is provided by 4" pipe and incorporates a continuous running fan (supplied). Consider how the fan will be powered (240V or 12V) and ensure the fan housing is accessible for maintenance. Ensure correct airflow of the fan **away from the toilet.**

Remember that warm air from the composting chamber (the composting process generates its own warmth) naturally rises, and that sharp bends restrict airflow – designing the vent piping correctly will improve natural operation. Avoid bends tighter than 45 degrees.

Ensure that the vent system does not interfere with the sliding in and out of the composting bins. Consider installing the condensate (moisture) trap with the 'arm' of the Y - Junction angled parallel with the outside of the wall and slightly off to one side (see picture overleaf).

Warm air, holding moisture, entering a cold vent can result in condensation. Consider insulating the outlet vent piping - and install the provided condensate trap as per drawings.

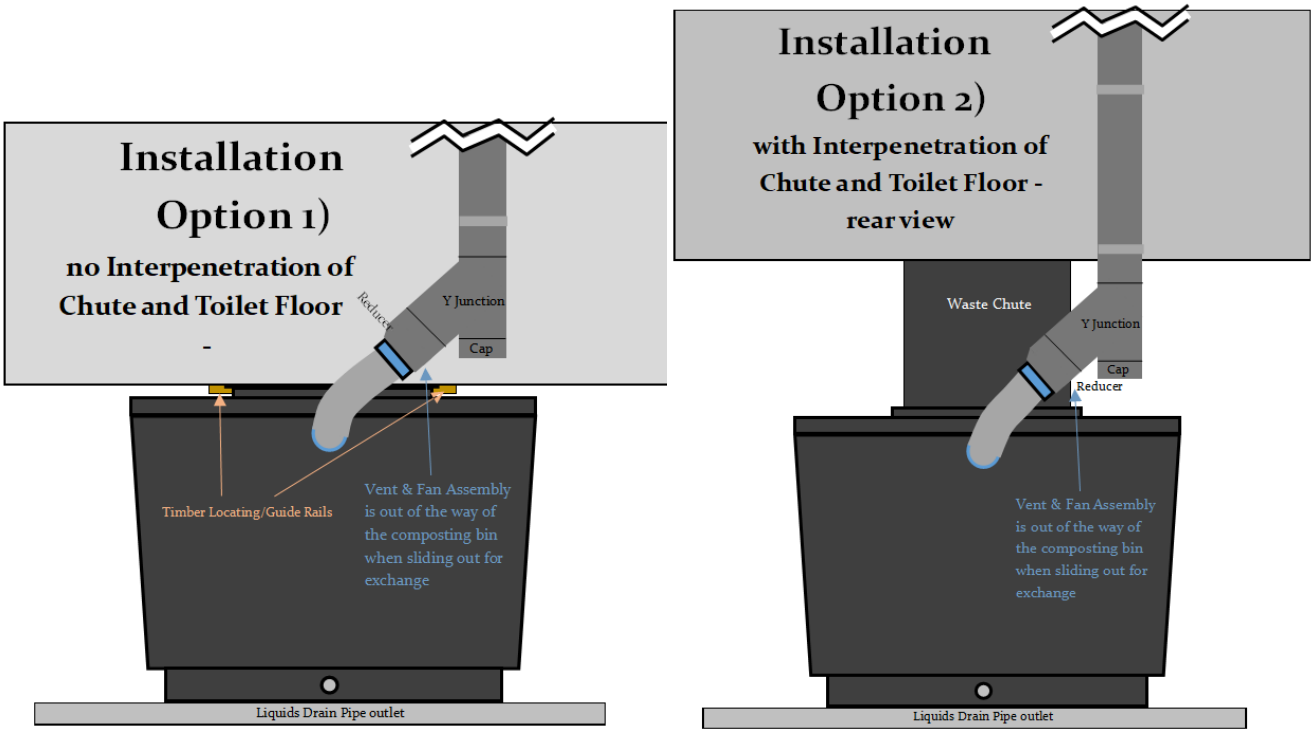
Vent Pipe Installation

The ventilation pipe should rise perpendicularly with as few curves and elbows as possible, the vent cowl placed on top. Do not use pipe cement below the Y - shaped joiner – the push fittings should be tight enough for this purpose, and this allows you to dismantle and service the vent system and empty the condensate (moisture) trap as required.

The following is an example as to a standard vent installation – there are many permutations possible and if in doubt, contact us for discussion and guidance:

1. Attach your venting pipe to the wall of the building, including vent cowl (minimum of 600m above roof penetration). Ensure that the vent system does not interfere with the sliding in and out of the composting bins. Consider installing the condensate (moisture) trap parallel with the outside of the wall and slightly off to one side. . Install the fan in a position that is suitable for your power supply to reach comfortably. Plug the fan into the power supply and ensure the airflow is away from the composting container, upwards towards the exhaust end.

2. Attach the Y joiner as per the picture. Finish with screwing on the cap. This is your moisture trap, which should be emptied every few weeks by undoing the cap, letting the water drain out and re-attaching the cap.



3. Slide the fan/flexible vent pipe assembly (100mm to 65mm reducer, black flexible vent pipe and 65mm joiner) into the Y joiner's 45°degree angled inlet. Push together <u>(don't glue this connection!)</u>.

4. Extend the black, variable length flexi hose.

5. Attach the 65mm grey joiner end of the flexible vent pipe to the white vent pipe outlet of your GL container in situ.

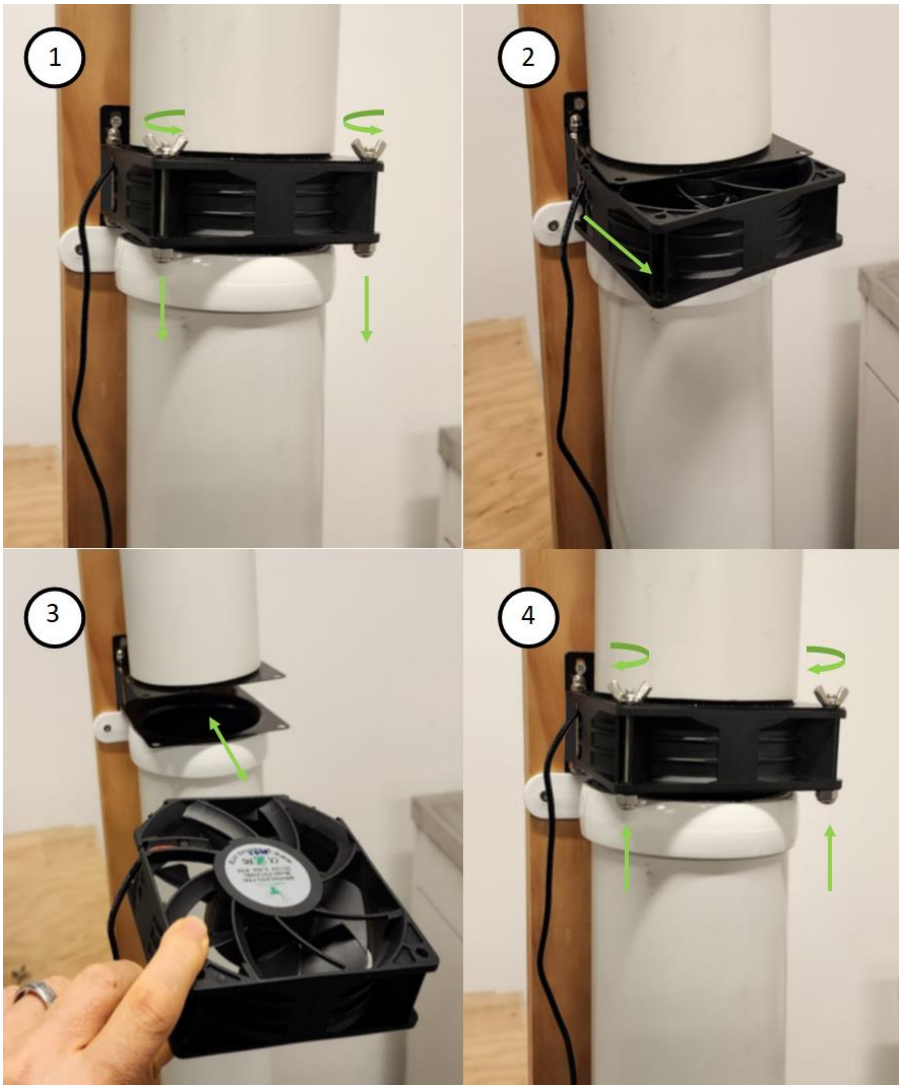
6. Ensure the flexible hose does not run downhill from the horizontal and ensure there are no kinks or restrictions to free air flow.

7. Once the system is installed to your satisfaction, shorten the flexi hose as much as possible, minimising any bends to achieve a smooth flow curve. This maximises air flow.

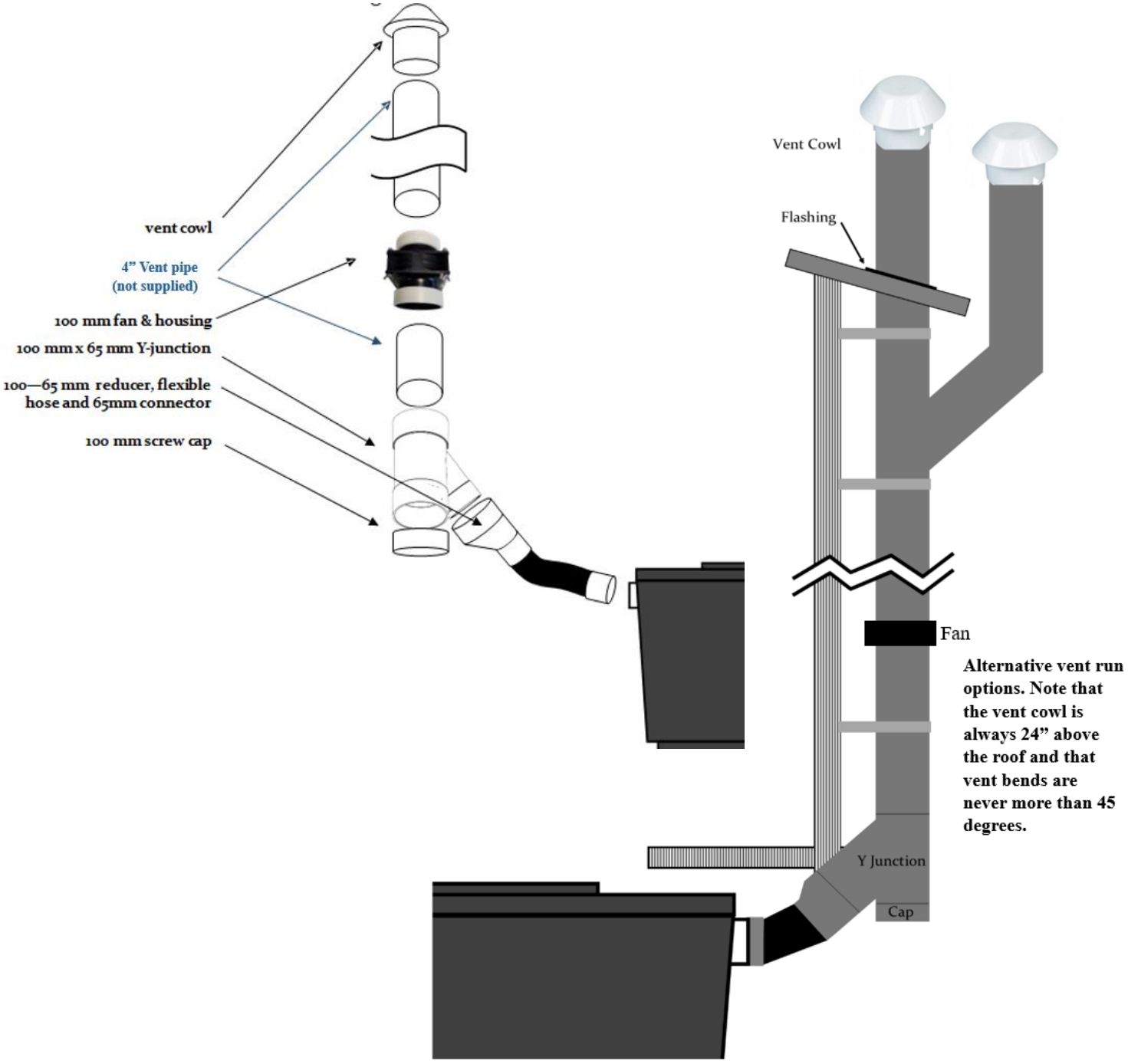
8. Congratulations, you are done!

To exchange fans:

1. Disconnect fan from power source, undo the 2 front wing nuts – remove bolts
2. Slide out fan
3. Slide in new fan (the cut off corners at the back, and the fan label pointing upwards).
4. Insert 2 front bolts and hand tighten wing nuts. Re-connect power source & check that the airflow is upwards, away from the toilet.



Vent System Schematics and Vent Run Options:



Alternative vent run options. Note that the vent cowl is always 24" above the roof and that vent bends are never more than 45 degrees.

5. ABSORPTION TRENCH/EXCESS LIQUID

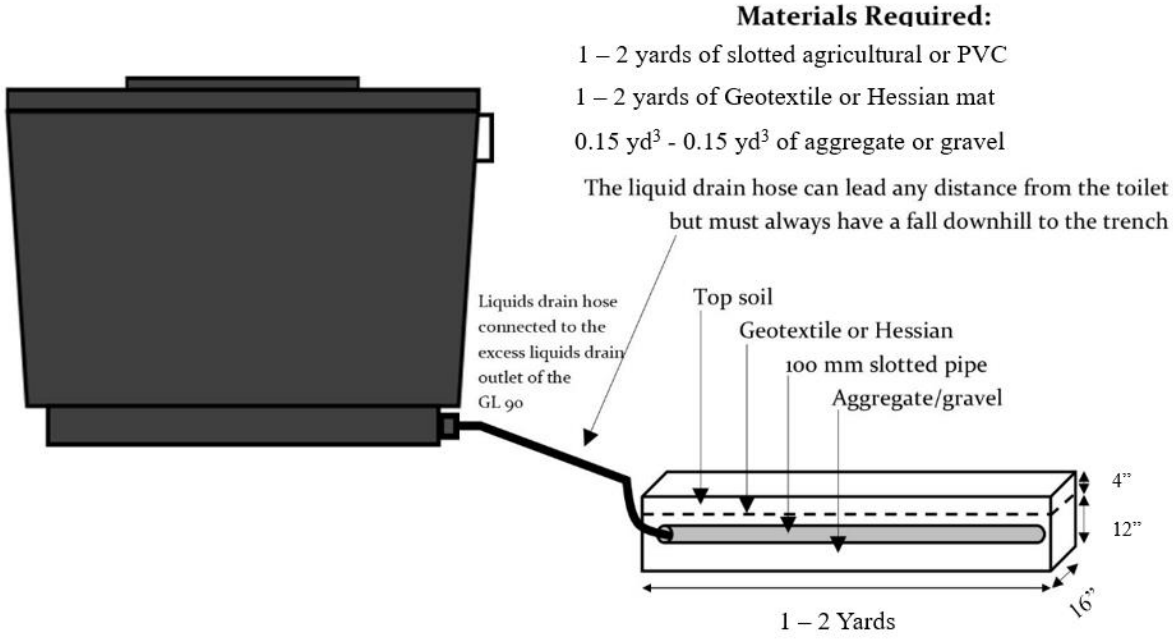
As a result of the capillary double base of the GL 55 System, 90-95 % of the liquid waste is used up in the composting process, as well as being evaporated through the vent system. An absorption trench is required to deal with any excess liquid.

The length of the trench is 1 yard for the GL 55 (1-person permanent use) and 2 yards for the GL 55 with an extra composting container (2-person permanent use). The trench is to be 16" wide, 16" deep.

However, dimensions must not be less than required by Regulation 50 of the Health (Treatment of Sewage and Disposal of Effluent and Liquid Waste) Regulations 1974 or AS/NZS 1547. See diagram for a GL 55 installation below.

Attach the threaded camlock fitting onto the grey joiner, connected to the grey, ribbed excess liquids hose, and tighten with the supplied hose clamp.





6. BEFORE USE

The composting power of the GL 55 System is based on the capillary double base which works similar to under watering flowerpots. A large part of the liquid waste is absorbed back to the composting mass through capillary action, thus boosting the composting process.

Before putting the system into use, fill the base with a 2" cm layer of hemp. Make sure also to fill the "feet". This layer enables the capillary feature to work. Also, after every emptying, remember to add a new layer of hemp before use and fill the legs.

7. USE OF THE GL 55 SYSTEM

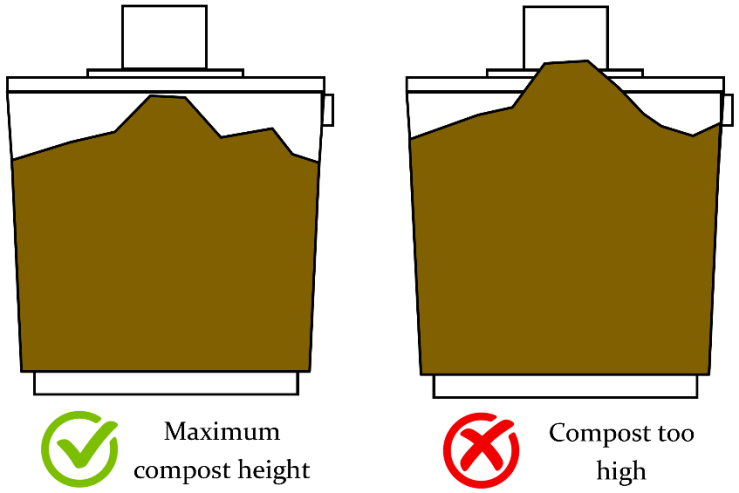
The GL 55 System can be used almost like any normal water toilet. Toilet paper can be thrown into the toilet, as it composts together with the waste. However, any items containing plastic, e.g., sanitary towels should be placed into a separate bin. A handful of covering material (hemp, 1 cup) should be added after each bowel movement. The composting process can be enhanced even further by leveling and mixing the compost occasionally. Our compost starter (biodegrader) may also be added.

8. SERVICE

a) Check the fan 1) monthly to ensure it is working or 2) if you notice unusual odour. Remove the fan and clean off dust with a soft brush every 3 months.
b) The average length of time until a container is full is 3 months at 1 person full time use for the GL 55.
c) Both the active and fallow container need to be secured to prevent tampering by young children by fastening the latches (a lock can be used to secure this even further).
d) It is not vital that the fallow container is kept in the sun, however composting is accelerated by warmth. Therefore, choosing a warm spot is helpful, as long as provision c) above is observed.

To exchange or empty the GL System, protective clothing, face mask, glasses and gloves must be worn at all times.
Tip the bin backwards before taking the excess liquids hose off, to empty the liquid at the bottom of the container as much as possible.
Then lift the hose up (once disconnected) so that any free liquid is syphoned off. This prevents excess liquids from spilling out.
Disconnect the flexible ventilation pipe at both ends.

Exchange containers when compost fills the container 2/3 to 3/4



If using installation Option 1):

Pull the container out, undo the bungee loops & exchange the lid onto the second, spare container and move the second container in place (having prepared the container as per above). Set aside the first container and seal with the supplied lid. Cap the excess liquids drain with the supplied camlock cap & insert the supplied 65mm insect proof vent cowl into the vent pipe. The waste will finish composting in this container (2 - 3 months on average). Leave to compost until the second container is full in order to maximise composting time.

Re - attach both vent and excess liquids drainage systems.

Both the active and fallow container need to be secured to prevent tampering by young children by fastening the bungee loops at all points.

If using installation Option 2):

Undo the bungee loops. Slide the lid up the chute - make sure it stays there. Pull the container out, and seal with the supplied lid. Cap the excess liquids drain with the supplied camlock cap & insert the supplied 65mm insect proof vent cowl into the vent pipe. Move the second container in place (having prepared the container as per above). The waste will finish composting in the 'fallow' container (2 - 3 months on average). Leave to compost until the second container is full in order to maximise composting time.

Re - attach both vent and excess liquids drainage systems.

Both the active and fallow container need to be secured to prevent tampering by young children by fastening the bungee loops at all points.

9. EMPTYING

- Always observe safe work methods. For exchange of containers and the emptying of composted container 2 persons may be required. You can expect weights of 66lb for the GL 55.
- Transport the container to the prepared disposal site. A furniture trolley is an effective way to move full bins.
- Gently lay the container on its side and start emptying the container with a spade or shovel.

10. USE OF COMPOST

- Bury the contents of the container into a prepared area. Burial depth is a minimum of 12” in soil that is not intended for human food cultivation for six (6) months, and burial should be a minimum of 30 yards from any water source and 6 yards from any sub-soil or open drainage system, or
- dispose of as directed by the Local Government.

WARRANTY

New parts are furnished to a customer whose toilet fails within the allotted warranty period for the particular component, provided that our inspection shows such failure is due to defective material or workmanship. Any part supplied is warranted for the balance of the original warranty period. The warranty period for a part begins from the date the original product was dispatched (plus 10 working days for transportation).

Warranty Period:

Any electrical component including solar 1 year

Any rotomoulded component 15 years

Any porcelain component 4 years

Toilet seats 1 year

Any other component 1 year

This warranty does not cover:

1. Damage resulting from neglect, abuse, accident, or alteration; or damage caused by fire, flood, acts of God or other causality.
2. Damage resulting from failure of the purchaser to follow normal installation and operating procedures outlined in the manual or in any other printed instructions supplied with the system.

Items subject to a dispute, where photographic evidence is inconclusive, must be sent prepaid to Waterless Toilet Shop. The cost will be reimbursed by Waterless Toilet Shop should the claim be found valid.

In addition to the above, a fan that fails during the warranty period will only replaced under the following conditions:

1. The fan has only ever been connected and powered by either a 12-volt transformer plugged into mains power or a solar system supplied by Waterless Toilet Shop. Connecting your fan directly to a power source other than one supplied or specified by Waterless Toilet Shop may result in damage to the fan and void the warranty.
2. The fan and transformer must not be modified/altered in any way.
3. The faulty fan is returned to Waterless Toilet Shop for inspection, if required.

Providing the above conditions have been met replacement fans are shipped the same or following business day free of charge by regular post.

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