



# Certified Self Containment NZ Lifestyle Camping Summary / Guidelines

For Motor Caravans, Caravans & Camper Vans

Updated August 2021

For Interpreting and Applying NZS 5465: 2001  
incl. Amendment 2



For a NZ wide listing of self containment testing officers go to  
[www.nzlifestylecamping.com](http://www.nzlifestylecamping.com) or [www.apcnz.org](http://www.apcnz.org)

## ***NZ Lifestyle Camping - Guideline Comment***

This document is a guideline for applying the NZ Standard NZS 5465:2001 and has been developed collaboratively. It is a resource for testing officers and installers. It is a collaborative document and will be added to and amended as required. We welcome your contributions and comments.

The guideline relates solely to 'Certified' Self Containment. A camping vehicle or other temporary abode might still be self contained but not meet the requirements of the standard and therefore not be able to be signed off or receive final documentation. Certified Self Containment is not a legal requirement but is used as a tool by local authorities to help manage campers and camping locations / facilities.

It is not the purpose of the guide to argue the politics for and against certified self containment but to support the NZ camping industry to meet self containment requirements as needed.

This guideline is the property of NZ lifestyle Camping Ltd and is protected by copyright. The latest version of the document can also be downloaded from [www.nzlifestylecamping.com](http://www.nzlifestylecamping.com) .

Hard copies can be ordered from the online store or by contacting [admin@nzlifestylecamping.com](mailto:admin@nzlifestylecamping.com) .

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## Participation in the Certified Self Containment Scheme

NZS 5465:2001 was developed as a way to manage the health risks to individuals and communities in relation to people travelling or living in motorhomes or caravans. It does not and can not cover every class of camper.

This guideline publication has been developed and updated in conjunction with the All Points Camping Club of NZ, which supports all classes of campers in New Zealand. The All Points Camping Club of NZ endorses international practices for managing waste, including human and the CSC scheme is a part of that.

Together our two organisations are actively working to support NZ campers, and with local government and other organisations, to ensure fair representation for all campers and fair implementation of the Freedom Camping Act and Self Containment bylaws.

*NZ Lifestyle Camping Ltd (NZLC) as an issuing authority for NZS 5465:2001 recommends and supports the certification of all qualifying vehicles for self containment and sees this as a positive step towards developing a safe and sustainable camping industry throughout NZ.*

*In managing our [national network of testing officers](#) and passing vehicles as certified for self containment we will act fairly and impartially to ensure as many vehicles / vehicle owners are able to meet and exceed the standard requirements.*

*NZ as a country has a high risk of natural disaster and an increasing level of homelessness. Certified self containment should also be recognised as an opportunity to assist families and individuals to maintain safe and hygienic living conditions for a brief period of time.*



***Anyone with an interest in camping in New Zealand is invited to join our national camping club.***

It only costs \$35.00 to join and apart from the friendship and support, there is a wide range of national discounts and savings, including Bluebridge Cook Strait Ferry, Net Speed wireless broadband and Star Camper Care Insurance.

Go to [www.allpointscampingnz.org](http://www.allpointscampingnz.org) or find the club on facebook. Join at [www.apcnz.org/shop](http://www.apcnz.org/shop)

*You can combine the self containment processing and issue fee with APCNZ membership for only \$60.00 (effective from 1 September 2021)*

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### 7 Principles of Leave No Trace

1. Plan ahead and prepare
2. Travel and camp on durable surfaces
3. Dispose of waste properly
4. Leave what you find
5. Minimize campfire impact
6. Respect wildlife
7. Be considerate of other visitors



## NZ LIFESTYLE CAMPING POLICY ON VEHICLES SUITABLE FOR CERTIFICATION

Under the Standard the vehicle should come under the definition of being either a Motor Caravan or Caravan to be able to be certified or inspected for self containment.

- To be certified for self containment the vehicle must be of suitable design and fit for the purpose of accommodation.

### Definitions:

**CARAVAN:** Defined under the Standard NZS 5465:2001 as “Any structure designed for human habitation, which is capable of being moved from one place to another, by being towed, or transported on another vehicle.”

***NZLC Comment:*** *This includes slide on type camping units and box type e.g. tiny houses, accommodation type camper trailers, and roof top tents, when those structures have been designed for human habitation. The standard is not specific as to the physical structure of the unit and may include canvas or part canvas construction.*

**MOTOR CARAVAN:** Defined under the Standard NZS 5465:2001 as “A motor vehicle which can be used as a place of abode and has facilities for cooking, eating, sleeping and washing and is not a passenger vehicle.”

***NZLC Comment:*** *Under the Standard’s definition of a Motor Caravan the vehicle must have facilities for cooking. This could include a portable gas or electric hotplate which may be used inside or outside of the vehicle. ‘Not a passenger vehicle has no clear definition or reference to legislation or standards. In fact the NZTA website states: “Passenger vehicles can include cars, vans, people-movers and some off-road vehicles.” By the inclusion of the word can this means these vehicles might not be a passenger vehicle under the NZTA definition.*

**Excluding all vehicles that carry passengers is NOT in the intent of the standard. If a vehicle has a primary design as a camping / accommodation unit whether by manufacture or modification it may be considered for certified self containment.**

The purpose of NZS 5465:2001 is not intended to exclude vehicles from being able to be certified for self containment but to provide a system whereby vehicles can be identified as being able to contain all waste for the number of occupants for a period of 3 days.

Every motor caravan or caravan (including those such as trailer campers, slide on campers and roof top tents) can be certified for self containment where the vehicle has been converted for camping / habitation and has met or exceeded the fresh water and waste requirements under the standard.

There is no official exclusion list of vehicle makes and models that cannot be certified for self containment. A vehicle may have been built or converted for habitation but must be suitably set up for this purpose. A vehicle for certification may have a portable toilet and must have cooking facilities. NZLC is bound by the standard and cannot certify tents for self containment, only the vehicle. In the case of a roof top tent or trailer camper the toilet must be able to be used in the vehicle (with adequate head and elbow room) when required. **This does not mean the toilet must be able to be used in the vehicle at all times as has been widely promoted.**

## CERTIFICATE OF SELF CONTAINMENT

Every motor caravan or caravan equipped as per the Standard may be presented for the issue of a selfcontainment certificate and a warrant of compliance, with appliances installed, that are "fit for purpose" and qualifying as motor-home or caravan.

### DISPUTES

Any disputes arising should be resolved by the parties involved in the first instance and referred to NZ Lifestyle Camping if there is no resolution. Notes should be kept of any dispute. A registered plumber, gasfitter or drainlayer has professional responsibility to resolve disputes.

### SELF CONTAINMENT WARRANT / WINDOW CARD

Such a warrant card, if granted, shall be affixed to the inside of the left side front window, or the left side of the windscreen so as to be visible from the footpath. It shall clearly state:

- The registration number of the vehicle
- The date of issue
- The issuing authority
- The expiry date
- The maximum number of people which are to be accommodated.



No Warrants shall be valid for more than forty eight (48) months, and must be renewed immediately if any alterations to the self containment set-up are made.

Certificates / warrant cards issued in accordance with the standard will be valid for 48 months.

### SELF CONTAINMENT STICKER



This blue square sticker was introduced at the beginning of 2012. It provides Council enforcement officers with a visual tool to immediately verify whether or not a vehicle may be certified self contained. The placement of the sticker is vital for the scheme to work and must be fitted to the lower right hand rear of the vehicle . The blue sticker is not legally required under the standard but is considered an essential part of the scheme.

### ISSUING AUTHORITY

Self-containment certificates and warrants are issued by a Self Containment Issuing Authority, i.e. a registered plumber, or any organisation (such as NZ lifestyle Camping and the New Zealand Motor Caravan Association Inc.)

## SELF CONTAINMENT OFFICERS

Qualified Self-Containment Officers who are a member of an Issuing Authority are eligible to inspect vehicles for self-containment warrants. For a new check your vehicle will need to be checked by any two members suitably qualified as Self-Containment Officers; and for a retest, any one Self-Containment Officer. The exception to this under amendment No.2 allows for an initial inspection by one (1) qualified testing officer who has inspected more than 20 vehicles and inspects more than 10 in a year. (A schedule of inspections must be retained).

To qualify as a new Self-Containment Officer under NZ lifestyle Camping, individuals must be able to demonstrate the ability to correctly interpret, explain and apply the standard, as part of a competency test. They must be able correctly maintain documentation and be able to succinctly justify decisions made. We expect all testing officers to apply the self containment standard fairly.

A new testing officer may be notarised as passing the competency test as Self Containment Officer by either an experienced self containment officer (2+ years), a registered plumber, gasfitter or drainlayer, or a person appointed to do so by All Points Camping NZ management. Where a testing officer has been trained / qualified by another organisation that training is recognised and credit given.

***NOTE: A Registered plumber, gasfitter or drainlayer can check or recheck a vehicle for self containment by themselves and be the issuing authority for the certificate / warrant in their own right. NZ Lifestyle Camping Ltd acts in the capacity of agent for the plumber / gasfitter / drainlayer.***

See a listing of Self-Containment Officers on the following websites:

[www.nzlifestylecamping.com](http://www.nzlifestylecamping.com) and [www.apcnz.org](http://www.apcnz.org)

We welcome enquiries.

The screenshot shows the top navigation bar of the NZ Lifestyle Camping website. The main navigation menu includes: Self Containment, North Island Testing, South Island Testing, Recommended Camping, and Store. Below this is a secondary menu with: Our Latest Guidelines, Projects and Ideas, Freedom Camping, and Register of Vehicles. Contact information is provided: email: [admin@nzlifestylecamping.com](mailto:admin@nzlifestylecamping.com) and Phone 027 246 9778. The main content area features a Facebook icon, the NZ Lifestyle Camping logo, and the text 'Self Containment Issuing Authority'. A large scenic photograph of a campsite with a yellow and white motorhome is displayed. Below the photo are three promotional banners: 1) 'How to get your self containment certificate issued through NZ Lifestyle Camping.' with two steps: 'Step 1) Find your nearest self containment testing officer by clicking on the North Island and South Island tabs at the top of this page.' and 'Step 2) Make a booking and get your vehicle certified for self containment'. 2) 'NZ Camping Club' with a 'Join Now' button and the website [www.allpointscampingnz.org](http://www.allpointscampingnz.org). 3) 'LIFESTYLE CAMPING MAGAZINE Issue 11 out now' with a 'Read This Now' button and a small image of the magazine cover.

## SELF CONTAINMENT REQUIREMENTS for MOTORCARAVANS and CARAVANS

The following covers the 'basic requirements' for self containment in motor caravans & caravans only.  
(For full details on Self Containment, download or purchase the Standard NZS 5465:2001, from Standards NZ, or contact a Self Containment Testing Officer who has a copy of the Standard).

### WATER SUPPLY

The motor caravan shall be fitted with a fresh water tank (or multiple tanks / containers). The tank(s) shall hold at least 4 litres per day for each person that the motor caravan will be certified to accommodate for three days. (i.e. a minimum of 12 litres of water per person). The tank shall be:

1. Made of a material that is inert and opaque, and be capable of storing fresh water indefinitely, while maintaining its potability. A semi-opaque fresh water tank can be used when stored in a dark area.
2. Adequately supported and fastened to the motor caravan so that it does not cause any hazard whilst the vehicle is travelling on the road.
3. Fitted with an inlet of not less than 25 mm diameter (or 12mm diameter if pressure fed) and have a cap or seal to prevent foreign matter entering the tank.
4. If of rigid construction have an air vent of not less than 10 mm, fitted with a device to prevent the entry of any contaminant into the tank.

**NZLC Comment:** Potable water containers that have been manufactured for this purpose and meet the NZ, Australian and international standards for the storage of water and or food, can be used for water storage in a motorcaravan or caravan. These containers are considered safe and supplied for the storage of drinking water for emergency purposes and meet or exceed the stated specifications for water storage under NZS 5465:2001. These containers will be stamped with the relevant code.

Portable water containers should be washed out frequently and not kept in direct sunlight as this promotes algal growth. If water is tainted sterilising tablets and other products can be purchased to remedy this.

### WATER RETICULATION

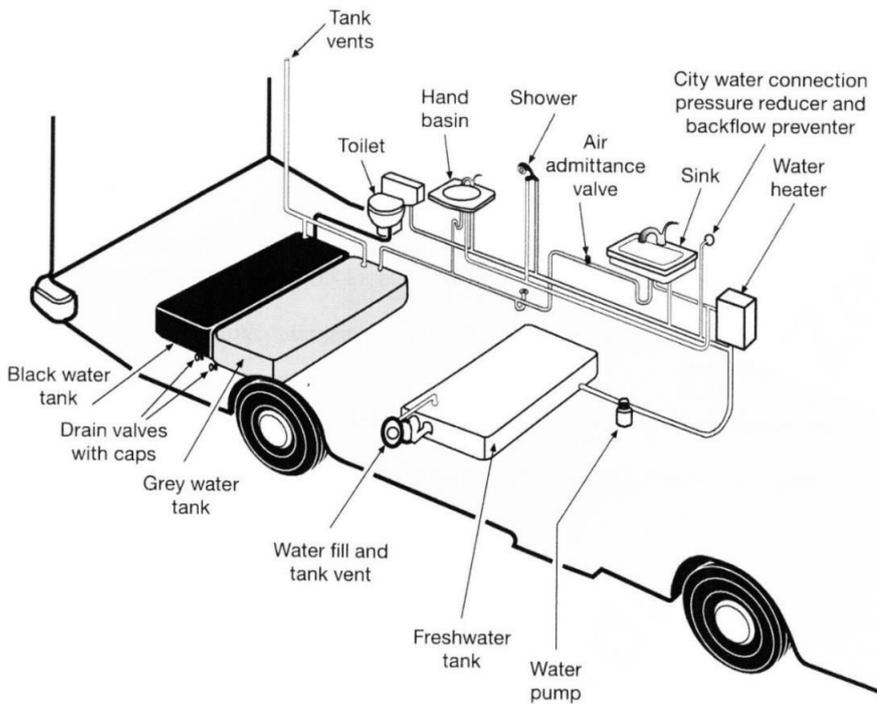
**Fresh water reticulation shall be approved food grade dense opaque non-toxic pipe. Clear plastic pipe shall not be used.** (Tip: If piping hot water or operating a pressurised system ensure the pipe / tubing is rated accordingly and securely clamped. Hoses and clamps in European caravans should be regularly checked for leakage.) A typical plumbing layout / schematic for a motor caravan is shown on the following page.

#### Explanation

1. Clear plastic pipe admits light, which encourages the growth of algae in the pipe. This discolours the water, and has potentially harmful effects on your digestive system.
2. Where a water-heating device such as a gas califont is installed, it is suggested the hot water reticulation should be in 10 mm or std 12mm pipe suitable for hot water. This pipe is easily routed around corners and can be installed in one length from the gas califont to the outlet tap. (The gas califont exhaust shall be expelled to the outside of the vehicle) The flow of water through the 10 mm pipe is more than adequate, as the gas califont restricts the water flow so that the gas flame will heat the water in the pipe as it passes through the flame.

*With storage water heaters an inlet pressure regulator and pressure relief valve will be necessary*

Schematic of a fixed tank self containment system.



**SINK**

The motor caravan or caravan shall be equipped with a sink. The sink must be attached to the vehicle. Additional sinks, hand basins and shower are optional. Every sink, hand basin or shower fitted shall be supplied with water from the fresh water tank, in such a way to ensure that there is no back siphoning.

The diameter of the waste pipe from a sink, hand basin, shower tray or other fitting shall not be less than 18 mm .

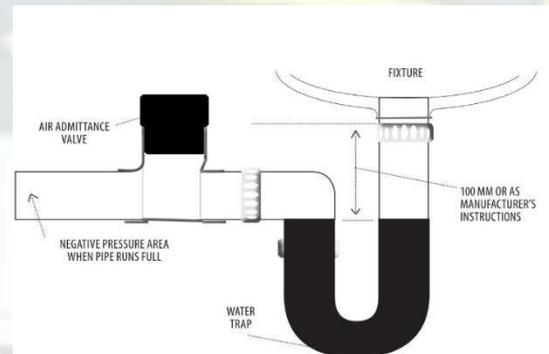
Note: The standard as written recommends that all waste

pipes from sinks, hand basins and shower trays shall have a water seal of not less than 40 mm, fitted close to the outlet of the fitting and no more than 1 m from the fitting. This is in accordance with the NZ building code which does not apply to mobile caravans and motorhomes. This can apply where are unit is set up as a permanent residence.



**NZLC Comment:** The depth of the water seal and its effectiveness may vary with different diameter waste hose / pipe. A 25mm water seal with a 25 mm pipe (or 19mm to 19mm ) is as effective as a 40mm seal with 40mm pipe. European standards and fittings for caravans and motorhome plumbing meet or exceed the NZ 40mm

recommendation.



Where the length of pipe exceeds 3 metres it shall not be less than 25 mm diameter and be fitted with an air admittance valve of or a vent pipe of not less than 18mm as shown.

**NZLC Comment:** The vent pipe/hose in the waste system including waste tank may be taken off the sink and handbasin waste pipe. This is common European practice often with multiple venting.

## Toilets and Waste Evacuation

(Privacy should be considered but is not a requirement of the standard.)

### PORTABLE TOILET

For the avoidance of doubt, Amendment 2 of the Standard states “The toilet shall be usable within the vehicle, including sufficient head and elbow room when required, even with the bed made up.” (Required is defined as essential or necessary.) Once this condition has been met, the portable toilet may be used externally, e.g. within a toilet tent or awning, where it is appropriate and convenient to do so. **This means that the toilet may be stored when not in use but must be able to be readily used when required. A common sense approach should be applied.** Portable toilets are required to be adequately secured when travelling and have a seal unless it is a Composting model.

### PERMANENT TOILET

The standard requires that permanent toilets are to be installed in accordance with the manufacturer’s instructions or to comply with the sanitary requirements of NZ Building Code. **Please note that the NZBC does not generally apply to ‘moveable’ vehicles including caravans, converted buses and trailers. There is currently some debate over moveable ‘Tiny Homes’.**

Where the toilet is permanently mounted, it shall be connected to the waste tank by a pipe, preferably of flexible material or with a flexible joint. Where an **efficiency flushing toilet** is used and evacuation is by gravity, the pipe or hose shall not be less than 75 mm diameter, and not deviate from the vertical by more than  $\pm 30^\circ$ .

For marine toilets it should be noted that some have a 32 mm waste outlet opening. As with other types of toilets these must be installed in line with manufacturer’s requirements.

### Required Toilet Capacity

Toilets shall have sufficient waste holding capacity to provide for the occupants of the motor caravan for a minimum of three days. The waste holding capacity shall be the net capacity after deducting the internal flushing water. The capacity per person per day is 1 litre, e.g. four people for the three day self containment period would require a net total of 12 litres.

The holding capacity of the toilet tank may be included in the calculation of liquid waste storage when calculating the total waste for the vehicle.

Manufacturers instructions should be followed when calculating the waste holding capacity for toilet waste. The minimum capacity allowable under the standard is 1 litre per person per day for self containment. Most users will need more than this. It is recommended to carry a spare cassette if possible.

Minimum 3 day Capacity - for 2 persons 6 litres + initial charge (1litre) = 7 litres (recommend 9l )  
for 4 persons 12 litres + initial charge (1litre) = 11 litres (recommend 13l)  
for 5 persons 15 litres + initial charge (1litre) = 16 litres (recommend 18l)  
for 6 persons 18 litres + initial charge (1litre) = 19 litres (recommend 20l)

**The above are recommended minimums. Every personal situation is different and a spare cassette is recommended when there are 3 or more persons.**

*A friendly warning. Young children like pressing the flush button. It is very likely, that with children on board, your toilet holding capacity will be severely compromised.*

**MARINE TOILETS** - These shall not draw their flushing water from the drinking water supply.

*Explanation: The barrel of a marine toilet pump is used for pumping both the waste to the waste tank and drawing in the flushing water. It is therefore unavoidable that contamination will travel from the waste to the clean water supply. To use marine toilets in a motor caravan, install a separate tank for flushing water with an air gap between the fresh water supply and the flushing tank water.*

### **COMPOSTING TOILETS**

Under amendment No. 2 31/05/17, Defines Composting Toilets as an aerobic processing system to treat human waste by composting. Where any waste water is separated it shall be via a black water tank or a combined grey & black waste tank. Some composting toilets have a removable black water tank that is rated to hold urine for three (3) persons for one (1) day. This would not meet the CSC requirements for three days if the vehicle is certified for more than one (1) person. In such cases there will have to be a small black water tank, of some form or the grey tank becomes a black water tank if the urine is fed into this, to store the extra liquid waste and for the vehicle to meet the standard.

### **WASTE TANK**

The motor caravan or caravan shall be fitted with a waste tank or tanks to receive the wastewater and sewage from all permanently installed fixtures. "The capacity of the waste tank shall not be less than, and preferably larger than, the minimum water supply." However **The waste tank can have less volume than the fresh water, as long as it is above the minimum quantity and has a visible, functioning monitor.** This could simply be a viewing window of some kind. **The tank shall have a vent which extends above the lowest appliance and then exits to the exterior of the vehicle.** The minimum size for the waste tank is the same as the minimum fresh water capacity (i.e. 24 litres for two people).

**Note:** If the vehicle has a combined tank for sewage and grey water (becoming a black water tank) the capacity 'Must' exceed the minimum requirements for each. In the case of a composting toilet requiring discharge of urine into a waste tank this must also be added to the waste capacity e.g. 1 litre per person per day.

**Rollaway/portable** tanks can be used as an alternative to fixed tanks. There are many differing opinions on the use and advantages or disadvantages of a roll a way waste tank. Modern rollaway tanks are required to be a sealed unit so the risk of any spillage is minimal. If staying in facilities with a dump station they are easy to wheel but have considerable weight when emptying. Assistance should be sought / may be required to lift a full tank.

Motor homes and caravans with removable grey water tanks are allowed as long as they are connected with a watertight seal and the pipe that feeds them has a shut-off valve and cap. The tank shall have a vent which that extends above the lowest drain / sink fitting.

**Portable tanks can be heavy, with lifting becoming difficult. 1 litre = 1 kg. This weight should be taken into account when planning a new installation.**

All waste tanks shall be constructed of non-corrodible material. The bottom of the tank should be shaped so that the contents can be evacuated through a suitable valve. The valve shall not be able to operate from inside the vehicle and the valve shall be fitted with a cap when not in use. **All roll away tanks, fresh and grey water tanks (plus black) must be secured in the caravan or towing vehicle when in motion.**

### **Waste tank valve, Minimum pipe and discharge hose sizes:**

Grey wastewater	Up to 200 litres 25 mm minimum diameter. Over 200 litres 32 mm minimum diameter.
Black wastewater	Fed from a marine toilet or fed from a standalone macerator pump 32 mm minimum diameter.
Waste macerated on evacuation	18 mm diameter or the size of the macerator pump openings.
All other black water	75 mm minimum diameter.

### **Explanation**

The sizes stated above are the minimum. To get maximum evacuation of your tank and ensure that you dispose of all solids and paper, you should fit the largest valve and pipe work possible to the lowest point of your tank. This ensures that you evacuate all possible solids. In some cases where maximum flow is not achieved, you will get build up of solids in the tank that will reduce the tank volume. Eventually you will have to remove the tank or cut a hole in it large enough to flush it out.

All waste tanks shall be fitted with a vent of not less than 10 mm, preferably 25 mm, routed above the flood line of the lowest appliance and be vented to the outside of the vehicle. Preferably near the roofline and away from windows and doors. It is recommended that the vent pipe should be matched with the outlet at least 50%. To help quick evacuation of waste a vent pipe with a diameter greater than the 10mm minimum would ensure fast emptying. Where the evacuation of the tank is by a valve and greater than 50mm an air admittance valve shall be fitted in the system unless vent pipe is 50% of diameter of discharge hose & fittings. This is to prevent the water seals being destroyed and/or tanks imploding and to speed up the evacuation of the tank.

Fixed waste and sewage tanks must be adequately supported and fastened to the motor caravan, so as not to cause a hazard whilst the vehicle is in motion.

### **EVACUATION HOSE**

The motor caravan shall be fitted with an evacuation hose. The hose shall be fitted with a seal-able coupling for attaching it to the waste holding tank evacuation valve. The waste hose shall have a minimum length of 3 metres and the diameter shall be no less than the minimum waste tank valve and piping as required by the standard. The hose shall be carried in a separate sealed container if not carried in its own locker.

### **WASTE WATER TREATMENTS**

The chemicals or biological treatments used in a waste or sewage tank should:

1. Deodorise the waste
2. Disintegrate the waste
3. Be biodegradable
4. Eliminate coliform bacteria
5. Prevent foaming at pumping stations
6. Not interfere with the safe operation of a septic tank
7. Not affect component parts of the sanitation system

The manufacturer's instructions should be followed when using the treatments.

**Explanation:** *When putting chemicals into your toilet system (portable toilets and waste tanks) consider the amount of waste that you will deposit before emptying the tank. No use putting in the full dosage when you are going to empty the tank when it is half full. All you have done is put in twice as much chemical as is needed. Better to put in half the chemical dosage to start with and top it up if you are going to use the full capacity before disposing of the waste at a dump point.*

### **REFUSE CONTAINMENT**

The motor caravan shall be fitted with a sealable refuse container designed for the purpose and of suitable capacity for the number of occupants. Plastic bags hanging on a hook inside cupboard doors etc are not acceptable. If the vehicle does not have a sealed rubbish bin of some kind it cannot be passed for self containment under the standard.

## CARAVAN SELF CONTAINMENT GUIDELINES

### TANK OPTIONS

1. Fit and secure fresh and grey tanks under the floor.
2. Portable rollaway tanks, one each for fresh and grey.
3. Install a connected bank of PVC pipes with sealed caps usually the length of the van under the floor.

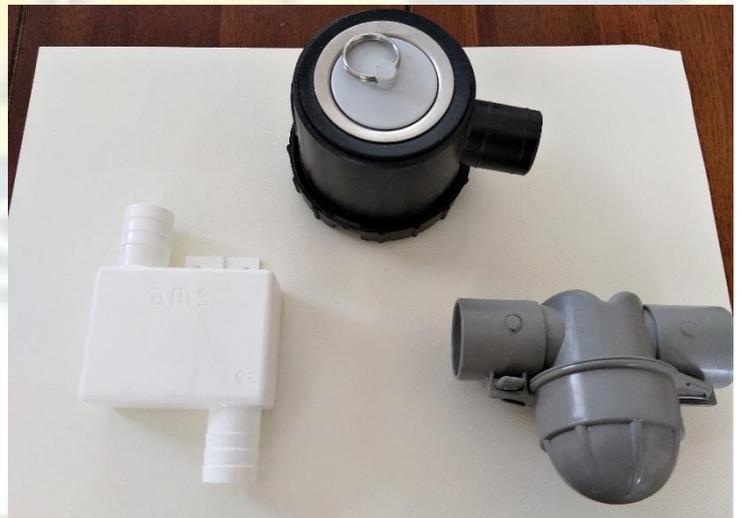
### WATER SEAL OPTIONS

1. Standard "s" Bend.
2. HepVo valve available from plumbing stockists – 32 or 40 mm diameter pipe fitting. Can be installed in either vertical or horizontal position. Commonly used in shower waste lines where ground clearance low.
3. A loose loop of flexible tube that forms a suitable water seal.
4. European engineered smell traps /siphons. The sink outlet shown includes a water seal in its design. (When fitting these items an additional S or P trap is not required)



These items can be purchased through many motorhome and caravan service centres / stores.

**If you are unable to locate the fittings or pipe you require these can be obtained from NZ Lifestyle Camping Ltd.**



### WASTE WATER PIPES

There is a large range of flexible hose and pipe available through RV sales centres, plumbing and hardware merchants. A smooth bore product is recommended. Standard sizes are 25, 32 and 40mm for NZ fittings and 19mm for some European campers.

Most plumbing suppliers have a wide range of on/off valves, hose tail connectors, dust caps, sealable couplings, and flexible grey waste hose for those sizes.

**The waste (grey water) tank(s) must be vented to the outside of the vehicle.**

*NOTE: Flexible hose should not be used in horizontal plumbing waste lines as it may sag unless it is tied to the structure. All water seals must be as close as possible to the sanitary fitting outlet. One metre is maximum allowable from fitting.*

## PERMANENT TANKS

These should be secured where possible as a balanced unit, usually secured underfloor in front of and behind the caravan wheels / axle, to keep the caravan balanced and eliminate “speed wobbles”, when towing. Be aware of hand brake cables when locating tanks.

This install shows a 76 litre waste tank suspended on a hinged, galvanised frame behind the axle on a European caravan. This is sloped for drainage. To fit this the spare tyre bracket has been removed and existing mounting holes can be used. Owners should be aware that an install like this when full will add 80kg plus to the weight of the van. GVM limits apply.



The grey tank outlet must be fitted with a on/off valve, a sealable coupling and a dust cap. The drain point should be as high as possible from ground level, and not at the extreme front or back of the van-likely to be damaged on undulating ground. Grey tank vent needs a minimum 18mm diameter and must exit to the outside of the caravan. For a “retro” fit, sometimes a vent tube can be installed through the floor and up inside a wardrobe and exit to the outside above the top of the window line through a vent cover. Alternatively bring the hose up into a cupboard and at 150 mm above the height of the lowest sanitary fitting form a gentle loop and take it back down through the floor.

Remember you onboard waste tanks are a sealed system. If the grey water tank is totally full and you empty the sink, it may backflow into the shower (if installed) or not drain from the sink! This is a warning that the grey tank is full!! Many owners install electronic tank monitors as well.

**For smaller camping units NZLC has developed a 30litre, low profile waste kit with fittings and evacuation hose. A full portable 25 L waste container is heavy and where possible a fixed unit is recommended.**

## TANK EVACUATION

*For emptying any grey tank venting is required to stop the tank imploding and to ensure rapid flow to flush out all the contents as well.*

A minimum 3 metre length hose is required fitted with the correct size hose tail connector to achieve leak free discharge from your on/ off valve into a dump station. The waste hose must be stored in a sealed container when not on the vehicle (preferably in an outside locker). Some owners adapt a piece of larger diameter plastic pipe for this function and fix it across the front or back of the caravan.

**Sometimes a 3 metre waste hose is too long and can create problems with spillage when coiling. An option is to join two shorter hoses (e.g., 1.2 and 1.8 metres) with male and female fittings to enable a shorter hose to be used where suitable or alternatively carry a shorter second hose.**

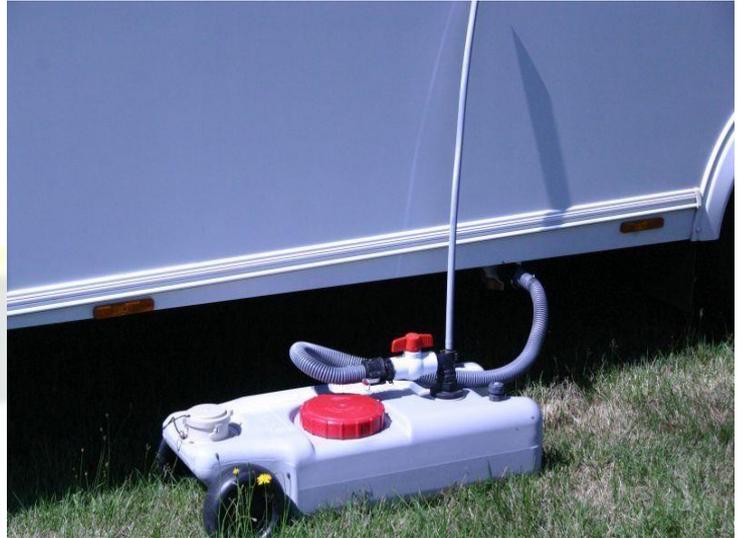
Caravan wastewater plumbing must include water seals / smell traps, an exit point on/off valve, sealable coupling and dust cap.

## ROLLAWAY / PORTABLE TANKS

All rollaway tanks (full or empty) shall be securely fastened when in transit to a standard laid down by transport regulation, including additional cassettes and water containers.

To connect the rollaway to receive waste water, attach a short piece of flexible hose with a hose tail connector at each end and fit it to the on/off valves. When valves are opened, waste can flow into the rollaway. (shown is a typical grey waste rollaway tank)

When the rollaway is full, turn off the caravan valve and drain the last residues into the rollaway before closing the rollaway valve and locking the dust caps onto the caravan and rollaway. Remember, a full rollaway weighs a kilo per litre so you should get assistance to lift it (20 – 40 Kgs).



The following image shows a complete connection kit available from NZ Lifestyle Camping or that you can easily set up yourself.

Go to [www.nzlifestylecamping.com/store](http://www.nzlifestylecamping.com/store) or [www.nzlifestylecamping.com/projects](http://www.nzlifestylecamping.com/projects) for more details.

With rollaway or portable tanks the conditions are the same as with a fixed tank regarding amounts of water, waste traps fitted to appliances, rubbish containers, toilet etc. The reason for CSC is to protect the occupants and the environment by ensuring that no waste water flows from the van onto the ground.

To achieve this, all connections between the van and tanks (regardless of whether the tank is fixed or portable) must be leak proof. A waste tank vent to allow air to escape from the tank while filling must be fitted to the height of the lowest appliance, usually the shower. If a 'Hepvo' (rubber veined type of trap) is fitted, then the vent must rise to the height of the next appliance, the sink or basin. All vents must terminate to the outside of the van. The vent can be a clear rigid pipe rising from the tank and clipped to the required height, above the floodline of the shower or sink.



When using a portable tank the van must have a valve at the discharge point of the vehicle, with a cap fitted, when disconnected from the portable tank. The tank should be fitted to the discharge valve with a flexible hose, with all connections leak proof. The length of the hose needs to be as short as practicable to ensure no spillage when disconnecting. If extra caps are purchased they can be modified (drilling a hole), one to take the inlet pipe and the other the vent pipe, allowing the second set of caps to be put on for travel or wheeling to dump point for emptying. Another option is to use BSP 20/25/32 mm threaded connectors (silicone or lock nuts recommended) with screw on caps or camlock fittings to ensure the containers are sealed when removed. These are all available from irrigation stockists or from NZ Lifestyle Camping through the website. Please check the projects page on the website for examples of fittings.

In many cases a gauge is not required (if waste water capacity is equal to or larger than fresh water capacity). Some tanks already have gauges. Tanks can have a float gauge that changes colour as the water level rises, others have a float that rises up out of the tank to indicate water level. A waste tank tank can be a light colour (or semi opaque) that allows the level to be seen or have a clear strip window gauge. When a tank has no gauge the vent can be made from clear pipe to show when the tank is full although this will show it is over full.

The tank must be able to be removed for emptying without spillage. The connecting hose and vent need to be stored in a separate locker or container when not in use to prevent contamination. All portable tanks must be securely stored so they cannot move while the van is in motion.

If an underfloor waste tank is fitted to a caravan and it has a vented front locker a simple option for venting is to run 10 or 12mm tubing from the top of the waste tank under floor and up into the front locker or gas locker which is fitted with air vents for circulation.

## SELF CONTAINING EUROPEAN CARAVANS

The purpose of Self Containing is that nothing can spill onto the ground and that smell doesn't enter the living area. Requirements are that smell traps can be fitted on each waste outlet where the pipes exit under the van. Connection joints to the should be a tight / sealed fit with no leaks. The portable / rollaway tanks must be sealed / capped when removed.

The standard UK waste plumbing system is called "Push Fit". This system has 28mm pipe that pushes together without glue so is very easy to modify to meet the standards. Joint can be glued when completed. The three waste outlets should be connected to one outlet, using Y or T elbow connectors with a valve and cap.

A short hose connect it all together and a stick on hook hangs the vent up without drilling holes in the side of the van. Converting the outlet to side exit is worth doing so the tap does not drag on the ground if on the rear of the van.

This kit shown in the image contains all that is needed to prepare an English caravan waste system fitted with smell traps for Self Containment



There are variations in caravans as to where the kitchen and hand basin/ shower are placed. Some of the tandem axle vans the waste outlets come out behind the axle and wheels. *Some exit at the rear which can break on steep entry and exits or uneven ground.*

This is a general description but keep in mind that the rollaway tank needs to be vented away from the living area and the vent not under a window. If the outlets are at the rear there is a very strong possibility of wiping them off going over crossings or even the speed humps into parks etc. Waste pipe over 3m must also have an air admittance valve. A good practice is to move them to the driver side and just behind the wheels.

### European Caravans - Shower Waste and backflow.

The standard waste outlet configuration for European caravans has two waste evacuation outlets, one being for the shower and one being for the handbasin and sink. This avoids any backflow of any remaining waste water in the pipes from sink and handbasin entering the shower.

Where the two waste outlets are combined to a single exit and fitting of the outlet valve backflow can occur, particularly to a rear shower, when travelling or parked with the caravan rear down lower than the front.

This backflow into the shower can be avoided or reduced by adding a secondary inline valve in the shower waste outlet close to the side of the vehicle, or by ensuring the shower outlet pipe is higher than the sink and handbasin pipes before the exit valve. E.g., placing 30cm block between underfloor and sink / handbasin waste pipes so that these hang lower than the shower waste pipe and the waste water cannot enter up into the shower waste pipe.

Another option is to adapt and fit a one way Hepvo valve in the shower waste pipe. This may be installed horizontally. Where a Hepvo valve is used the vent pipe must rise above the height of the handbasin or sink.



Hep Vo valve



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## SELF CONTAINING CAMPERVANS and SMALL VEHICLES

To be able to be certified self contained under NZS 5465:2001 the vehicle must firstly be fit for habitation. This requires, cooking facilities and space for sleeping. The toilet must be able to be used with sufficient room and the bedding made up. (It may then also be used in a toilet / shower tent or awning.)

While there may be many ways to work around this toileting requirement, if the outcome is an accommodation vehicle that is not comfortable or practical it may result in unpleasant experiences for the occupants and a loss in value of the vehicle.

To meet the fresh water and waste water requirements, for a two person setup, 2 x 25 litre narrow opaque plastic cans, can be used, stored alongside the sink or in a cupboard, removable for ease of filling and emptying. Multiple and smaller containers can be used to meet the requirements of 12 litres volume per person over three days. A full 25 litre water container weighs 25 kg so smaller containers or an adapted rollaway tank may be an advantage. The fresh water does not need to be plumbed in.

Commercially designed and sold containers for the storage of drinking water can be used. These should ideally be kept in a darkened area or cabinet and not exposed to sunlight for long periods of time. If plumbed in, the fresh tank must have an opaque / non clear water line to the sink to reduce the risk of algae or bacteria build up. and an inlet vent. Drinking water hose, generally blue, can be purchased from major hardware, RV and marine stores.



Note: A small fresh water tank could be secured above the sink with a tap to the sink.

The grey water drain from the sink must include a water seal / smell trap. This may be rigid pipe, flexible hose or a simple option is to use a sink waste trap. This option takes up less space and no bulky hose or pipe S bends are required.



The hose into the portable tank is to be a watertight fit that is leak proof. The grey water tank must be able to be removed for emptying without spillage. There are many low cost, irrigation fittings that can be used to make a tidy, easy to remove connection that can be capped when removed.

A 10mm diameter vent pipe/hose should be fitted to the waste water tank rising above the height of the sink base or floodline of the shower if fitted and terminating to the exterior. The vent hose may come off the waste hose, below the waterseal.



In most cases a tank monitor / gauge is not required, as you can see the water level in the tank. The tank can be a light colour (cloudy / opaque) that allows the level to be seen or have a clear strip window gauge. *These opaque portable tanks do become brittle over time and should be checked for cracks.*

The connecting waste hose and removable vent hose should be stored in a separate locker, container or sealed plastic bag to avoid cross contamination. The exception to this is where the hose and connectors remain attached to the vehicle for subsequent reconnection of the waste tank. All portable tanks must be securely stored so they cannot move while the van is in motion. There must be a sealed container for rubbish.

The following examples show a 25 litre rollaway waste tank that can be easily fitted and emptied and a low height 30 litre sealed bin that can be plumbed in under a bed or bench. Both of these options allow for a lower, smaller kitchen unit thus giving greater free space in the vehicle.



Refer to page 11 for examples of water seals / smell traps.

A compact and efficient waste system will free up your cupboard / storage space and be easier to manage than in the image shown.

Ideally when using portable tanks in a small vehicle situation a simple valve / cap can be fitted in the wastewater line between the sink outlet and the storage container, below the water seal / S trap, so that this closed off when the waste containers are removed. This avoids spillage in the vehicle.



## Campervan Toilet

The campervan shall be equipped with a toilet that is adequately restrained or secured when travelling. The toilet shall be readily usable within the vehicle including sufficient head and elbow room at all times, even with the bed made up.

Once this has been ascertained / certified as being practicable the toilet may then be used in a toilet tent or awning. The capacity of the toilet is 1 litre per person per day.



With creative thinking solutions can be found for most problems. The image to the left is not ideal but if there is sufficient head and elbow room it meets the requirements.



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## Slide on Campers

## Utility Based Campers

## Roof Top Campers

## Teardrop Campers

## Trailer Campers

**Where all the requirements the standard have been met these units can be certified for self containment.**

When the accommodation unit is permanently attached to the vehicle it is classed as a motor caravan.

When the accommodation component is not a part of the structure of the base vehicle the unit would be considered a caravan under the definition of standard (NZS 5465:2001). In these cases as the self containment documentation is linked to the vehicle registration details new documentation will be required if the camping unit is changed to a different base vehicle.

Amendment 2 of the standard requires that the toilet must be able to be used inside the vehicle with the bed made up. Once these conditions have been met the toilet can be used outside.

Example: In the case of a double cab utility vehicle our SUV the toilet may be used / complied in the rear seating or deck area whereas sleeping may be in a the toilet tent or accommodation box. For certification of the vehicle for self containment the kitchen / cooking unit must be part of the vehicle fittings, e.g. fixed, slide out or hinged.



**Teardrop campers**, where the toilet can be used in the vehicle with the bedding made up, can be certified for self containment.

**Trailer campers** fall under the definition of a caravans and can be certified as self contained under NZS 5465:2001 where the toilet can be used in the body of the vehicle with the bedding made up, as required under the standard. Once this can be done the toilet is able to be used in the awning.

**Note:** In smaller trailer campers the bedding can be used in both the vehicle and the awning. And the fold out awning may be considered part of the vehicle. The intention of the standard is not to exclude camping vehicles such as these.