

HOLDING TANK PLANNING & INSTALLATION GUIDELINES

Under no circumstances is sewage from a holding tank to be discharged onto the surface of the ground or into groundwater or surface waters.

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A. GENERAL INFORMATION

1. WHAT IS A “HOLDING TANK”?

A holding tank is a large watertight vessel that allows for the collection and temporary storage of sewage effluent from a residence or building for future removal and transport to an approved treatment and disposal site.

Holding tanks may be constructed of a variety of materials. Tanks can be prefabricated or they can be constructed (engineered) in place. Tanks that are prefabricated must meet the current CAN/CSA B66 standard for design, material, and manufacturing requirements for prefabricated septic tanks and sewage holding tanks. See Part B - *Holding Tank Guidelines – Construction and Installation* for specifics. Tanks constructed in place must be overseen by an engineer. Proper sizing of tanks will vary depending on intended usage. See Part B1, *Table 1: Minimum Holding Tank Capacities based on Estimated Daily Design Flow* for specifics.

See Section B “Holding Tank Guidelines” for specific information about the design, siting, and installation of holding tanks.

Improper use and/or maintenance of holding tanks may lead to raw sewage discharges onto the ground and/or into water bodies, presenting significant health hazards to the public. To ensure that sewage holding tanks do not cause or contribute to a public health hazard, they are regulated under Section 4 and 5 of the B.C. Sewerage System Regulation (B.C. Reg 326/2004).

A person must **not** install, repair, or alter a holding tank unless they hold a construction permit issued by an Environmental Health Officer, in accordance with the Sewerage System Regulation. Applications for a holding tank permit are evaluated on a case-by-case basis. However, prior to issuing a construction permit, the Environmental Health Officer must be satisfied that the use of a holding tank will be adequate to deal with the domestic sewage generated at a particular site and that it will not cause or contribute to a health hazard.

Note: Proposed subdivisions must still meet the requirements of the B.C. Subdivision Regulations (B.C. Reg. 262/70).

2. HOW DO I APPLY FOR A HOLDING TANK PERMIT?

Submit the following information along with a \$400 permit application fee to the local Environmental Health Officer:

- A completed “**Holding Tank Permit Application**”. Include information about the manufacturer and construction Material. See Section B3 - **Construction and Installation** for more information.

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Note:

Local or regional governments may have bylaws which prohibit or regulate the construction of a sewage holding tank. In such cases, the more restrictive requirements for the holding tank will apply.

- Holding tank plans and specifications prepared and provided by an authorized person. Authorized persons include, but may not be limited to, a Registered Onsite Wastewater Professional (ROWP), or a BC Professional Engineer who has self-declared with APEGBC. See the B.C. Sewerage System Regulation for more information and Section B3 - **Construction and Installation**.
- Site plan showing the location of the proposed holding tank in relation to (see Appendix A – Example of a Site Plan):
 - buildings (with labels),
 - surface water bodies (lakes, rivers, streams, creeks, etc.),
 - drinking water source(s) and water lines,
 - property boundaries with separation distances clearly marked. A surveyor is not required or recommended,
 - proposed Maintenance Plan for the holding tank (see Section B6: Maintenance Plan), and
 - any other information requested by the Environmental Health Officer

Note - Due to differing holding tank site locations each application is assessed on its own merits. Information requested by the Environmental Health Officer during the application process may differ from one location to another.

3. *WHAT HAPPENS NEXT?*

With receipt of payment and a complete application package, the Environmental Health Officer may issue a permit to construct if satisfied that the holding tank is adequate to deal with the domestic sewage originating from the structure and that the use of the holding tank will not, if the maintenance plan is followed, cause a health hazard. Conditions may be attached to the permit as appropriate. When the Holding Tank Construction Permit is approved and signed by the Environmental Health Officer, the applicant may proceed with the construction and installation. The installation of the holding tank and related works shall follow good engineering practice and be inspected and sealed by an Authorized Person.

4. *WHEN CAN I START USING THE HOLDING TANK?*

When the installation of a holding tank is complete, the applicant must submit a “**Letter of Certification**” and supporting documentation to the local Health Protection Office. A holding tank **must not be used** until the Letter of Certification has been accepted by the Health Authority.

B. HOLDING TANK SPECIFICATIONS

1. HOLDING TANK CAPACITY

A holding tank receives wastewater from toilets, baths, washbasins, showers, sinks, and washing machines. Water from roofs, yards, or foundation drainage must not enter the holding tank and must be diverted away from the location of the tank.

The capacity of the holding tank shall be at least seven times the estimated minimum daily sewage flow, but **not less than** 4900 litres/1295 gallons (see Table 1 below).

Notes: Home owners should review the hauling costs associated with local wastewater hauler truck capacities to get the most efficiency out of the tank. Consider a larger tank that provides more days of storage. In some circumstances, (i.e. remote areas) an Environmental Health Officer may require a holding tank capacity greater than those listed in Table 1.

Reduction in water consumption will benefit the environment and reduce hauling costs by researching ways to conserve water usage. For example, do not let water run unnecessarily and install low flow shower heads and toilets.

TABLE 1. Minimum Holding Tank Capacities based on Estimated Daily Design Flow.

Capacities are listed in litres and US gallons

Number of Bedrooms	Estimated Daily Sewage Flow (litres/Gallons)	Holding Tank Capacity
1	700 l. (185 gal.)	4900 l. (1295 gal.)
2	1000 l. (264 gal.)	7000 l. (1850 gal.)
3	1300 l. (343 gal.)	9100 l. (2404 gal.)
4	1600 l. (423 gal.)	11 200 l. (2959 gal.)
5	1900 l. (502 gal.)	13 300 l. (3514 gal.)
6	2200 l. (581 gal.)	15 400 l. (4069 gal.)

Add 300 l/day for additional bedrooms

2. SETBACK DISTANCES (MINIMUM)

TABLE 2. Minimum Setback Distances From Holding Tank Location

Note: Install the tank in a location that provides easy access for pump-out, any time of the year.

Site the tank a minimum distance from the following:

15 m. (50 ft.)	Surface Source of Drinking Water (includes lakes, rivers, etc.)
15 m (50 ft.)	Domestic water supply well
1 m. (3 ft.)	Property line
1 m. (3 ft.)	Building or structure (where there is not a perimeter drain)
1 m. (3 ft.)	Buried utility service
1 m. (3 ft.)	Drinking water supply cistern, at or above ground
3 m. (10 ft.)	Domestic water pipeline

Source: *Sewerage System Standard Practice Manual Version 3* (September 2014)

3. CONSTRUCTION AND INSTALLATION

a. Tank Selection

Holding tanks can be constructed from a variety of materials and must be designed for its intended usage. They can be prefabricated or they can be poured in place. Septic tanks are generally not acceptable as holding tanks but dual purpose tanks may be available. Acceptable tanks can be identified as having the current CAN/CSA B66 approval with designation as a holding tank; visible by the “H” on the CSA approval stamp.

The type of tank that you choose may require additional information to be submitted with your application. For example:

- **CAN/CSA approved prefabricated tank** – A photograph of the CSA certification stamp on the tank specifying the Holding Tank Designation “H” is required. Include the photo and a copy of the CSA certification document specific to that tank with your application. See Appendix B – Tank Marking (CAN/CSA Standard) for more information.

CAN/CSA B66

If proposing to use a **prefabricated tank that is not the current standard** (CAN/CSA-B66) then a report from a Professional Engineer should accompany the design stating that the tank is equivalent to CAN/CSA-B66 current standard and will not constitute a health hazard.

See Appendix "B" for holding tank certification (marking) information

Tanks that are constructed on-site will require a Professional Engineer. This includes tanks that are poured in place and may include those that come in pieces and are assembled on-site. Registered Onsite Wastewater Professionals (ROWPs) cannot engineer a design in place. The application will require a tank design and state that the tank is equivalent to CAN/CSA-B66 current standard and will not constitute a health hazard.

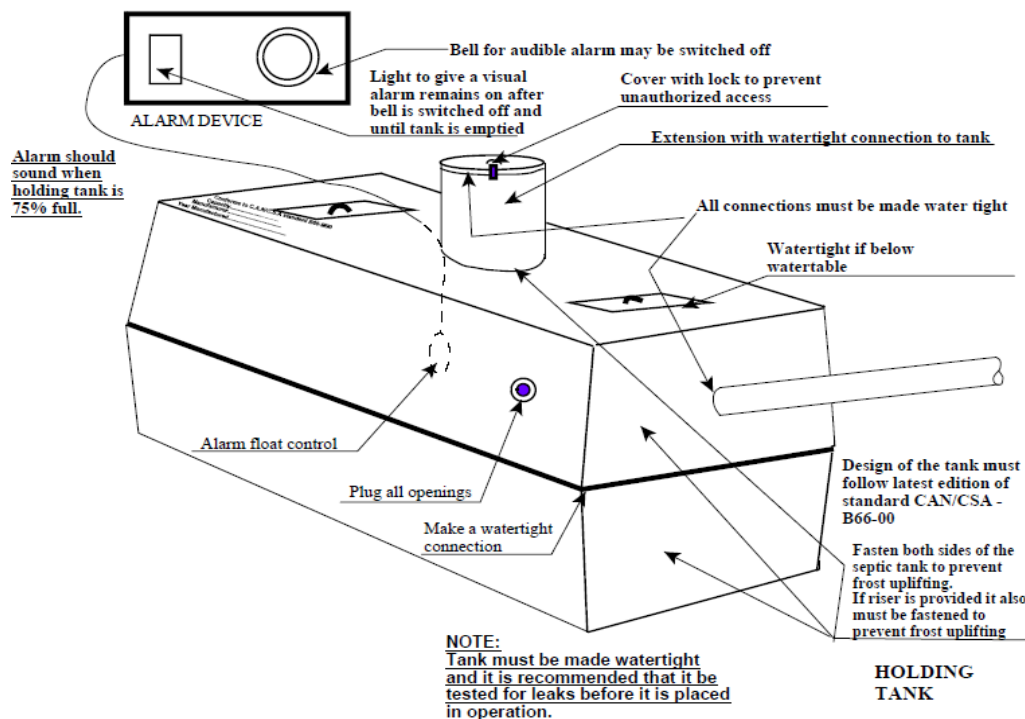


Figure 1. Typical Holding Tank Sewage System and general information

b. Sizing

Proper sizing of a tank varies depending on intended usage. See *TABLE 1. Minimum Holding Tank Capacities based on Estimated Daily Design Flow*

c. Location

Locate the tank to protect it from physical damage and so allow for easy access for the pumping truck. In areas where a high water table exists, additional precautions may be required (i.e. anchoring that would require a Professional Engineer).

d. Installation

The installation of the holding tank and related works shall be completed and inspected by an Authorized Person. An accepted Letter of Certification is required by the Health Authority prior to operation and is a condition of the construction permit. After installation, but prior to use, the water tightness of the tank must be tested.

e. Access

Holding tanks must have access openings at or above finished grade and with the ground graded to slope away to divert surface water. Access risers must be water tight at the connection to the holding tank and at the joints between all sections. To prevent unauthorized or accidental entry into a holding tank, openings must be equipped with a secure lid or cover. In extremely cold climates, the access riser must be insulated to prevent freezing.

f. Tank Bedding and Backfill Information

Follow the manufacturer's standards, including maximum depth for burial. Ensure any bedding layer below the tank is compacted before installing. Holding tanks should be backfilled evenly on all four sides in 30 cm lifts, with compaction, to final grade. Risers and lids are not to be shifted or distorted when backfilling. Tanks and piping must be adequately protected from freezing.

g. Piping

The inlet piping (sewer pipe) connected to the holding tank must be protected from distortion caused by settling of the backfill material. The excavation for a tank should not be any larger than is necessary to install the tank. This provides undisturbed earth closer to the tank to support the sewer line leading into the holding tank. Piping connected to the holding tank must be supported to within 30 cm of the tank on a solid base. In addition, holding tanks buried in the ground require the installation of a flexible coupling near the entrance to the holding tank and at the point at which the pipe to the holding tank exits from the building.

4. ALARM

A functional audible and visual high level alarm will alert the owner/resident if the tank needs to be pumped out. The sewage alarm level should be activated at 75% capacity and the audible alarm setting at no greater than 90% of the tank capacity. The alarm shall be connected to the water supply pump switch to automatically shut off the pump when the sewage level is a maximum of 90% of the tank capacity. A qualified electrician must ensure a proper high water alarm system and connection to a separate circuit from the pump. In situations where a

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continuous source of electricity is not available, the holding tank must be equipped with some form of visual indicator that alerts the owner/resident if the tank needs to be pumped.

5. MAINTENANCE PLAN

A written “*Holding Tank Maintenance Plan*” must be developed and forwarded to your local Environmental Health Officer with the Holding Tank Permit Application. The maintenance plan should include the following information:

- Contact information for sewage hauler,
- Availability of sewage hauler,
- Distance to sewage hauler and estimated response time,
- Contact information for approved waste disposal site,
- Estimated frequency of pump out,
- Scheduling for routine inspections of alarm system,
- Emergency contact information (e.g. owner, electrician, plumber, sewage hauler’s “after hours” contact number, Environmental Health Officer, etc.)
- Any other items as requested by an Environmental Health Officer.

A copy of the “*Holding Tank Maintenance Plan*” should be kept on-site as a reference for the homeowner/occupants.

The owner must keep operational and maintenance records, including information about pumping frequency, sewage volume pumped, disposal site, proof of acceptance by treatment and disposal site, and system servicing and repairs. A copy of the “*Holding Tank Maintenance Plan*” and other important records must be maintained for reference. ***These records may be requested for review by an Environmental Health Officer.***

Under no circumstances is sewage from a holding tank to be discharged onto the surface of the ground or into groundwater or surface waters.

6. RESOURCES

Go to Interiorhealth.ca; Your Environment; Healthy Built Environment; Sewerage to obtain:

- Holding Tank Permit Application Form
- Holding Tank *Letter of Certification* Form

APPENDIX A – EXAMPLE OF A SITE PLAN

Holding Tank Lot Plan Requirements

PROPOSED HOLDING TANK FOR

Lot A, Sec 24, TP1A, Range 6,
Coast District, Plan PRP15095

BCGS 92L 084
SCALE 1:1000

ALL DISTANCES ARE IN METRES
EXCEPT AS NOTED

Legend

- Proposed Drinking Water Source
- ... Setback distance (metres)
- Proposed property boundary

PLAN 15214

PLAN 15354

Submission Date:	Authorized Person (name)	Holding Tank Information	Physical Address
_____	Contact Information: Phone: _____ Email: _____	Size: _____ gal/liters # of bedrooms _____	Street: _____ House #: _____

Information required on Lot Plan

1. The proposed property boundaries, area and dimensions.
2. The location of the proposed holding tank.
3. The location of buildings, or proposed buildings, driveways, and other property structures.
4. The location of the source of drinking water.
5. Include setback distances from edge of holding tank to: property lines, source of drinking water, buildings, and surface water. For a complete list, please see "Holding Tank Planning and Installation Guidelines".
6. The location of any creeks, rivers, lakes or other surface water within of the property.
7. The location of any existing wells, sewage disposal system(s), buildings, driveways, underground services on the proposed lot.

APPENDIX B – TANK MARKING

CAN/CSA Standard (as of March 05, 2015)

Source: *CSA Group Class Number 6921-01 Plumbing Fixtures – Septic and Sewage Holding Tanks for Plumbing Systems*

TANK MARKING:

Each tank shall be permanently marked, legible and readily visible and located on top of the tank near the access opening or at the end of tank near the inlet. In addition, the inlet and outlet shall be marked to indicate the direction of flow. The marking or label shall include the following:

- manufacturer's name or trademark;
- the last two digits of the year of manufacture;
- the working capacity of the chambers (in litres);
- the volume of the chamber(s) per centimeter of depth, expressed in liters;
- the type of tank, i.e., sewage holding tank (H), trickle-type septic tank (T), septic tank with siphon (S), septic tank with pump (P), effluent chamber with siphon (ES), or effluent chamber with pump (EP);
- the maximum burial depth for which the tank is designed, expressed in metres;
- the liquid depth of the septic tank if less than 1200 mm, expressed in millimeters;
- for a concrete tank, a marking to indicate whether it is suitable for sulphate or non-sulphate soils, i.e., "SUL" or "NON-SUL";
- " above ground installation not permitted " or " AGINP " (**where applicable**); and
- the CSA monogram.

Tank marking shall also include a permanent warning advising against entry into the tank and the word "DANGER". The warning shall be in English and French and shall be located on the access opening lid(s), applied at the factory.