

Installation Instructions for Horizontal Fiberglass Tanks

National Standard of Canada CAN 4-s615-M83 Installation Instructions and Regulations shall be applicable to all tanks supplied by Canwest Tanks & Ecological Systems Ltd.

1. The manufacturer shall supply installation instructions with each tank, which shall constitute the minimum requirements, as stated in this section.
2. Reinforced plastic (FRP) underground tanks shall be handled and installed according to the regulations established by the authority having jurisdiction. In addition, the minimum requirements set forth in the following text shall be strictly adhered to.
3. In freezing weather conditions, special measures must be employed to ensure an unfrozen firm bed under tanks and a compacted backfill free from ice, snow or other frozen material, without the use of calcium chloride. Under such conditions, backfilling shall be completed in one working day.
4. Tank shall be visually inspected prior to the time of installation for any indication of damage or defect.
5. Excavation shall provide a minimum of 600mm clearance between tanks if more than one tank in one excavation, and 450mm between tanks and excavation sides. All rocks, boulders, and any other obtrusive materials must be removed from the excavation.
6. Excavation and any de-watering shall be performed in a manner to preserve firm, uniform foundation support for bedding the tank.
7. Tank shall be embedded in the excavation on a minimum of 300mm pea gravel or washed crushed stone.
8. Tank shall be carefully lowered into excavation by using lifting straps, and spreader bar when necessary, never under any circumstances shall chains or wire slings be used around the tank nor shall any other method of handling be used which may result in damage to the tank.

High Water Conditions

9. In high water-table areas, tanks shall be anchored by the following methods:
 1. By use of concrete slab under the tank and anchor straps (preferred method). In case of a vertical tank, an anti-floatation flange must be installed on tank. OR
 2. By use of ground anchors and anchor straps
10. Anchoring shall be engineered on the basis of tank size, ground cover, water-table elevation, and calculated uplift force on the empty tanks. Anchoring shall be accomplished in such a manner that anchor straps are hand tight and are designed and applied so that they do not damage the tank. Tanks shall not be in direct contact with concrete but shall be separated by at least 300mm of bedding material (pea gravel).

Backfill Procedure

11. The excavation shall be backfilled with pea gravel to a maximum level of 300mm above the top horizontal centerline of the tank. Compaction shall not be required.
12. Where pea gravel is not available, washed crushed stone shall be used to backfill the excavation to a maximum level of 300mm above the top centerline of the tank. Compaction shall not be required.
13. Any vehicular traffic passing over the tank or passing within a distance of 3 meters from the outline of the tank shall void the warranty and may damage the tank unless installed to the specifications addressed in item 14.

Vehicle Loading H-20

14.1 A tank, which is likely to be subjected to vehicular traffic shall be installed so that the top of the tank is, in addition to the 300mm (12") of backfill, covered with either a:

- Minimum of 150mm (6") of backfill material plus 150mm (6") thick reinforced concrete.

OR

- Minimum of 460mm (18") of backfill material plus 200mm (8") thick un-reinforced concrete or asphalt.

14.2 A Concrete Collar, with steel Manhole Cover must be installed at grade protecting all access risers.

14.3 In conditions of high water table and vehicular traffic, the tank must have a minimum of 900 mm (36") of specified backfill material and either 200 mm (8") of asphalt or 150 mm (6") of reinforced concrete on top.

In all cases the grade cover of either concrete or asphalt shall extend at least 1 m. (3 ft.), in all directions from the outline of the tank.

Backfill Material

Pea gravel is naturally rounded aggregate 6mm in nominal size, (ranging from 3 to 20mm, clean and free flowing). Crushed stone is angular material with a particular size of not less than 3mm or more than 13mm diameter, and clean.

For any conditions not covered in this text, please contact:

Canwest Tanks & Ecological Systems Ltd.