

## Tank Installation Guide

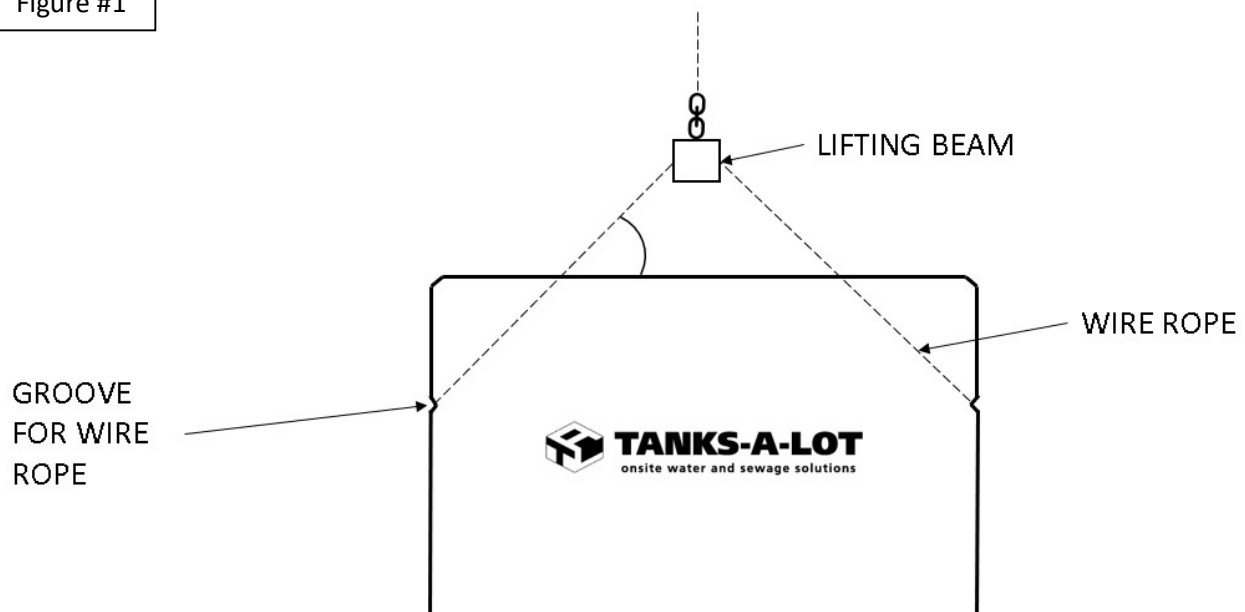
### Introduction

Proper installation of each tank is absolutely critical for it to function properly; that's why it is recommended that only trained professionals install these products. Many of the problems experienced with tank operation, leaking, or premature system failure can be attributed to incorrect procedures during installation. Improper installation practices can seriously damage the tank or other system components, can reduce the capacity or efficiency of the tank, and can even cause serious personal injury. This tank installation guide is offered to assist the purchaser with advance planning, proper site preparation, safe handling and sound installation procedures. The purchaser should check with local permitting agencies for each site to ensure proper set back and design criteria have been met. If at any time the purchaser is unfamiliar with installing the specific product purchased, then they should contact a Tanks-A-Lot technical representative. Failure to follow these installation recommendations will void any tank warranty.

### Transportation and storage

Tanks must be secured during transportation using nylon straps. The use of chains, cables or wire ropes to secure the product could cause damage to the tank. Extensions should be transported in the upright position; lids should be placed directly on a flat surface and neither should be over tightened as it may cause damage. Tanks are best lifted by a crane using a proper lifting sling and only lifted by using the intended slots on the outside corners of the tank (see Figure 1 below). If the tank placement is self-performed, Tanks-A-Lot can lend out slings for a refundable deposit. Using any other lifting apparatus could cause damage and void the warranty. Tanks-A-Lot cannot validate a tank's structural integrity if it is lifted using any other rigging. Lifting the extension should only be done in its intended manner by using lifting "tongs" at the lifting points. When storing a tank prior to installation, place tanks carefully onto a smooth level surface on timbers; it is important to prevent the tank bottom from making direct contact with the earth's surface during storage.

Figure #1





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## **Site conditions**

Planning your project well in advance will save time and money. You will need to know the measurement from the underside of the tank to the bottom of the tank's inlet opening in order to prepare the sub-bed elevation to allow the tank to properly receive the sewer pipe coming from the building. Review the most current literature and drawings for the tank which are available on the internet at [www.tanks-a-lot.com](http://www.tanks-a-lot.com) or by calling Tanks-A-Lot at 1.800.661.5667. Knowing the accurate dimensions of your tank is critical information for the installation process. Keep in mind that the site where the tank is to be installed must be accessible by large and heavily loaded trucks (up to 60,000 pounds). This site must allow for reasonable access under the truck's own power (not be towed or pushed); it must be clear of trees and branches, overhead wires, underground utilities or other structures that could be damaged by, or interfere with, the delivery and offloading of the tank. Typically, the delivery truck must be able to safely utilize an area within three feet of the excavation and have 30 feet of room for outriggers in order to unload and set the tank. The purchaser is responsible for any damage to the site, the delivery truck or the tank that enters the work site. Therefore, adequate access for delivery equipment to get to the excavation and unload the tank is important. Standard concrete tanks are not designed to be installed under traffic loads or to carry unusual heavy construction or maintenance equipment. In high water tables, low-profile one-piece tanks are recommended. Additionally, deep burial should be avoided, and installers should apply extra grouting with a barrier of joint wrap or butyl tape to the seams and extensions as seen in Figure #3 at the end of this guide. Tanks can also be configured for ultra-rib extensions. In this instance, tanks will come with approximately a foot of exposed pipe cast-in to the top of the tank (see Figure #4). A grade ring insert is provided to make the ultra-rib connection using a fast set polyurethane adhesive. In high water table applications where infiltration is a concern, a 2-part epoxy adhesive is recommended for added protection.

## **Excavation**

For the safety of your excavation equipment operator and the public good, all buried utilities should be identified and located before you dig. Lay out your hole at least 18 inches larger than the tank to allow space to properly compact the fill material. More space is recommended for worker safety; nevertheless, it is recommended that no worker should be in the excavation until the tank has been set. Spoil piles should be moved from access area to allow for setup of picker truck. Excavations should be sloped for stability and worker safety, but one side of the excavation's bank should have a limited slope to allow access for the picker truck to install the tank. The reach of these picker trucks is limited and over sloping the bank could prevent the picker from reaching the intended installation location. Proper bedding is important to ensure a long service life of all tanks. A minimum of 4 inches of suitable base material (washed rock) must be placed in the excavation for the tank to be placed on. If the excavation is over excavated and material is required to be added to the base, correct compaction of the underlying soil is required to ensure the tank is set on a level and firm base. Tanks must not bear on large stones, boulders, or rock edges.

## **Tank Placement**

First, inspect the delivered tank while it is on the truck, check for any defects or shipping damage, and order accuracy. If there are any discrepancies, bring them to the attention of the driver, and clearly note them on the driver's bill of lading or delivery documents. Once all discrepancies are noted, contact Tanks-A-Lot. Prior to placement, the tank's orientation should be confirmed (inlet, outlet and manway openings). After placement, check that the tank is level, and that the inlet/outlet elevation will closely match the bottom of the pipe coming from the house at the point where it will enter the tank. Be sure that the pitch of the sewer pipe from the house to the tank meets the local code requirements. Tanks-A-Lot policy requires that all persons shall be kept clear of loads about to be lifted and of suspended loads, and that at no time should a Tanks-A-Lot employee enter an excavation. The crane operator has final say over lift. If the

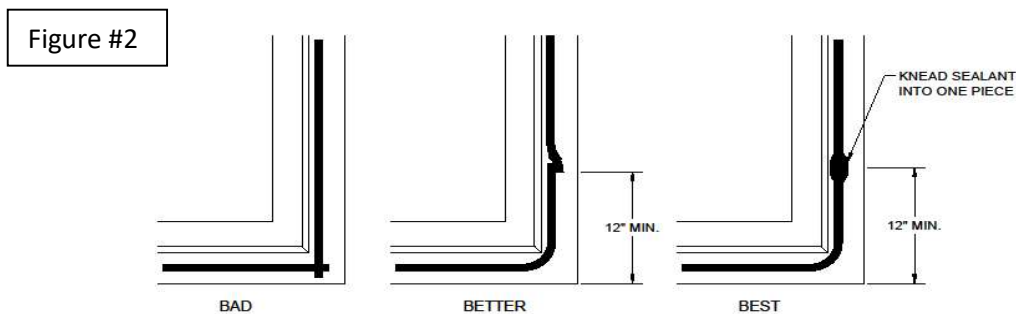
operator deems the lift is unsafe, the product will be placed on timbers outside the excavation at the site and it becomes the responsibility of the purchaser to arrange for the proper equipment to place the tank into the excavation at the cost of the purchaser.

## Joint seal

High quality sealant has been supplied and its proper placement is critical to ensure a positive seal. Mating surfaces must be clean, dry, and free of any debris. Any “slag” debris must be removed from all edges where sealant will be placed before the sealant is applied. The sealant is intended to be placed in the middle of the mating surface of the joint and over lapping in the corners. Instead of placing one strip of sealant over top of the other, knead the two strips together until they act as one piece as seen in Figure 2.

Exterior joint wrap sealant must be applied to all cisterns. Single piece tanks must be wrapped where the roof meets the tank and two-piece tanks at the joint. To install, prime the substrate with primer provided, peel the release paper and position the strip into place with the center of the material at the joint. Hold the material in place so that it is plumb from top to bottom. Press the material in place so that it adheres to the substrate. Make sure the membrane is kept tight and adheres completely to avoid air pockets and wrinkles. All membrane overlaps must be a minimum of 50 mm (2 in). Once the membrane is installed, use a hard roller to apply pressure over the entire surface to ensure uniform adhesion to the substrate.

Manholes, risers, inspection ports, etc. must also be properly sealed. Recheck tank and extension for joint alignment and grade before backfilling. Delivery drivers do not apply the sealant.



## Connections

A rubber boot inlet that accepts 3” or 4” pipe has been cast into the sewage holding or septic tank. To connect the inlet pipe to this connection first cut the end of the rubber boot at the desired size, slide the inlet pipe into the tank and then use a stainless-steel clamp to tighten the rubber boot to inlet pipe. A high quality sch80 PVC fitting, threaded on the inside and outside has been cast into the septic tank and is intended as the outlet; connecting to this fitting should be done using a ridged material such as brass or stainless steel. Brass or stainless steel is used to prevent failure due to shearing during backfill or corrosion over time.

## Backfilling

Care should be taken when backfilling to prevent damage or misalignment of the tank, fittings, or any joints. Excavated material may be reused for this purpose, but must not contain any large stones or “chunks” of frozen material. Backfill should be placed in a uniform sequence to all sides of the excavation. Uneven backfill can cause two-piece tanks to shift resulting in leaking joints. Concrete tanks



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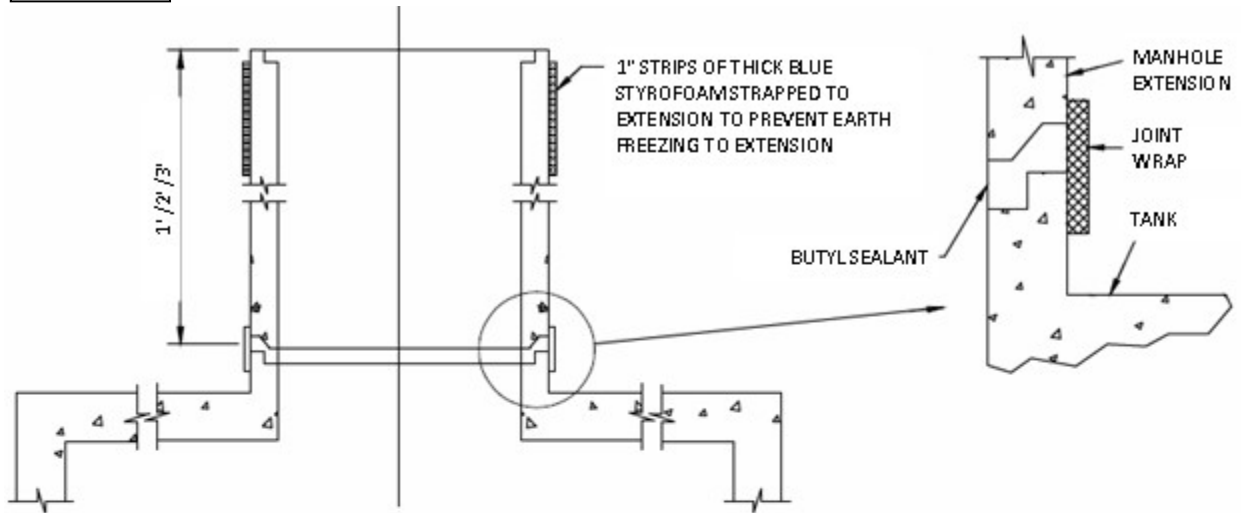
are significantly heavier than fiberglass or high-density polyethylene tanks and are least likely to float in a flooded excavation. However, even empty concrete tanks will float if the water level rises high enough. To prevent floating from happening after the tank is set, keep water pumped out of the excavation until backfilling is completed. If flotation is a concern in certain unique situations, Tanks-A-Lot can manufacture tanks with an anti-flotation pad. Do not fill tank until the backfill is complete; failure to do this may cause damage to the tank and void warranty. Backfill will normally settle over a year and allowance should be made to prevent a “birdbath” over the tank. Landscaping over and around the tank area should be sloped to divert rain water from the area. Special consideration should be made to protect fittings during the backfill. Hand backfilling around connections and using a supporting structure such as a sleeve on the outlet or a gang plate under the inlet will help protect these fittings during backfill and settling. Mechanical compaction on or around the tank could cause damage and void the tank’s warranty.

## General Notes

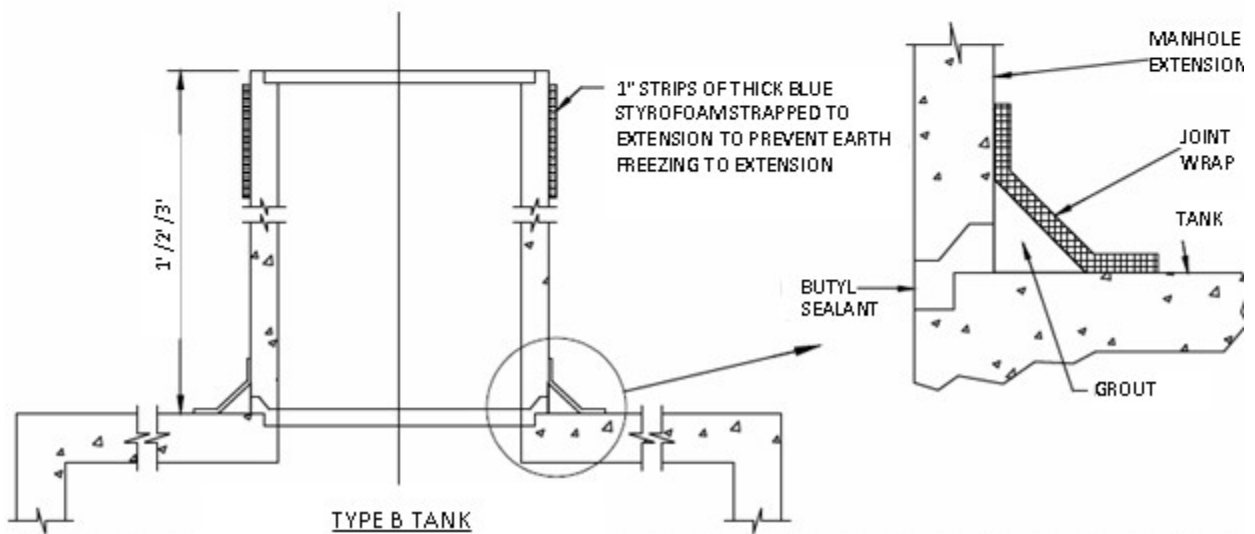
- Warning: Do not enter the tank; confined spaces can be hazardous. Only trained personnel with proper equipment should consider entering a tank, and never alone
- Vehicular traffic should be kept a minimum of 5’ away from perimeter of the tank edge and nothing heavier than a standard lawn tractor should be allowed to drive over a tank (including during construction). Standard Tanks are NOT manufactured to withstand vehicular traffic; doing so can damage the tank and will void the warranty
- Plotting the layout of the house, tank and system components using measurements from specific permanent markers such as buildings, power poles and property lines could become beneficial to for the homeowner, pumper and contractor in the years ahead
- Purchaser should protect the tank from overhead loads prior to, during, and after the placement of the tank. This can be achieved by placing landscape features such as a flower bed or caution tape during the home’s construction period
- Immediately prior to using a cistern, it should be scrubbed with a chlorine solution (e.g. Javex) to remove potential contamination by micro-organisms acquired during transportation, installation, inactive use, etc. Please refer to Alberta Health Services’ detailed guide located at <https://www.albertahealthservices.ca/Advisories/ne-pha-cistern-disinfection.pdf>
- Our tanks have been manufactured for the use of potable water or residential strength wastewater. As such, special consideration should be made when using a tank for other than the intended manner
- Frost heave can cause extensions to shift resulting in compromised joints. In instances where frost is a concern, Tanks-A-Lot recommends strapping 1” strips of thick blue Styrofoam insulation to the extension as seen in Figure #3
- Tanks must be filled with a minimum 1 foot of water and never be left empty over the winter months
- Tanks are rated to specific burial depths. Burying a tank over its design depth will void the warranty. Please consult with a Tanks-A-Lot representative prior to burying the tank
- Delivery drivers are not certified installers. While they can answer most questions about the product, they are not responsible for tank installation



Figure #3



TYPE A TANK



TYPE B TANK



Figure #4

