



## ADVISORY TECHNICAL ADVISORY COUNCIL FOR ONSITE WASTEWATER TREATMENT

# TANK RISER AND LID ASSEMBLIES December 2008

Onsite-systems should be designed and constructed with serviceability in mind. Tank access risers installed to grade simplify inspection, maintenance and repairs. When the tank location is easily identified and accessible; service providers and inspectors can conduct services quicker, easier, safer, and with less disruption and cost to the system owner. Furthermore, risers installed to grade promote regular maintenance as they provide a visual reminder to the owner that they have a septic system. The purpose of this advisory is to promote awareness of the basic design and installation of riser and lid assemblies with an emphasis on safety.

- ✓ **Riser location:**
  - Risers should be installed on any tank opening that may require access. On large non-residential tanks, additional access risers may be required to facilitate proper removal of accumulated solids.
  
- ✓ **Type of riser material:**
  - Risers must be made of corrosion resistant material and must maintain structural integrity
  - The preferred commercially available risers are made of concrete, PVC, fiberglass, HDPE, and other plastics.
  
- ✓ **Size of risers:**
  - Typical diameters range from 24” to 30”. The diameter used must be compatible with the type of maintenance and service that is expected through the access opening. If final grade to the top of the tank is 24” or less, a 24” diameter riser is generally sufficient for access. For deeper tanks, or duplex pump installations, a larger diameter riser may be warranted to facilitate tank and equipment maintenance.
  
- ✓ **Riser attachment:**
  - Riser attachment to the tank must be watertight.
  - Many riser manufacturers offer tank to riser adapters that provide a watertight method of installation. The adapters are either cast-in or are attached to the tank top with stainless steel fasteners. Bolt down adapters utilize butyl rubber or other pliable sealant between the tank and adapter to ensure the watertight seal.
  - The tank installer must communicate with both the tank and riser manufacturer to ensure product compatibility and proper installation procedures.
  - For concrete risers, butyl rubber or other waterproof, corrosion-resistant pliable sealant can be placed between a clean tank surface and bottom of the riser to produce the watertight seal.
  - HDPE risers will not provide a watertight bond with concrete. Therefore, when using HDPE risers, butyl rubber, or other waterproof, corrosion-resistant pliable sealant must be used to create the watertight seal.
  
- ✓ **Riser lids:**
  - Access lids must be waterproof, resistant to ultraviolet light, resistant to corrosion from septic tank gases and moisture, and have a non-slip surface.
  - Lids should also have a minimum wheel load rating of 2,250 pounds for covers terminating at grade as per International Building Code.
  - Lids should contain a durable gasket material that fits tight to the riser to prevent odors, insects, water infiltration, and soil intrusion.

- ✓ **Lid security:**
  - **Lids must be secured to prevent unauthorized entry into the tank.**
  - If screws are used, they must be stainless steel.
  - Typical Phillip or slotted head screws are not recommended. Use screws with hex heads or other designs that require a special tool to remove.
  - Concrete or cast iron covers should be heavy enough to prevent access to children. ASTM 1227 07-C specifies that a concrete lid shall be 59 pounds minimum.
  - To minimize the potential of a concrete lid from flipping when stepped upon, or easily slid to the side, the cover and top of riser should have a “step” shaped design verses a “wedge” or butt joint design.
  - Some manufacturers have different methods for cover security such as stainless steel locking rings, lockable latches, or an under lid locking latch that may require a special tool for entry. If locks are used, they should be resistant to corrosion, weatherproof and protected from soil.
  - Use lids with appropriate signage and raised lettering indicating hazardous conditions within the tank.
  
- ✓ **Secondary form of security:**
  - A secondary form of security should be used. Secondary devices can prevent an accidental fall into the tank if the primary lid is removed or damaged. Examples include grates, nets and other devices that can be installed into the riser.
  - Grates require a flange inside the riser to mount and support it.
  - Nets are typically affixed in the riser with stainless steel eyebolts. Bolt penetrations must be watertight.
  - Concrete lids can be manufactured to fit over the tank opening within the riser. The lid must have a durable handle and a “step” shaped design to facilitate removal. To prevent lifting injuries, an internal concrete lid should only be installed on tanks less than 18” in depth.
  - Personnel should consider utilizing some form of barricade over open tank accesses when conducting an inspection or any type of service on the tank. This is especially important when multiple lids are open, or at times when the tank may be out of view of service personnel.
  
- ✓ **Additional considerations:**
  - The riser and lid information provided above is for non-traffic areas only. Should the tank be located in a traffic area special design procedures must be followed for tanks, risers and lids to ensure structural, long term, integrity.
  - Consider accessibility when designing and installing equipment in risers. For example, effluent screen handles, floats, and pump discharge pipes should extend far enough to be easily reached from grade, after the lid has been removed.
  - If upon arrival to a site unsecured covers are noticed, try to secure them and then educate the owner of the associated hazards, such as toxic gases, lack of oxygen and possible drowning.
  - Assure that all covers are properly secured prior to leaving the site.

To facilitate inspection and maintenance requirements, the use of tank access risers is becoming more prevalent around the country; therefore, lid manufacturers, NSF, and regulatory agencies are currently collaborating on the topic of secured riser assemblies. The Technical Advisory Council will continue to monitor the ongoing discussions between the groups and will revise this document should any information of significance emerge.

Note that this and other TAC Advisories are available at [www.mowra.org](http://www.mowra.org) (under TAC information).