Entry hatch and Platform Upgrades 101

The GST (Grain Silo Test) principle is more of a concept than a particular type of hatch design. It has always been accepted that stored grain and water do not mix (the grain will spoil), so a silo will be completely sealed off from water entry. Silo hatches will have raised edges all round, overlapping hatch covers and effective drainage systems to prevent ponding and overflow events.

Water storage tanks have unfortunately been subjected to more traditional thinking, “that a bit more water entering in, is not something to be unduly worried about”. Hopefully we are now aware of contamination risks, particularly from around the platform/entry hatch areas, where faecal matter is known to accumulate from bird activity (due to hand rails, aerials and telemetry cabinets).

Four main things allow contaminated water to enter a tank:

1. Platform areas that are too flat or which slope back in towards the roof area.
2. Kick rails with a minimal base clearance, causing ponding of debris and backflows of water. The AS 1657-1992 was intended for factory/workshop situations and not outdoor, environmentally impacted areas such as storage tank platforms, where leaf debris can accumulate and block drainage holes.
3. Poor drainage upstream of any hatch frame (roof, rescue or entry)
4. Any hatch without adequate raised sides and overlapping covers - sides should be at least 75mm high all around to cope with storm water events and the cover should overlap the frame edges to give strength and prevent deliberate contaminants being placed under the cover edges.

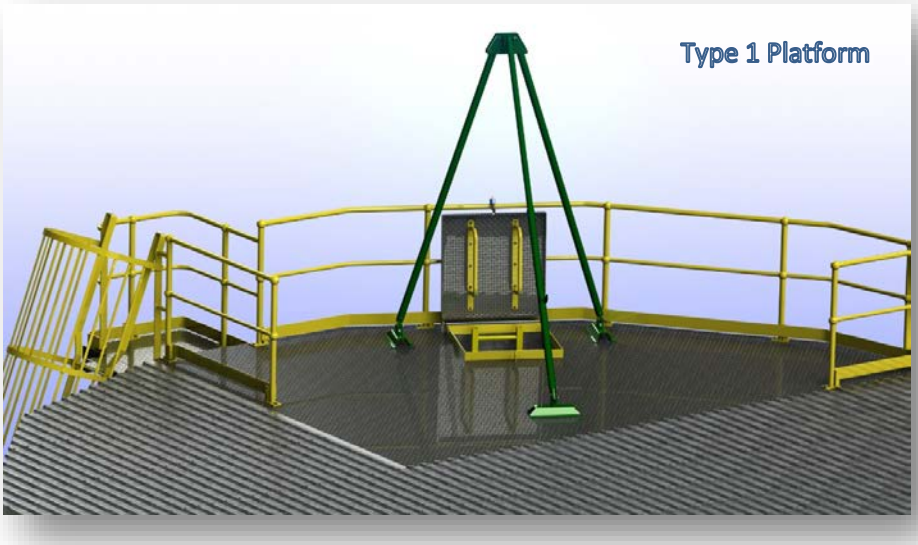
Any storage tank hatch and platform area should pass the ‘bucket of water test’ – tip a bucket or two of water onto and around the platform/hatch area and see if any of it runs back into the tank.

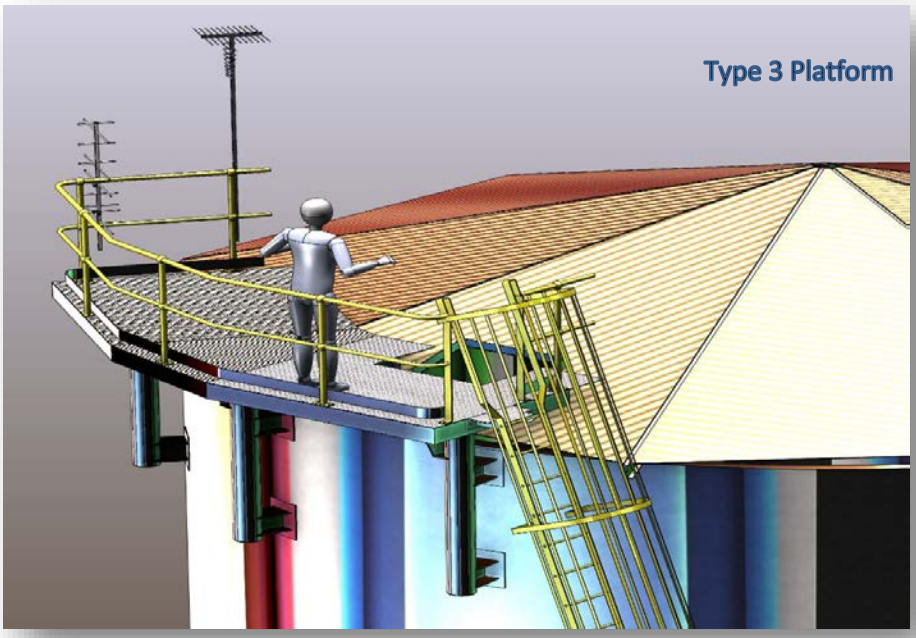
Entry hatches should be a minimum of 700mm by 700mm – larger is better, say 1000mm by 1000mm, but the size must be practical and work in with existing roof

rafters and purlins (when doing upgrades). New tanks can have the roof framing set up to take a good sized hatch.

If hatches are too big, they create safety and security issues of being too heavy to lift and too large an area to secure effectively with a single padlock (several locks would be required to avoid the hatch cover from being lifted and bent up on one corner).

Hinged covers are best, as sliding hatch covers can never be sealed effectively along the front edge area. Also, make sure they open in a direction that will not hinder or affect someone climbing down and into the tank.




Type 3 Platform