

Ventilation

Ventilation systems within water storage tanks are varied, according to the local environment, water quality issues and the structural integrity of the tank itself. There is 'no one size fits all' solution, so an understanding of all the issues is important, to allow for the most effective outcomes to be achieved.

Turbine vents with moving parts are only designed for dry situations such as industrial buildings and do not last in extreme environments such as the hot, gaseous and humid conditions inside a tank. They are also subject to constant wind movement and the bearings on many cheaper type turbine vents fail prematurely, causing the rotating section to either seize up or break away completely, leaving the tank open to vermin entry. Vents breaking away also pose an impact threat to anyone within the local area, who may be present at the exact time of a breakaway failure.



Ventilation systems on tanks in known windy environments or in areas subject to historical vandalism events need to have a more solid and vandal proof system of providing air flow within a tank. And airflow needs to be designed so that it can enter around the upper wall areas through secure, vermin proof mesh panels and then be extracted from the roof area fixed vents. If there is a known local dust, strong wind area or other environmental issue, be sure to limit the side wall vent areas away from this contamination source.



The one exception to providing good ventilation to a water storage tank, is the local environment itself. Ventilation is basically intended to ensure longer roof structure life spans, but some tanks are situated in extreme dust or unsuitable air quality areas, such as animal sale yards, feed lots or large-scale industrial manufacturing facilities that produce poor surrounding air quality. In this case, the stored water quality is better protected by having limited ventilation and factoring in roof structure replacements at an earlier time period.



Side wall vents and under roof edges can be effective by themselves, as air is able to flow from one side of the tank across to the other, depending on the wind strength and direction at the time. But it is important to cover the vent holes or slots with suitable mesh materials, that allow good air flow, but at the same time prevent contaminants and vermin entry to occur. The side wall vents are also at risk of vandalism, if easy access is available from ladders, stairways or other methods of climbing. Our younger generation of vandals are often taught climbing techniques at school, so an opportunity to graffiti or damage something is seen as a challenge to be carried out and most likely to be posted online...as the 'new normal' dictates.

There are a variety of mesh ventilation materials in use on storage tanks around the country and most are not 'fit for purpose'.

So, it is important that the mesh used to cover the openings has two main features:

1. The mesh is non-corrosive and sufficiently strong to prevent it from being damaged by malicious persons.
2. The diameter of the mesh is sufficiently small enough to prevent vermin and insects from entering past it.

The best material is the one used to make security doors. 'Crim Safe' is one particular brand on the market. It is made from finely woven stainless steel, is generally black in colour and it is difficult to break or cut through.

