Guidance: light cowl or shroud to protect wholesome water from light ingress

Please note the following advice provides non-statutory guidance to facilitate compliance with the requirements of the Water Supply (Water Fittings) Regulations, byelaws in Scotland. Please note conformity with this guidance does not guarantee compliance.

Storage cisterns supplied via a type AB air gap are regularly used to store water required to be wholesome. A weir overflow can however provide a means by which stored water may become exposed to light, something which is known to promote the growth of algae. When this occurs, it would cause not only taste and odour problems but also provide nutrients which could support the growth of bacteria.

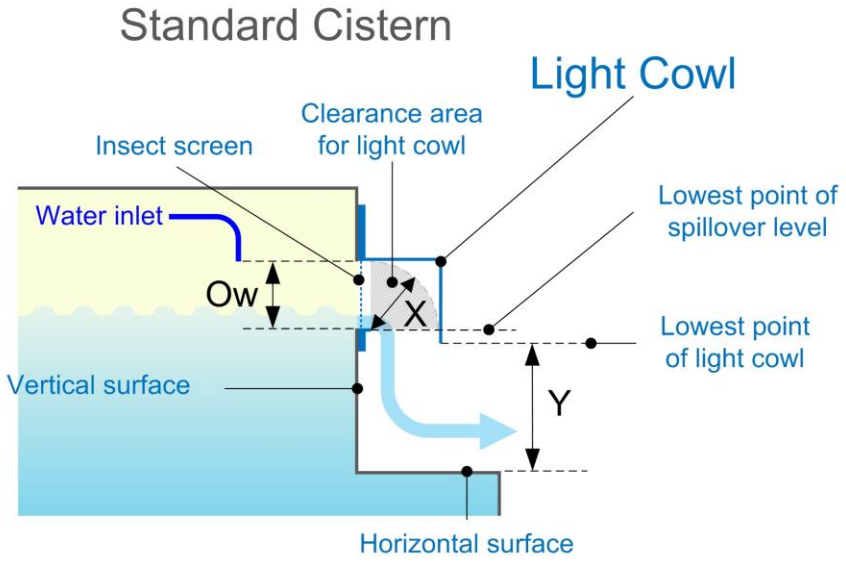
Where a risk of light ingress exists the most common way of addressing the problem is to fit a cowl or shroud that covers the weir slot.

Light cowl

So as not to compromise the backflow protection provided by the air gap arrangement any light cowl must not impede in any way water discharging through the weir overflow. The following advice is based upon the principles and dimensions detailed in BS EN 13077:2008, which define the minimum clearances between the cistern, cowl and any horizontal surfaces.

There are two key criteria for a light cowl, it should:

1. **minimise light entering the storage cistern; and**
2. **not compromise backflow protection by impeding in any way the discharge of contents from the cistern in an overflow situation.**



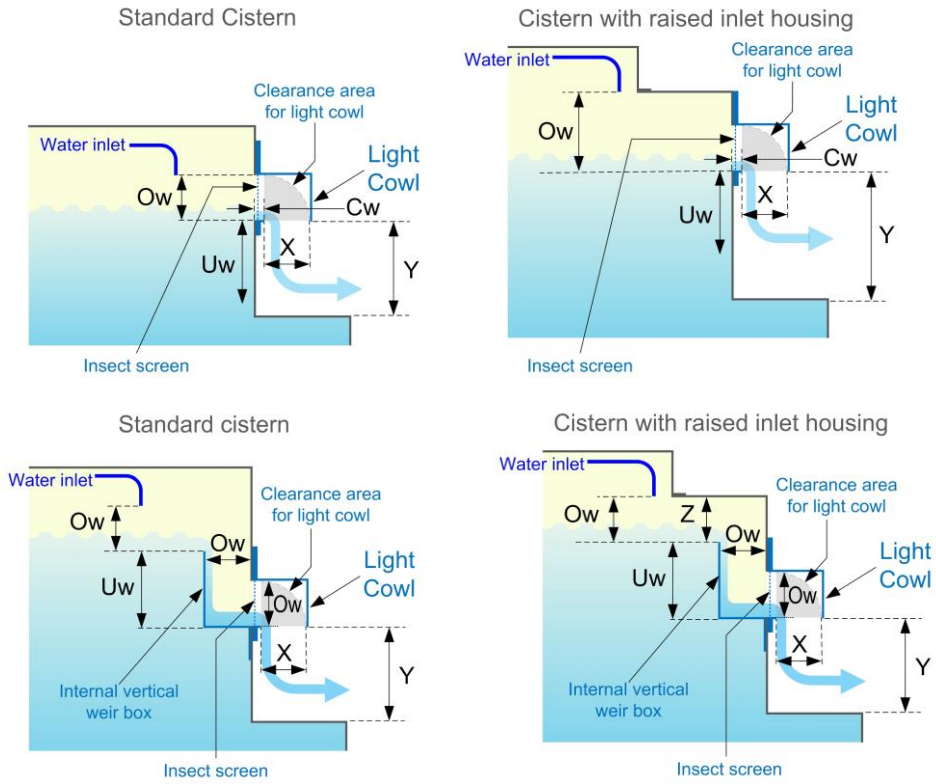
- As a minimum, although it is recommended it extends beyond this, the lowest point of the light cowl is at least level with the lowest point of the spillover level of the overflow slot;
- a minimum clearance (X) in all orientations is maintained between the light cowl and any vertical surface of the storage cistern;
- a minimum clearance (Y) is maintained between the lowest point of the light cowl and any horizontal surface; and

- Where an insect screen is required to protect the cistern contents, to prevent debris and dust collecting on the screen it is recommended that it be mounted vertically at the overflow slot. It must be installed in such a way that be readily removed to enable routine maintenance and cleaning.

Minimum dimensions X and Y should be equal to or greater than that required by BS EN 13077:2008 for Ow (overall height of the overflow slot) when used for Type AB air gaps.

Ow ≥ 2D + h (minimum of 20 mm)
X ≥ Ow
Y ≥ Ow

Examples of light cowl design and installation requirements for cisterns supplied via a type AB air gap



Key:

Ow the minimum height of the overflow slot as measured from the lowest point of the inlet discharge point to the bottom of the overflow slot.

Uw the minimum length of the internal vertical face immediately below the lowest point of the spillover level of the overflow slot. Uw must be equal to or greater than 5h.

Cw the maximum distance allowed from the inside face of the cistern wall where the water will start to overflow to where the water will fall vertically downwards outside the cistern. Cw must be equal to or less than 5h.

D the maximum internal diameter, within the last metre of the supply pipe, or the DN of the wholesome water inlet connection whichever is the greater.

h the highest physical level the fluid reaches in any part of the cistern when operated continuously under fault conditions – i.e. the maximum combined inlet flow, outlet flow is via the overflow slot only.

X the minimum clearance in all directions between the body of the light cowl and any vertical surface of the cistern including the weir slot and screen. This should be equal to or greater than the dimension used for Ow.

Y the minimum clearance maintained between the lowest point of the light cowl and any horizontal surface. This should be equal to or greater than the dimension used for Ow.

Z the minimum distance from the internal spillover level to the lowest point of the roof inside the cistern. This should be equal to or greater than the dimension used for Ow.