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# Supplementary heat sources and the risk of Legionella

Clause G12 of the New Zealand Building Code states that a hot water system must be capable of being controlled to prevent the growth of Legionella bacteria. A heat disinfection method is generally considered the most effective way of achieving this. Generally, with a storage hot water cylinder (HWC) disinfection is achieved by having the water heated to 60°C or higher. However, there are several areas where adequate protection has been omitted or is no longer functioning.

In some circumstances, this may be due to an inadequate design, in other circumstances it may be due to a property owner tampering with the system.

One example is in a flow and return hot water system such as a ring main. Legionella bacteria may develop in the flow and return system when it is supplied with tempered water from the HWC. A way to prevent Legionella developing is by installing a UV filter in the flow and return hot water system. Another way is to supply the flow and return system with un-tempered water (above 60°C) and then temper the water at the outlets that require it.

Another example is when a HWC has solar water heating. Generally, in this type of system an electrical element, as well as the solar water heating, is used to heat the water in the HWC. However, what can sometimes happen is that the property owner may turn off the electricity to the HWC and rely solely on the solar water heating. Often the electricity is turned off in an attempt to save money however; the risk is that the solar system does not heat the water adequately to prevent Legionella developing. G12/AS2 3.5 gives multiple methods for protecting water from the growth of Legionella bacteria when solar is used as a heating source. If the system relies on an electric element to supplement the solar system heating the water, it is important that the property owner is made aware of the need for the heat disinfection of the water and advised that the power should remain on.

The same principle applies if a wetback is used as the main heating source, a controlled supplementary heating system should be included such as an electric element.

In order to prevent Legionella bacteria growing plumbers should incorporate careful planning at the design stage and communicate with the property owner about the requirements of their particular system.

**Version management**

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