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WATER DISINFECTION

APPLICATIONS FOR WATER DISINFECTION IN COMMERCIAL BUILDINGS

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Application areas for water disinfection in commercial buildings

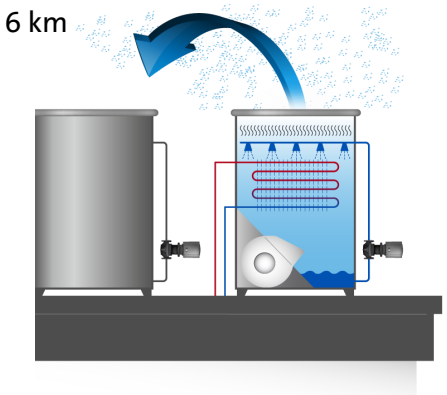
Water disinfection is of great importance in buildings with drinking water consumption, and particularly in buildings that supply shower and bathing facilities.

Water disinfection is also essential in applications where water mist is sprayed into the air, as is the case with for instance cooling towers and evaporative condensers.

This presentation will go through the applications where water disinfection is particularly important and explain why.

SPAS

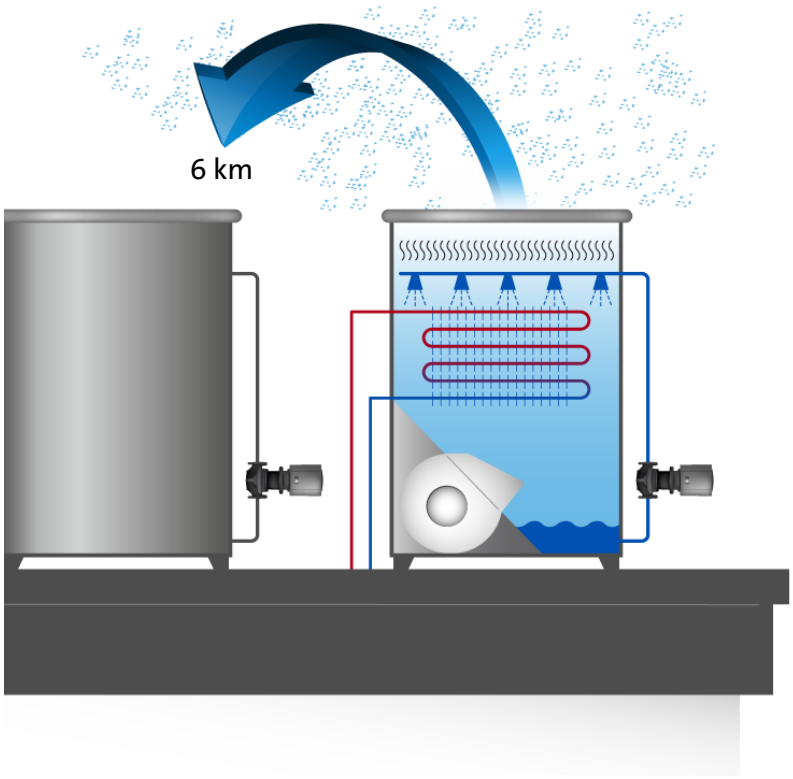
WATER FOUNTAINS



ROOFTOP COOLING TOWERS

DRINKING WATER

Rooftop cooling towers



Rooftop cooling towers help dissipate heat through evaporation.

Excess aerosols from the cooling system, known as drift, can be carried out of the tower by the system's fans.

Infected drift has been detected as far as 6 kilometres away from cooling towers.

That makes water disinfection an important part of designing a rooftop cooling system.

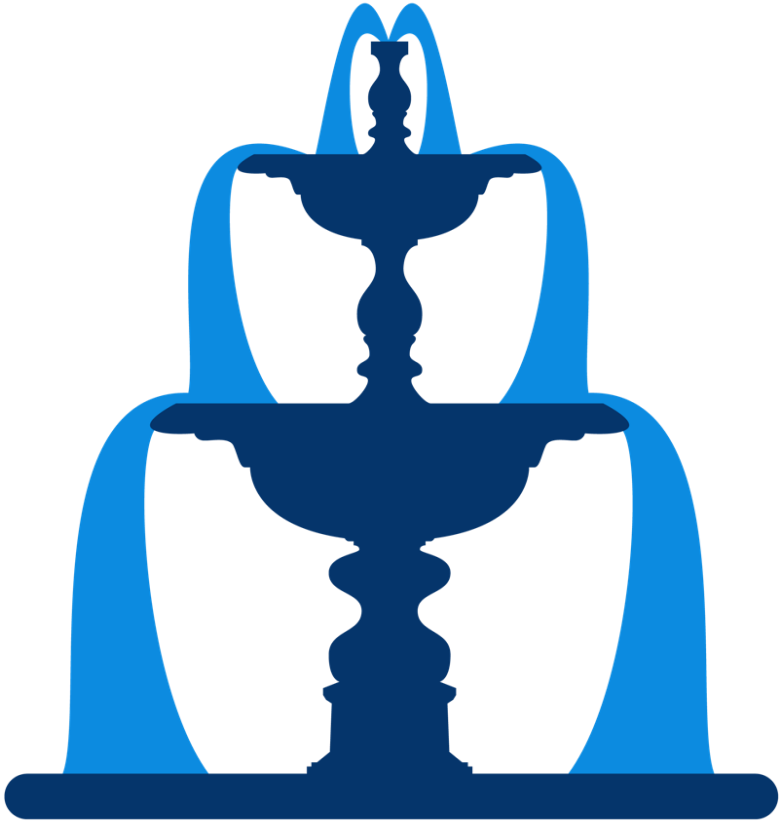
Spas

The water in spas contains large amounts of dead skin cells and dirt from people using the bath.

Combined with an ideal breeding temperature of around 32□C (90□F), the water in a spa can become a hazardous cocktail.

Aerosols from the bubbling water are easily breathed into the respiratory system, causing risk of Legionella infection.

Water fountains



Water fountains provide ideal conditions for bacteria growth.

Water temperatures are typically between 25°C and 30°C (77-86°F) like the surrounding air.

The fountain creates aerosols that may spread the disease in high-traffic locations such as shopping malls, airports, hotels and amusement parks.

Drinking water systems

When designing a system it is crucial to pay close attention to the following four areas:

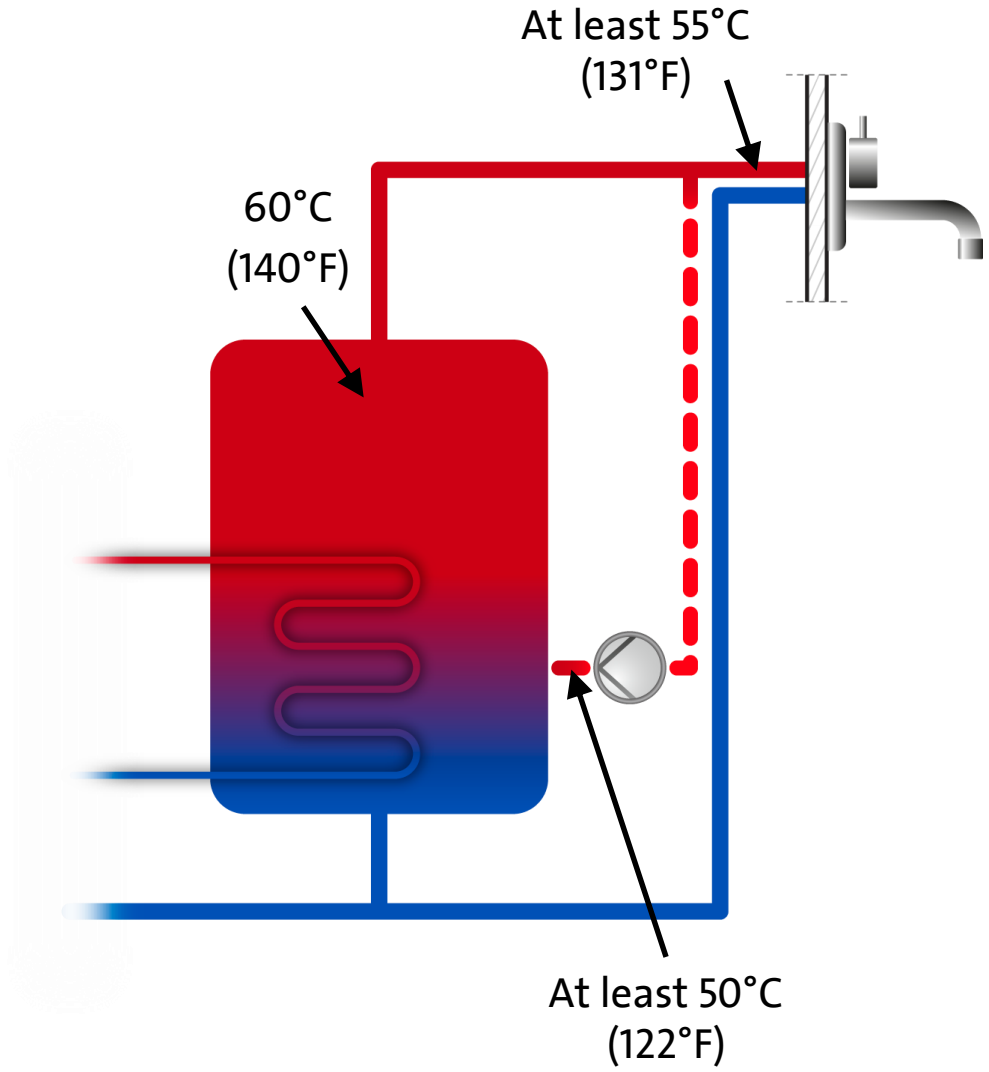
- Water temperature
- Tank and pipe sizing
- Tank and pipe material
- And tank and pipe insulation

See the following pages for an in-depth explanation of the four areas.

Drinking water systems

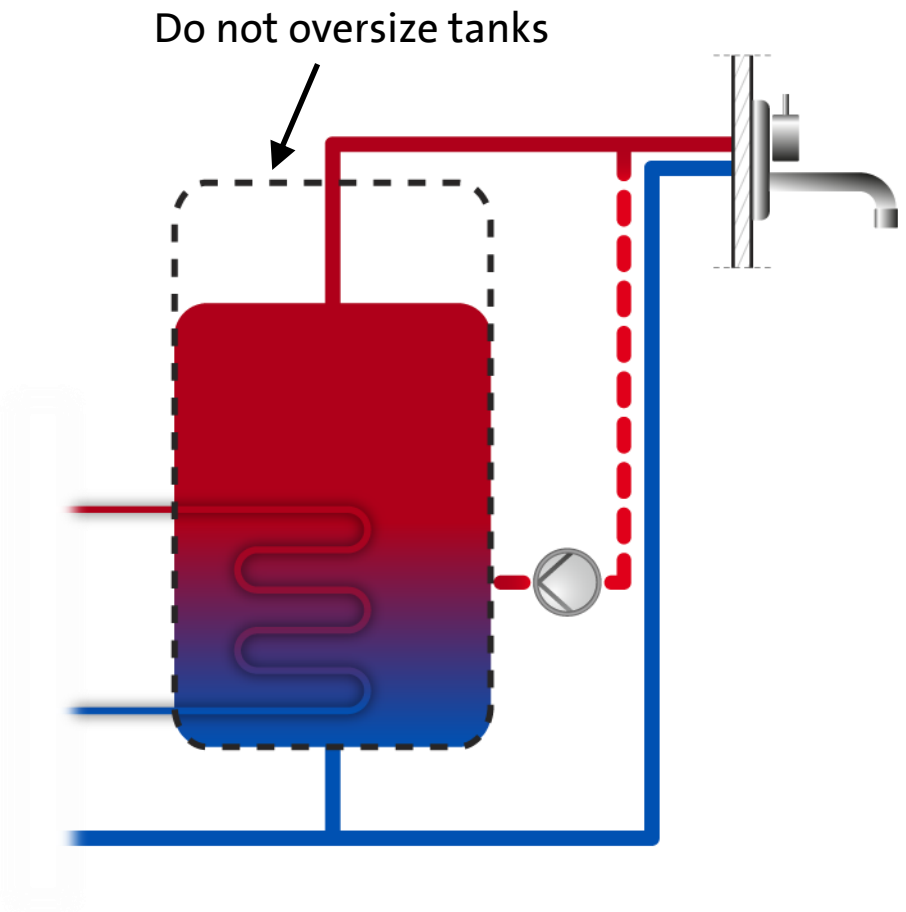
Water temperature

- Tank temperature:
  60°C (140°F)
- Tap temperature:
  at least 55°C (131°F)
- Circulation temperature:
  at least 50°C (122°F)



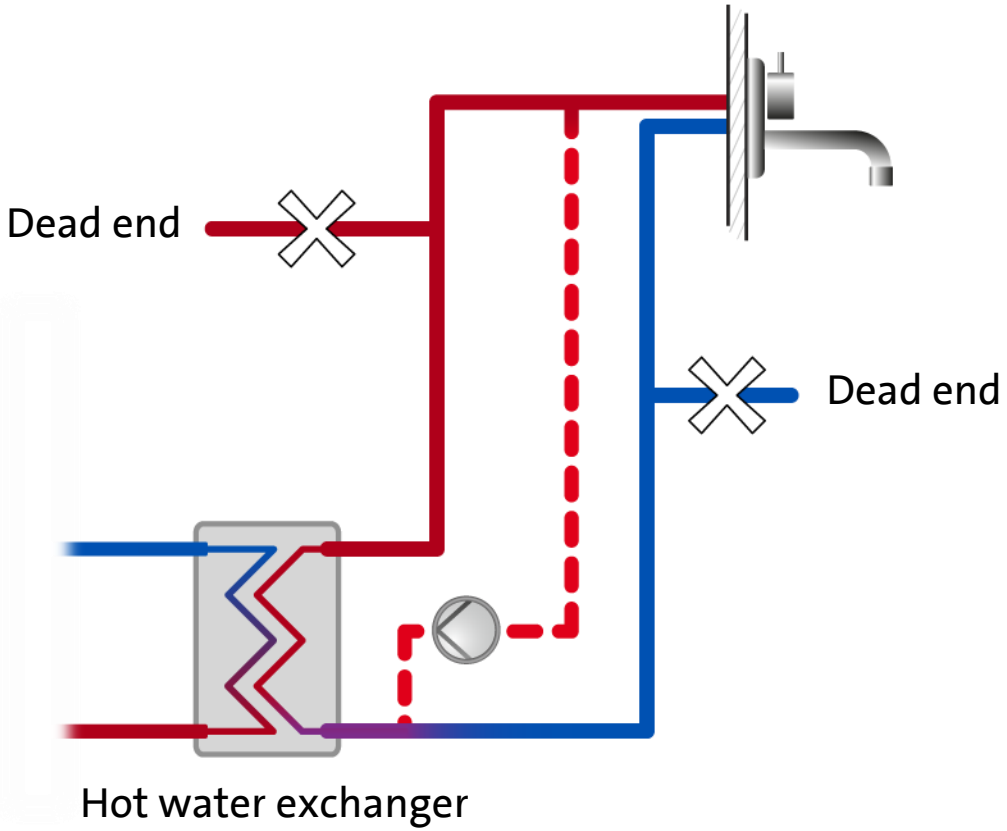
Tank and pipe sizing

Do not oversize tanks. Oversized tanks and pipes result in stagnant water where bacteria can flourish



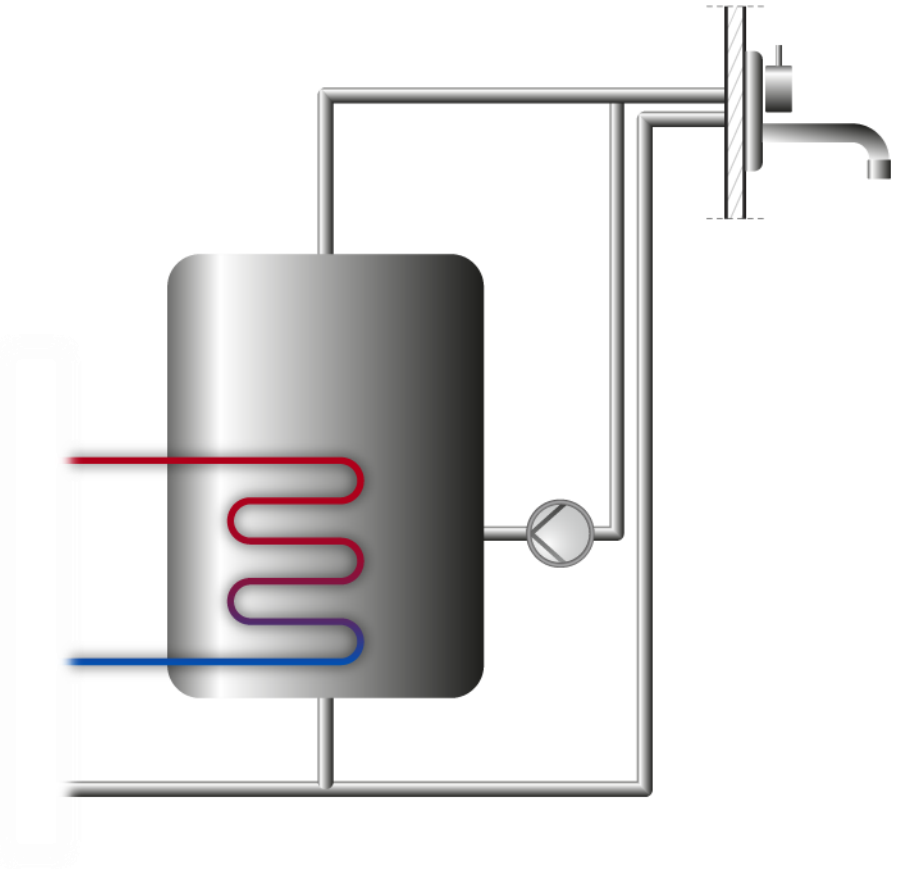
Tank and pipe sizing

- Consider replacing the water tank with a hot water exchanger with no water reservoir.
- Avoid dead ends in the system.



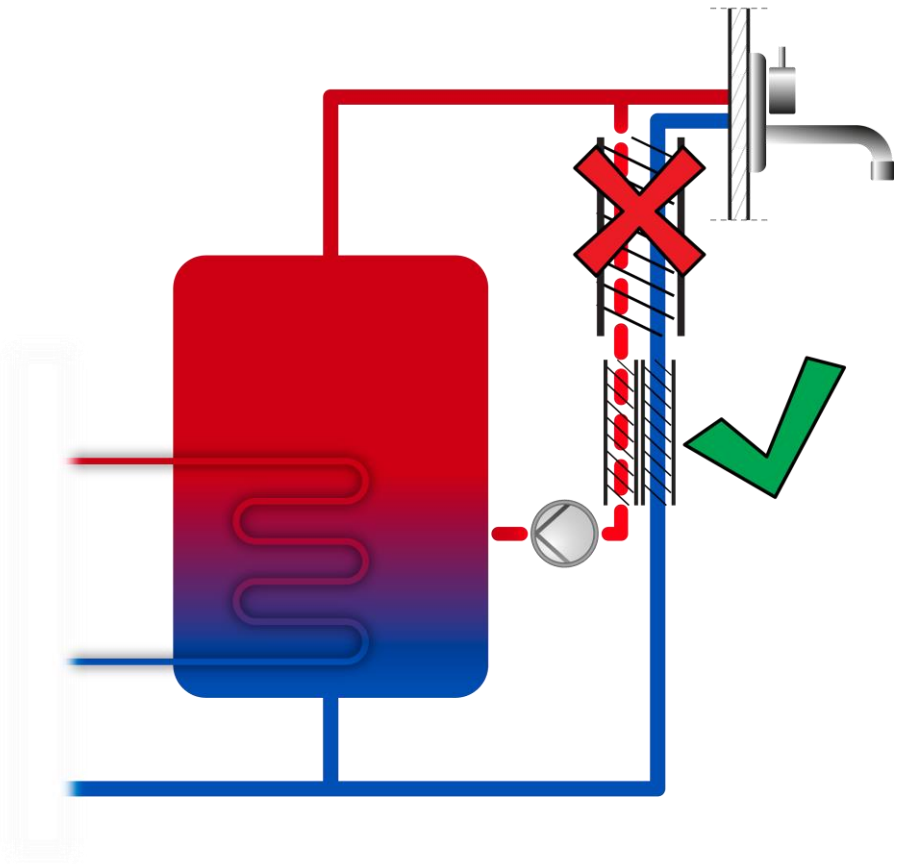
Tank and pipe material

- Non-corrosive material
- Limit use of plastic materials
- Use only high-quality, approved pipe materials



Tank and pipe insulation

- Apply insulation to all pipes and tanks
- Insulate pipes separately
- Keep cold water cold and hot water hot



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