LEED BD+C: New Construction | v4 - LEED v4

# Cooling tower water use

Possible 2 points

Glossary

## Intent

To conserve water used for cooling tower makeup while controlling microbes, corrosion, and scale in the condenser water system.

## Requirements

For cooling towers and evaporative condensers, conduct a one-time potable water analysis, in order to optimize cooling tower cycles. Measure at least the five control parameters listed in Table 1.

**Table 1. Maximum concentrations for parameters in condenser water**

| Parameter | Maximum level |
|---|---|
| Ca (as $CaCO_3$) | 1000 ppm |
| Total alkalinity | 1000 ppm |
| $SiO_2$ | 100 ppm |
| $Cl^-$ | 250 ppm |
| Conductivity | 2000 µS/cm |

ppm = parts per million
µS/cm = micro siemens per centimeter

Calculate the number of cooling tower cycles by dividing the maximum allowed concentration level of each parameter by the actual concentration level of each parameter found in the potable makeup water. Limit cooling tower cycles to avoid exceeding maximum values for any of these parameters.

**Table 2. Points for cooling tower cycles**

| Cooling tower cycles | Points |
|---|---|
| Maximum number of cycles achieved without exceeding any filtration levels or affecting operation of condenser water system (up to maximum of 10 cycles) | 1 |
| Achieve a minimum 10 cycles by increasing the level of treatment in condenser or make-up water<br>OR Achieve the number of cycles for 1 point and use a minimum 20% recycled nonpotable water | 2 |