

Maintenance Tips

Cooling Tower Maintenance and Energy Performance

Maximizing the energy efficiency of your cooling tower is crucial to system operating performance. Doing so significantly impacts heat exchange and energy costs - as much as 6% for every 2 degrees Fahrenheit increase. Thoroughly review the manufacturer's manual to determine performance specifications of your cooling tower.

Key cooling tower performance operational parameters include:

- **Range** - the difference between the cooling tower inlet and outlet water temperatures.
- **Approach temperature** - the difference between the outlet water temperature and the ambient wet bulb temperature.
- **Cycles of concentration (COC)** - the ratio of dissolved solids in the water to the dissolved solids in the make-up water. A good water treatment program keeping the COC under control prevents solids from precipitating out of the water and into the system.
- Blow down loss depends upon cycles of concentration and evaporation loss. Ensure optimum operating parameters with your water treatment provider.

Maintenance Tips to help ensure cooling tower peak performance include:

- **Daily** - Perform visual inspection for operating issues and leaks
- **Daily** - Perform water treatment test for proper concentration of dissolved solids and corrosion inhibitors
- **Weekly** - Perform microbiological testing
- **Monthly** - Inspect spray system and nozzles for proper operation
- **Monthly** - Inspect fill and drift eliminators
- **Monthly** - Inspect belts and sheaves for wear; adjust and/or replace if required
- **Monthly** - Inspect condition of fan blades
- **Monthly** - Inspect float control equipment to ensure basin levels are being properly maintained
- **Semi-Annually** - Inspect and clean debris from tower and strainers
- Ensure all bearing and/or oil gear boxes are lubricated as per manufacturer's recommendations
- Ensure maintenance practices are in place to mitigate legionella risk; for example, the province of Quebec has regulations in place, while other jurisdictions have or are in the process of adopting similar regulations.

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