



## Suggested Environmental Considerations for Water Systems

The suggested environmental considerations below focus on cooling towers, boilers, and other water systems, listed separately, that can be included as part of a water systems contract for health care facilities. The suggested environmental considerations can be used in RFPs or RFIs to identify opportunities for products that are environmentally preferable and/or contribute to LEED credits.

Cooling Towers				
#	Suggested Question	Preferred Answer	Rationale	More Information
1	Is this a chemical-free cooling tower system? (Yes/No)	Yes	Chemical-free systems can reduce operations and maintenance costs by eliminating the need to purchase water treatment chemicals on a regular basis. They also reduce the quantity of potentially toxic and/or hazardous chemicals housed on-site. Many systems on the market offer chemical-free technologies.	LEED for Healthcare WE Credit 4.2: Water Use Reduction, Cooling Towers LEED for Existing Buildings: Operations and Maintenance, WE Credit 4.1: Cooling Tower Water Management, Chemical Management
2	Is this cooling tower designed to use non-potable water? (Yes/No)	Yes	Processing potable water is energy intensive and thus contributes to air emissions associated with fossil fuel energy generation. Using reclaimed water (e.g., rainwater, A/C condensate, cooling tower water blow down) for selected applications can reduce costs and preserve potable water supplies.	LEED for Healthcare WE Credit 4.2: Water Use Reduction, Cooling Towers LEED for Existing Buildings: Operations and Maintenance, WE Credit 4.2: Cooling Tower Water Management, Nonpotable Water Source Use
3	Is this cooling tower equipped with makeup and blowdown meters, conductivity controllers, overflow alarms, and efficient drift eliminators that reduce drift loss to less than or equal to 0.001% of recirculating water in a counter-flow tower or 0.005% in a cross-flow tower? (Yes/No)	Yes	These technologies improve water and energy efficiency and reduce the amount of chemicals required for systems that are not chemical-free.	LEED for Healthcare WE Credit 4.2: Water Use Reduction, Cooling Towers LEED for Existing Buildings: Operations and Maintenance, WE Credit 4.1: Cooling Tower Water Management, Chemical Management and WE Credit 4.2: Cooling Tower Water Management, Nonpotable Water Source Use

4	Can this product be configured to operate as a closed-loop system? (Yes/No)	Yes	Closed-loop systems reuse cooling fluid many times, drastically increasing water efficiency over once-through systems.	LEED for Healthcare WE Credit 4.2: Water Use Reduction, Cooling Towers LEED for Existing Buildings: Operations and Maintenance, WE Credit 4.2: Cooling Tower Water Management, Nonpotable Water Source Use
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### Water Treatment Products, Systems, Services

#	Suggested Question	Preferred Answer	Rationale	More Information
5	Is this product compatible with the use of a non-toxic treatment chemical system? (Yes/No)	Yes	Non-toxic treatment chemicals are defined as chemicals free of components listed by the U.S. DOT (Dept of Transportation), OSHA, or EPA as toxic or hazardous. Many systems are on the market that offer chemical-free technologies.	
6	Does this product meet NACE International Standard 7K189 for Nonchemical Water Treatment devices? (Yes/No)	Yes	NACE International (originally known as National Association of Corrosion Engineers) standard 7K189 is titled "Control Factors in Performance Testing of Nonchemical Water Treatment Devices," 1997. <a href="http://www.engineerstandard.org/nace-7k189-p-216239.html">http://www.engineerstandard.org/nace-7k189-p-216239.html</a> .	
7	Is this product designed to use non-potable water? (Yes/No)	Yes	Processing potable water is energy intensive and thus contributes to air emissions associated with fossil fuel energy generation. Using reclaimed water (e.g., rainwater, A/C condensate, cooling tower water blow down) for selected applications can reduce costs and preserve potable water supplies.	

## Boilers

#	Suggested Question	Preferred Answer	Rationale	More Information
8	Is this a chemical-free boiler system? (Yes/No)	Yes	Chemical-free systems can reduce operations and maintenance costs by eliminating the need to purchase water treatment chemicals on a regular basis. They also reduce the quantity of potentially toxic and/or hazardous chemicals housed on-site. Many systems on the market offer chemical-free technologies.	
9	Can this product be configured to operate as a closed-loop system? (Yes/No)	Yes	Closed-loop systems reuse process water many times, drastically increasing water efficiency over once-through systems.	
10	Is this product installed with a tempering device for blow down water? (Yes/No)	Yes	Tempering devices reduce the amount of cold water injected into the boiler blow down water to meet water temperature requirements for wastewater.	
11	Is assessment equipment permanently installed on the boiler steam trap? (Yes/No)	Yes	According to the U.S. EPA, leaky steam traps account for the loss of close to 20% of the steam generated by typical boilers. Boilers with permanently installed monitoring equipment can be connected to the building management system, ensuring that leaks are identified as soon as they occur.	
12	Does this product meet the minimum efficiency requirements for commercial boilers outlined by the U.S. Federal Energy Management Program (FEMP)? (Yes/No)	Yes	The U.S. Federal Energy Management Program (FEMP) designates mandated efficiency requirements for federal purchases. Available at: <a href="https://www1.eere.energy.gov/femp/technologies/eep_boilers.html">https://www1.eere.energy.gov/femp/technologies/eep_boilers.html</a> . Efficient boilers reduce operating costs by reducing both energy and water use.	

13	Does this product have the capacity for water temperature reset? (Yes/No)	Yes	This technology improves efficiency by automatically setting the supply water to a lower temperature at reduced heat loads.	
14	Does this product have the capacity to modulate the burners?	Yes	Modulating boilers can operate at part load. This capability improves efficiency by allowing the boiler to vary heat output based on demand.	
15	Is this a low mass boiler? (Yes/No)	Yes	Low mass boilers cycle on and off more quickly than high mass boilers. It is therefore not necessary to keep the boiler on hot standby during periods of reduced load.	
16	Can this product be configured to provide precise air-fuel ratio control? (Yes/No)	Yes	Boiler efficiency can be optimized by linking air-fuel control sensors to the building management system.	
17	Can this product be configured for optimum start control? (Yes/No)	Yes	This technology allows facility managers to fire up the boiler each morning immediately before the building is occupied.	

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