

TYPES OF COOLING COMPARISON

 Type	 Description	 Energy Efficiency	 Water Usage	 Chemical Usage	 Performance Impact by Climate Zones
Direct evaporative, Open loop.	Condenser water from a chiller is sent directly to an evaporative cooling tower.	High	High	None	Performance reduced by high humidity.
Indirect evaporative, Closed loop.	Glycol from closed-loop chiller condenser is sent to a coil in the bottom of cooling tower. Separately, water is evaporated in the cooling tower to cool glycol loop.	High (but slightly lower than direct evaporative)	High	Yes	Performance reduced by high humidity similar to direct evaporative.
Fluid cooler.	Closed-loop Water-Glycol mixture from fluid-cooled DX CRAC.	Lower due to higher fan energy	None	Yes	Performance and capacity impacted as temperatures increase (max temperature limits). Not impacted by humidity.
Condenser DX refrigerant.	Closed-loop refrigerant from DX CRAC.	Lower due to higher fan energy	None	Yes	Performance and capacity impacted as temperatures increase (max temperature limits). Not impacted by humidity.
Adiabatic cooling added to fluid cooler or DX condenser.	Water misting system is added to fluid cooler or condenser. Operates during hotter weather.	Improves efficiency	Low to moderate	Yes	Improves performance and capacity as temperatures increase. High humidity reduces improvement.
Water-Cooled, Heat sink technology with open and closed loop.	Naturally cold water runs through an open and closed loop system. Operates near any body of water or water system.	High	None	None	Performance not impacted by ambient temperatures. Not impacted by humidity.