

WHAT IS THE COOLING TOWER EFFICIENCY PROGRAM?

The Cooling Tower Efficiency Program requires customers to register their cooling towers with Austin Water and submit annual inspection forms. Austin Water developed this program to help customers:

- Meet cooling tower water efficiency standards and equipment requirements, and
- Save money on water and wastewater bills by identifying potential water-efficient upgrades and available rebates.

AM I REQUIRED TO REGISTER MY COOLING TOWER AND HAVE IT INSPECTED?

Yes. Austin City Council approved the mandatory registration and annual inspection requirements on June 8, 2017 as part of the adoption of local amendments to the 2015 Uniform Mechanical Code (§1126.0(5), §1126.0.1), with the requirements effective September 6, 2017. The Water Conservation ordinance has also been revised to mandate cooling tower inspection (§6-4-10, *Austin City Code*).

Cooling towers installed **prior to January 1, 2008** are required to be registered with Austin Water and to provide an annual inspection report. However, these towers are not required to meet the efficiency standards listed in the Water Conservation Code (§6-4-10, §6-4-11, *Austin City Code*) until they are replaced with newer towers.

All cooling towers installed **on or after January 1, 2008** are required to meet the following standards:

- Make-up and blow down sub-meters,
- A conductivity controller,
- A drift eliminator with a drift rate of not more than 0.005% of the circulated water flow rate for crossflow towers and 0.002% for counter-flow towers,
- An overflow alarm, and
- Achieve at least 5 cycles of concentration.

New facilities (*building permit application submitted after September 5, 2017*) with **100 tons or greater combined** cooling tower capacity **must have**:

- The make-up and blow-down meters and overflow alarm connected to the building's Central Energy Management System or Utility Monitoring Dashboard; and
- The facility must have a water storage tank, plumbing, and treatment system to either
 - Utilize blow-down water for wash down, cleaning, toilet flushing, subsurface irrigation, and other authorized purposes; or
 - Offset a minimum of 10% of the makeup water with reclaimed or onsite alternative water sources.

WHEN DID AUSTIN ADOPT THE WATER EFFICIENCY STANDARDS AND REQUIREMENTS FOR COOLING TOWERS?

The cooling tower efficiency standards were adopted by Austin City Council on October 18, 2007 and effective January 1, 2008 (*Ordinance No. 20071018-086*). These standards are currently codified under the city's local amendments to the 2015 Uniform Mechanical Code (§1126.0, E 4023.2, E403.3) and the 2015 Uniform Plumbing Code (§614.0).

On December 10, 2020, Austin City Council voted to include the requirements in the Water Conservation ordinance (§6-4-10, §6-4-11, *Austin City Code*).

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HOW WILL AUSTIN WATER USE THE REGISTRATION AND INSPECTION FORMS?

Austin Water staff will review the forms to:

- Determine whether the cooling tower is compliant with existing requirements,
- Determine if a facility could increase its cooling tower’s water efficiency,
- Provide the customer with water saving recommendations, and
- Provide information about eligibility for Austin Water’s **Bucks for Business** rebate program and other potential Austin Water incentives.

WHAT ARE THE PENALTIES FOR NOT MEETING THE REGISTRATION AND INSPECTION, WATER-EFFICIENCY STANDARDS, OR EQUIPMENT REQUIREMENTS?

Properties that are not in compliance with any of these requirements by the program’s deadline will be subject to a monthly Water Conservation Non-Compliance Fee of \$758, in accordance with the Austin Water Rates & Fee Schedule. This fee will be added to the property’s utility bill each month until the property is brought into compliance with the program.

WHAT ARE THE BENEFITS FROM IMPLEMENTING REQUIRED MEASURES?

The cooling tower requirements seek to optimize the water efficiency achievable by existing systems using Austin Water’s high quality potable water with low Total Dissolved Solids levels (*average hardness of 84 ppm CaCO3*) if properly operated and maintained. The requirements seek to protect public health from potential airborne bacteria by eliminating drift and preventing water waste caused by the overflow from the cooling tower basin.

Percentage Water Savings from Increasing Cycles of Concentration

Starting Number of Cycles	New Number of Cycles											
	2	3	4	5	6	7	8	9	10	12	15	20
1.5	33	50	56	58	60	61	62	63	63	64	64	65
2		25	33	38	40	42	43	44	44	45	46	47
3			11	17	20	22	24	25	25	27	29	30
4				6	10	13	14	16	17	18	20	21
5					4	7	9	10	11	13	14	16
6						3	5	6	7	9	11	12
7							2	4	5	6	8	10
8								2	3	5	6	8
9										3	5	6
10										2	4	5
12											2	4
15												2

WHAT IS THE PAYBACK PERIOD FOR RETROFITTING MY COOLING TOWER TO MEET THE COOLING TOWER REQUIREMENTS?

The estimated average cost to meet code requirements is less than \$10,000. The average payback period is less than one year due to significant savings in water, wastewater, chemical treatment, and energy costs. As best management practices, most towers may already have some or all the required equipment.

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ARE THERE OTHER BENEFITS TO IMPROVING MY COOLING TOWER'S WATER EFFICIENCY?

Improving a cooling tower's water efficiency can:

- Help meet eligibility requirements for Austin Water's [Evaporative Loss Program](#). This program may reduce monthly wastewater bills for evaporated water from cooling towers that is not returned to the wastewater system. For more information, please contact the Evaporative Loss Program at AWEvapLoss@austintexas.gov.
- Help existing buildings qualify for up to two points toward LEED certification. Installing sub-meters on cooling towers and continuously metering the water used for cooling towers with data logging can qualify for more LEED points.

WHAT REBATES ARE AVAILABLE FOR RETROFITTING MY COOLING TOWER TO INCREASE WATER EFFICIENCY?

The [Bucks for Business](#) rebate program is available for a variety of retrofit projects, including:

- **\$1000 for an overflow alarm** (*for cooling towers installed prior to January 1, 2008 only*)
 - Over the course of three months, a 2 gallon per minute overflow can result in 259,200 gallons of water loss and \$3,650 in water costs. Replacing a malfunctioning ballcock style (*float on a rod*) fill valve with a solenoid-operated valve using an external level sensor to prevent overflows has a payback period of less than six months.
- **\$1100 for an automated cooling tower conductivity controller** (*for cooling towers installed prior to January 1, 2008 only*)
 - Savings of up to 800,000 gallons and up to 40% in water costs a year, depending on current cycles, cooling size/capacity and load
- **Up to \$100,000 for water treatment, filtration, or other systems to increase cycles of concentration above five cycles**
 - Includes water softeners, sulfuric acid, ozonation, side stream filtration using rapid sand, cartridge, or cyclonic filters that help remove solids
- **Up to \$100,000 for alternative water systems for cooling tower make-up** (*for cooling towers installed prior to September 6, 2017 only*)
 - Includes projects to recover and use on-site alternative water sources such as air conditioning condensate and manufacturing process water

CAN I SUBMIT MY REGISTRATION AND INSPECTION WITH MY EVAPORATIVE LOSS PAPERWORK?

The due date of March 1st for the Cooling Tower Efficiency Program may not align with your organization's evaporative loss due date. To comply with the efficiency program and avoid potential fines, the completed documents must be submitted by March 1st to the Austin Water Conservation department.