

Cooling Tower Requirements: *What Building Owners Should Know*

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I. Defining “Cooling Towers”

A cooling tower is a unit that recirculates water to make the inside of a building cooler. Cooling towers are often part of a building’s heating, ventilation and air conditioning (HVAC) system.

Cooling towers may be found in or on top of large high-rise buildings. In commercial/industrial buildings, cooling towers may be part of a building’s industrial process or energy production system and may be located outside the building. Units called *evaporative coolers* and *fluid coolers* are also considered cooling towers.

Cooling towers include these features:

- Fan on top
- Piping entering near the top
- Air vents on the side
- Piping exiting the bottom



Some large cooling tower systems have more than one tower. Additionally, some cooling towers have more than one “cell” (sometimes called a “basin”). For example, an “eight-cell tower” is one cooling tower with eight cooling tower “cells.” As long as the different cells inside a cooling tower and the

different towers within a system recirculate the same water, they are considered part of the same cooling tower system.

If you are unsure whether your building has a cooling tower, ask the building engineer or maintenance supervisor.

II. Cooling Tower Requirements

In August 2015, New York City and New York State created new requirements for owners of buildings with cooling towers.

The City's requirements are found in Local Law 77 of 2015. Local Law 77 requires registration, inspection, cleaning, disinfection and testing of *all* New York City cooling towers. Local Law 77 also requires building owners to annually certify that they are in compliance with the law. The New York City Department of Health and Mental Hygiene (DOHMH) also created new rules to implement Local Law 77. The new rules are Chapter 8 of Title 24 of the Rules of the City of New York. The rules require building owners to create routine and long-term maintenance procedures for their cooling towers and for owners to register their towers with the City.

The State's requirements were initially established as emergency regulations. The regulations are Title 10 of the New York Codes of Rules and Regulations (10 NYCRR), Part 4, "Protection against Legionella." The State anticipates that its final regulations will be adopted in May 2016. The State's regulations apply statewide, including in New York City.

The State and City regulations overlap in many areas. The table below shows this.

What New York City Building Owners Must Do*

Requirement	New York City Local Law 77 of 2015	New York City Chapter 8 Rules	New York State Emergency Regulations
Register all <u>existing</u> cooling towers with NYS by Sept. 16, 2015.			X
Register all <u>existing</u> cooling towers with NYCDOB by Sept. 17, 2015.	X		
Register any <u>new</u> cooling tower with NYCDOB before operating it.	X	X	
Register any <u>new</u> cooling tower with NYS before operating it.			X
Securely affix an NYCDOB cooling tower registration number to each tower.		X <i>Number must be on outside of tower in visible location.</i>	
Test each cooling tower every 90 days.	X <i>DOHMH specifies testing "every three months." (For practical purposes, this is the same as "90 days.")</i>	X <i>Test must be for Legionella; notify DOHMH within 24 hours if high levels found (those greater than or equal to 1,000 CFU/mL).**</i>	X <i>Legionella testing must have been done by 9/16/15 unless done 30 days prior. Otherwise, HPC (heterotrophic plate count) dip slide or culture test allowed. When reporting test results, include any Legionella results and last HPC result.**</i>
When replacing system parts, use corrosion-resistant, sunlight-blocking materials.		X	
Perform cleaning at least two times per year.		X	
Install and maintain drift eliminators as specified.		X	

Requirement	New York City Local Law 77 of 2015	New York City Chapter 8 Rules	New York State Emergency Regulations
Perform <i>daily, automatic chemical treatment of system water</i> and <i>continuously recirculate water</i> (unless otherwise justified).		X	
Perform <i>routine manual water quality monitoring</i> of temperature, pH, conductivity and biocide concentration unless this process is automated.		X <i>At least three times per week with no more than two days between monitoring.</i>	X
Perform <i>microbial monitoring</i> .		X <i>Weekly</i>	X
Perform <i>weekly routine monitoring</i> . Do visual inspection of wetted surfaces, chemical treatment equipment check and completion of checklist.		X	
Perform inspection by <i>qualified person</i> every 90 days tower is in use. More information on the meaning of "qualified person" is below.	X	X <i>Also required prior to seasonal startup.</i>	X <i>Include evaluation of proper functioning of the conductivity control.</i>
If tower was shut down, without water treatment and/or recirculation, for ≥ 5 days, clean/drain and disinfect before reuse.	X	X <i>Also test for Legionella after a shutdown.</i>	X
Certify annually that tower(s) was/were inspected, tested, cleaned and disinfected as required. <i>Starts Nov. 1, 2016.</i>	X <i>Certify in NYCDOB online system.</i>	X	X <i>Certify in NYS online system.</i>
Keep records of activities onsite for three years.	X	X	X
Notify NYS/NYCDOB if tower is removed/out-of-use, <u>and</u> confirm it was drained and sanitized.	X	X	X
Develop <u>and</u> follow maintenance program and plan (MPP) in line with American Society of Heating, Refrigeration and Air Conditioning Engineers (ASHRAE 188-2015) Standard.	X <i>Implement plan by March 1, 2016.</i>	X <i>Find NYC-specific requirements in Chapter 8. Keep plan on-site; use template and guidance.</i>	X <i>Implement plan by March 1, 2016. A Legionella culture sampling plan is required in the plan. See question 8.</i>

**This table shows broad requirements only. More details can be found in the New York City Local Law and DOHMH rules or the State regulations, depending on the requirement. Find links to each in “Resources.” Also find links in “Resources” for registering your tower online with the City and State.*

***You must notify New York City DOHMH within 24 hours if high Legionella bacteria results were found in your tower. You must notify the New York State Department of Health of any Legionella sample result and the required corrective actions. See the question and answer on this in Section III.*

III. More Questions and Answers on the City and State Requirements

If my building has more than one cooling tower, do I have to register each tower separately?

Yes—You must register each tower separately with the City and State.

1. What if one cooling tower has multiple cells? Do I need to register each cell as a separate cooling tower?

No—as long as they all share the same recirculated water. One cooling tower, for example, might have three cells. If the water comes from the same source and the same water recirculates in the three cells, the whole unit counts as one cooling tower. (By contrast, some buildings have separate towers, each with its own water supply.)

Note: DOHMH has found that large systems can test positive for bacteria in some places and negative in others, even if the same water flows to all parts. If your system is very large, it’s safest to test different places in the same unit.

2. What if I already registered each cell in a cooling tower as its own cooling tower?

It is not a problem. The City and State will condense this information over time.

3. Testing showed that there is *Legionella* bacteria in my cooling tower. Do I have to notify the City and/or State?

Yes—but whether you have to notify the State, City or both depends on the test results.

The State’s emergency rule requires you to report each date that you collect *Legionella* bacteria in your tower. For each date, you must report the results of your sampling and the date of any action you take to remediate the condition. According to the State’s rule, some of the data you report may be made publicly available.

The City’s Chapter 8 rules require you to notify DOHMH within 24 hours about *Legionella* bacteria results only if you find more than 1,000 CFU/mL (colony-forming units of *Legionella* bacteria per milliliter).

You can notify the City or State by using the online reporting website for that agency.

Neither the State’s nor the City’s rules require that a building owner directly notify tenants about any *Legionella* sampling or the results of sampling.

4. How do the City's requirements differ from the State's requirements?

In many ways, the City and State requirements overlap. See the table above.

However, please keep these important points in mind:

- **Registration:** You must register your cooling tower with both NYCDOB and the State's Department of Health.
- **Reporting:** The State and City have different reporting requirements. See the question and answer directly above.
- **"Qualified" Personnel:** The State and City both require that certain activities be done by qualified personnel. "Qualified" varies by the type of activity:
 - *Disinfection and/or Cleaning with Biocides:*
 - New York City and State both require that any use of biocides (i.e. disinfecting chemicals) be done by *a commercial pesticide applicator, a pesticide technician certified in accordance with the requirements of New York State's Pesticides Regulations (Environmental Conservation Law Article 33 and Title 6 of the New York Codes, Rules and Regulations [NYCRR], Part 325), or a pesticide apprentice under the supervision of a certified applicator.* The New York State Department of Environmental Conservation (NYSDEC) provides a list of registered pesticide businesses in Category 7G ("Cooling Towers") who are qualified to perform the disinfection process. (See "Resources" below.)
 - Cleaning activities that do not use any of the chemicals described above, such as basic scrubbing or power washing, do not need to be performed by a person qualified to apply pesticides.
 - *Compliance Inspections and Certification:*
 - New York City and State require that compliance inspections and annual certification of maintenance and operation be performed by *a New York State-licensed and registered professional engineer; a certified industrial hygienist; a certified water technologist with training and experience developing maintenance plans and performing inspections in accordance with current standard industry protocols including, but not limited to ANSI/ASHRAE 188-2015; or an environmental consultant with at least two years of operational experience in water management planning and operation.*
 - *Maintenance Plan Development:*
 - New York City requires that the development and sign-off of the maintenance plan be completed by a person with the same qualifications as those for "Compliance Inspections and Certification."
- **Maintenance Plans:** Both New York State and New York City require owners to develop and start using a cooling tower system maintenance program and plan in line with the ASHRAE 188-2015 standard. The plan must be developed and in use by March 1, 2016.
 - New York State and City both require that the plan be based on section 7.2 of the ASHRAE 188-2015 standard, while the City requires that the plan also be based on sections 5 and 6 of that standard. The City provides a template for constructing an acceptable maintenance plan.

- The ASHRAE standard has its own general requirements for creating a maintenance plan, and the City rules have additional minimum requirements. Each plan should reflect the conditions and complexity of the cooling tower system while meeting both sets of minimum requirements (ASHRAE and City).
- Note that neither the City nor State require all maintenance activities to be done by a *vendor*. As long as the person performing the work is qualified (see above), he or she can be part of your building’s in-house facilities management team.

5. If I registered my tower, and I’m missing documents, will I get fined?

The City and State are following up with building owners who started to register online but have not sent all required documents. In some cases, owners had technical problems registering and/or uploading documents. The City and State will try to get in touch with them to collect the missing information before penalizing owners.

6. How will penalties be handled when a building owner complied with State regulations, but not City regulations, or vice versa?

The City and State will enforce their regulations independently, even if those regulations require the same thing.

7. Can I get violations if I don’t comply?

Yes. New York City and State can separately issue violations for not complying with most of the requirements in the table above. Violations and penalties the City can issue are included at the end of the City’s Chapter 8 rules. (Find a link to the rules in the “Resources” section below.) The State may issue violations for any provision of its emergency regulations, and penalties are assessed according to the Public Health Law. (Find a link to the State’s Public Health Law in “Resources.”)

8. The City and State requirements mention “microbiological” and “bacteriological” testing. What do those terms mean?

The State requirement for microbiological testing means that you should test for bacteria in the tower water routinely. At the least, you should test once every 90 days. You don’t have to do a specific test for *Legionella* bacteria each time, though you can. It’s fine to do a “dip slide” test, which is a general test for bacteria. Your vendor should know how to perform that test. The State requires that you include *Legionella* culture testing in your Maintenance Plan.

The City rules include these specific requirements for acceptable microbiological testing:

- Perform *Legionella* testing of cooling tower system water through a CDC Elite Program-certified laboratory, NYSDOH Wadsworth Center or another approved laboratory *every three months* the system is in operation (and before startup and after specified emergency events).
- Perform biological indicator (e.g. HPC dip slide) testing weekly.

9. What is the difference between *manual* and *automatic* measuring (terms found in the table above)?

The City’s Chapter 8 Rule requires that basic water quality parameters (temperature, pH, conductivity and biocide indicator) be measured and recorded on a regular basis—at least three times per week with

no more than two days between measurements. The minimum requirement is for these measurements to be made manually (by hand) by the responsible person. However, the measurements may alternatively be taken automatically by equipment that is capable of measuring, recording and communicating the results to the management and maintenance team members.

10. In the NYC Department of Buildings registration process, how should coops/condos/buildings with ownership entities respond to the “Individual” field in the “Property Owner” information section?

The City will be updating its online system to address issues like this as they arise. In the meantime, enter the full ownership entity name for the first name and for the last name.

11. If I have a commercial condominium on my site, do I have to register its cooling tower?

Go by block and lot number. If the commercial condominium has its own Building Identification Number, or BIN, the owner of that particular block and lot must register the tower.

12. What are the test result thresholds for “indicative of maintenance deficiency requiring mitigation” and “indicative of a serious health threat”?

People responsible for testing and monitoring cooling towers should check the relevant sections in the State emergency regulations and the City rules. See the “Corrective Action” tables (tables 1 and 2) in the City rules and Appendix 4-A in the State regulations. If the rules don’t address a specific situation, follow industry standards and guidelines.

13. Do building owners have to make maintenance plans for cooling towers that were installed by tenants and whose operation exclusively serves said tenant spaces?

Owners do not have to make the plans, but they are responsible for:

- Registering their building’s cooling tower or towers with both the State and the City
 - *It is OK if a tenant or third party registers online, but owners are responsible for making sure that the information submitted is correct.*
- Having a cooling tower Maintenance Plan on site that follows regulatory and industry standards
 - *It is OK if a tenant makes the Maintenance Plan, but owners are responsible for having a plan that follows industry standards and for making sure the plan is in use.*

14. What if a cooling tower on my site was decommissioned?

You should report this to both the City and the State. If a cooling tower is not in use, you do not need to test it.

15. If my tower is not in use during winter, do I still need to test every 90 days?

No. You only need to test when the tower is in use and prior to seasonal startup.

16. What is meant by “before a cooling tower system start-up ... cleaning and disinfection must be done, no later than 15 days before the first seasonal use”?

It means that cleaning and disinfection must be done *in* 15 or fewer days from startup. For example, cleaning and disinfection completed 20 days or more before the full system startup are not allowed since this timing is not within the 15 days before the first seasonal use.

17. I need to test every 90 days. Do I also need to disinfect my tower every 90 days?

No. Cooling towers must be disinfected (beyond daily treatment and for seasonal startup as required by the City's Local Law 77 and Chapter 8 rules) if one or more of these situations apply:

- The cooling tower manufacturer recommends disinfection
- The building owner's Maintenance Plan calls for disinfection
- Results from water sampling or an inspection show that disinfection is needed
- DOHMH directs the owner to disinfect

New York State and City regulations also require that

- All cooling towers be cleaned and disinfected when shut down for more than five days
- Towers be disinfected prior to being removed or permanently discontinued

If an owner does not disinfect as required by the law, that condition could be considered a nuisance, and the State or local health department may take action against the owner to address the nuisance.

18. When will the State publish permanent regulations?

The State is developing permanent regulations, which will be posted [here](#). In the meantime, follow the State's [emergency regulations](#).

19. Will the City and/or State start requiring owners to test tap water for *Legionella* bacteria?

No. However, the State does require all "general hospitals" and residential health care facilities, as defined in Article 28 of Public Health Law, to test domestic water as part of a *Legionella* control plan.

IV. Resources

Registering Your Cooling Tower

New York City Department of Buildings

https://a810-efiling.nyc.gov/eRenewal/coolingTower_loginER.jsp

New York State Health Department

<http://ct.doh.ny.gov>

Full Requirements

New York City DOHMH August 6 Commissioner's Order

<http://www1.nyc.gov/assets/doh/downloads/pdf/cd/citywide-blanket-order.pdf>

New York City Local Law 77 of 2015

http://www1.nyc.gov/assets/buildings/local_laws/ll77of2015.pdf

Rules of the City of New York, Proposed Title 24, Chapter 8

<http://www1.nyc.gov/assets/doh/downloads/pdf/notice/2016/noa-chapter8-title24.pdf>

New York State Regulations

http://www.health.ny.gov/diseases/communicable/legionellosis/docs/emerg_regs.pdf

<http://www.nysenate.gov/legislation/laws/PBH/12>

Other Guidance

American Society of Heating, Refrigeration and Air Conditioning Engineers (ASHRAE 188-2015) Standard

<http://spc188.ashraepcs.org/>

NYCDOB Brochure on Cooling Tower Registration

<http://www.nyc.gov/html/bxcb10/downloads/pdf/Cooling%20Tower%20Brochure%202015.pdf>

NYSDEC Agencies/Businesses Registered in Category 7G ("Cooling Towers")

http://www.dec.ny.gov/docs/materials_minerals_pdf/7gregbusagen.pdf