



NEW YORK CITY DEPARTMENT OF HEALTH AND MENTAL HYGIENE

Notice of Adoption of New Chapter 40 in Title 24 of the Rules of the City of New York

A Notice of Public Hearing and Opportunity to Comment on a Proposal by the Department of Health and Mental Hygiene (“Department”) to add a new Chapter 40 in Title 24 of the Rules of the City of New York concerning standards for radon and organic vapor levels in basement and cellar apartments was published in the *City Record* on June 23, 2025. A virtual public hearing was held on July 24, 2025. One person testified at the hearing to read the written comment submitted and three other written comments, two from the same person, were received.

After consideration of the testimony and written comments, the Department, in response to three of the comments, is slightly altering from the proposed rule the type of professional who may conduct the TO-15 testing for organic vapors. One comment requested that the vapor levels specified in the rule be based on State guidance, which is already the case.

Statement of Basis and Purpose

The new rules establish standards for radon and organic chemical vapor levels in basement and cellar apartments. The current housing emergency has led people to inhabit thousands of unsafe illegal basement and cellar units throughout the city.¹ Some of the more common concerns with these unauthorized units include the risk of carbon monoxide poisoning, insufficient means of escape in case of fire, and inadequate natural light and ventilation.² Additionally, with climate change increasingly causing extreme weather events, flood risks pose ever greater safety concerns for those living below street level.³

To address the dangers of illegal basement and cellar residences, two local laws were adopted in 2024. Local Law 126 of 2024 (“LL 126”) sets forth standards for temporary occupancy of illegal basement and cellar apartments prior to the issuance of a certificate of occupancy for such use, as codified in section 28-507.4.5.2 of the Administrative Code. Local Law 127 of 2024 (“LL 127”), provides for the construction of ancillary dwelling units (“ADUs”) in basements and cellars on the same lot as certain one- and two-family dwellings, as codified in sections U202.9 and U202.10 of Appendix U of the NYC

¹ According a 2021 estimate by the Pratt Center for Community Development, over 30,000 illegal basement or cellar apartments were concentrated in just eight Community Districts. Pratt Center for Community Development, *New York’s Housing Underground: 13 Years Later* (Oct. 2021), 3, available at https://prattcenter.net/our_work/new_yorks_housing_underground_revisited.

² N.Y.C. Department of Housing Preservation and Development, *Housing Quality/Safety: Basements and Cellars*, available at <https://www.nyc.gov/site/hpd/services-and-information/basement-and-cellar.page>.

³ N.Y.C. Comptroller, *Bringing Basement Apartments Into the Light: Establishing a NYC Basement Board to Provide Basic Rights, Responsibilities, and Protections for Basement Apartment Residents and Owners*, 9 (Aug. 2022), available at <https://comptroller.nyc.gov/reports/bringing-basement-apartments-into-the-light/>.

Building Code. Among other safety provisions, these laws require certification that the basement or cellar apartment or basement or cellar ADU meets the standards for radon and organic chemical vapor levels in rules adopted by the Department to address the potential health impacts of these substances on occupants. The Department is now adopting rules for these standards.

Existing Illegal Basement and Cellar Apartments

LL 126 authorizes a program to legalize occupancy of existing basement and cellar dwelling units in certain community districts in the Bronx, Brooklyn, Manhattan, and Queens that can be occupied safely. Among the LL 126 program requirements is submission of certification to DOB, no later than one year after the issuance of a ten-year Authorization for Temporary Residence, that the unit has been tested and meets the Department's standards for radon and soil vapors.⁴ If the owner does not meet all of the benchmarks or a certificate of occupancy is not issued within the 10-year period, the authorization for temporary residence may be revoked and any occupants of the basement or cellar be required to vacate.

New Basement and Cellar Units

LL 127 provides for the creation of new ADUs, including ADUs in basements and cellars. Among the requirements for basement and cellar ADUs is submission of certification to DOB that the radon and vapor levels in such ADUs not exceed the threshold levels for radon and soil vapors in rules adopted by the Department.

Radon and Soil Vapor Threshold Levels Required for Certification

In accordance with LL 126 and LL 127 of 2024, the adopted rules establish the maximum levels of radon and vapors in the indoor air of basement and cellar units, the qualifications of individuals or firms conducting the radon and vapor testing, the type of laboratory qualified to analyze the air samples, and the certification form to be submitted to DOB. A property owner may need to consult with a qualified professional if mitigation is needed to bring the indoor air vapor levels below the thresholds of these rules.

1. Radon

Radon is an odorless and invisible radioactive gas naturally released from rocks, soil, and water. It can get trapped inside homes and buildings and build up in the air. Over time, breathing in high levels of radon can lead to lung cancer. This extremely dangerous substance is the second highest cause of lung cancer deaths nationally after cigarette smoking.⁵

Pursuant to section U202.9 of the Building Code, the Department, in consultation with DOB, the Fire Department ("FDNY"), and Emergency Management ("NYCEM"), adopting the same threshold radon

⁴ NYC Administrative Code § 28-507.4.5.2(2) sets the schedule for such testing and certification.

⁵ See, <https://www.cdc.gov/radon/about/index.html>, last accessed 5/23/25.

level as was used for Local Law 49 of 2019, the precursor to the current housing initiatives that similarly piloted an approach to legalize and make safe cellar and basement apartments. Section 11 of that law required that radon levels in such apartments be below two picocuries per liter of air. This is the level at which the federal Environmental Protection Agency recommends homeowners consider mitigating for radon.⁶ One commenter suggested using a higher level rather than the standard adopted by City Council in 2019 and allowing the use of over-the-counter radon testing kits.

For the reasons set forth above, Department is now adopting the radon level standard set by the City Council in 2019 for all basement and cellar apartments and ADUs legalized pursuant to LL 126s and LL 127. Rather than allowing over-the-counter kits, the Department is adopting the rules proposed to ensure the safety of residents: Testing for radon must be conducted by a certified radon testing professional using a testing device approved by the National Radon Proficiency Program or equivalent program. The samples must be tested by a laboratory certified by the New York State Environmental Laboratory Approval Program (“ELAP”) to analyze air samples for radon, and the results, if below the threshold, must be certified by a qualified radon tester. Such certification must be submitted to DOB as required by section U202.9.

2. Organic Chemical Vapors

A. *Identification of Soil Vapor Intrusion*

Section U202.10 of LL 127 requires the Department, in consultation with DOB, the Mayor’s Office of Environmental Remediation, FDNY, and NYCER, to adopt standards for vapor levels for basement and cellar apartments. Soil vapor intrusion from volatile organic chemicals (“VOCs”) is the primary health concern. The phrase “soil vapor intrusion” or “SVI” refers to the process by which VOCs move from contaminated soil and groundwater into the indoor air of buildings. SVI occurs when volatile contaminants in the subsurface evaporate and rise through pores in soil and into homes and other buildings through cracks and gaps in the building’s foundation. VOC vapors can also be present when a chemical is being used nearby in common products such as cleaners, room deodorizers, paints, stains, or new furniture, carpets, or floors.

When this VOC vapor is present in buildings, occupants may be exposed to volatile chemicals in indoor air. In certain cases, the vapors may accumulate to levels that may increase the risk of adverse health effects for persons living in or using those buildings. The potential adverse health effects from chemical exposures vary based on several factors, including the length of exposure, the amount of the exposure, the frequency of exposure, the toxicity of the VOC, ventilation, and an individual’s sensitivity.⁷

⁶ See, <https://www.epa.gov/radon/what-epas-action-level-radon-and-what-does-it-mean>, last accessed 5/23/25.

⁷ See, <https://dec.ny.gov/regulatory/regulations/tenant-notification-of-indoor-air-contamination-associated-with-soil-vapor-intrusion>, last accessed 2/19/25.

The health effects of these vapors include eye, nose, and throat irritation; headaches, loss of coordination and nausea; damage to liver, kidney, and central nervous system; and cancer.⁸ Perhaps the best-known VOC is perchloroethylene, known as PERC, emitted by dry cleaning processes. The Health Code already defines indoor PERC vapor at levels at or above 30 micrograms per cubic meter ($\mu\text{g}/\text{m}^3$) as a nuisance and requires its remediation when the Department deems necessary.⁹

The nature and impact of the health effects of VOCs depend on their concentrations and exposure time. Although exposure to low levels of VOCs without adverse effect is not uncommon, living in a unit with elevated concentrations poses a risk of developing adverse health effects. Thus, identifying the indoor air vapor concentration levels where serious potential health concerns arise was the key to the standards the Department is proposed. While there are health-based guidance values for some VOCs, there are no federally enforceable standards set for them in non-industrial settings. The standards proposed were therefore based on New York State Department of Health (“SDOH”) Soil Vapor Intrusion Guidance and Updates (“SDOH guidance”) available online at https://www.health.ny.gov/environmental/indoors/vapor_intrusion/update.htm, which outline the threshold indoor air vapor levels where monitoring or mitigation is required. When indoor air sampling results are above defined thresholds, the guidance includes protocols for next steps, including monitoring and mitigation as needed depending on the vapor concentration beneath the building as described in a series of SDOH matrices for different types of SVIs.

B. Determination of Soil Vapor Threshold Levels

Based on its review of the SDOH guidance, the Department is adopting indoor air threshold levels for 20 different VOCs as proposed. The SDOH guidance provides health-based indoor air values for tetrachloroethene, trichloroethene, and methylene chloride, which values will be used as thresholds for those three compounds. For the other 17 chemicals, the thresholds are the upper limits set by the SDOH guidance where monitoring or mitigation is recommended. All 20 VOCs are commonly identified VOCs that enter buildings via soil vapor and for which SDOH has developed matrices to assess indoor air and soil vapor concentrations. The table below includes the VOCs for which testing is required, the letter identification from the SDOH guidance matrix on which the upper limit was based, and the upper limit to allow for the issuance of a certification for occupancy:

Compound	NYSDOH Matrix	Upper Limit ($\mu\text{g}/\text{m}^3$)
Tetrachloroethene	B	30
Trichloroethene	A	2
Methylene chloride	B	60

⁸ [Volatile Organic Compounds' Impact on Indoor Air Quality | US EPA](#)

⁹ NYC Health Code § 13.17.

Compound	NYSDOH Matrix	Upper Limit ($\mu\text{g}/\text{m}^3$)
Vinyl chloride	C	0.2
Carbon tetrachloride	A	1
1,1-dichloroethene	A	1
1,1,1-trichloroethane	B	10
Cis-1,2-dichloroethene	A	1
Benzene	D	10
Toluene	F	50
Ethylbenzene	D	10
o-Xylene	D	10
m,p-Xylene	E	20
Naphthalene	D	10
Cyclohexane	D	10
2,2,4-Trimethylpentane	D	10
1,2,4-Trimethylbenzene	D	10
1,3,5-Trimethylbenzene	D	10
Heptane	E	20
Hexane	E	20

C. Testing Method & Qualified Environmental Professional Tester

Compendium Method TO-15 is the federal Environmental Protection Agency (“EPA”) Selected Analytical Method (SAM) to detect VOCs in indoor air samples for environmental remediation and recovery, and it is the most used analytical method in the United States. The “TO” in TO-15 stands for toxic organics. This method documents sampling and analytical procedures for the measurement of subsets of the 97 VOCs that are included in the 189 hazardous air pollutants (HAPs) listed in Title III of the Clean Air Act Amendments of 1990.¹⁰ Pursuant to this method, ambient air samples are collected using specially prepared and precleaned evacuated stainless-steel canisters. Laboratory analysis of the samples involves use of a pre-concentrator to focus small amounts of VOCs from large volumes of air. A gas chromatograph is then used to separate the individual VOC components and a mass spectrometer is used to identify and quantify each individual component in the sample.

¹⁰ Whitaker, w., et al., EPA, *Method TO-15A: Determination of Volatile Organic Compounds (VOCs) in Air Collected in Specially Prepared Canisters and Analyzed by Gas Chromatography–Mass Spectrometry (GC-MS)*, Sept. 2019, available online at: https://www.epa.gov/sites/default/files/2019-12/documents/to-15a_vocs.pdf, last accessed 2/18/25.

Given the complex and technical nature of TO-15 testing, the Department originally proposed that it should only be conducted by a person who possesses sufficient specific education, training, and experience necessary to exercise professional judgment to develop opinions and conclusions regarding the presence of releases or threatened releases of VOCs. New York State Department of Environmental Conservation (“NYS DEC”) has adopted rules providing that such testing must be conducted by a “qualified environmental professional.” The rule requires that such a person must:

(1) hold a current professional engineer's or a professional geologist's license or registration issued by the State or another state, and have the equivalent of three years of full-time relevant experience in site investigation and remediation of the type detailed in this Part; or (2) be a site remediation professional licensed or certified by the Federal government, a state or a recognized accrediting agency, to perform investigation or remediation tasks consistent with department guidance, and have the equivalent of three years of full-time relevant experience.

6 NYCRR § 375.1.2(ak). Three of the comments noted that Industrial Hygienists and Certified Industrial Hygienists, among other types of environmental professionals, have the training and expertise to conduct TO-15 testing and indeed do conduct the bulk of such testing in the state. The commenters requested that other licensed professionals be added to those allowed to conduct TO-15 testing pursuant to the Department’s rules.

After consideration of the comments received, the Department will add Certified Industrial Hygienists to the professionals eligible to conduct TO-15 VOC testing pursuant to these rules. Individuals are certified in this field by the Board for Global EHS Credentialing, which requires a rigorous eight-part process.¹¹ The Department is not adding other professionals because, should the test indicate VOC levels above those set, follow up evaluation and remediation will be required to meet the standards established herein. Testing of VOC samples collected must be conducted by laboratories certified by the New York State Environmental Laboratory Approval Program to analyze air samples for volatile organic compounds. Certification of the results must be by a Qualified Environmental Professional.

Certification Format

The certifications required by these rules for submission to DOB pursuant to Building Code Sections U202.9 and U202.10 must be on forms provided by the Department. This requirement will streamline the review and approval process for the public and administrators alike.

The amendment is as follows:

“Shall” and “must” denote mandatory requirements and may be used interchangeably in the rules of this Department, unless otherwise specified or unless the context clearly indicates otherwise.

¹¹ The process is detailed online at: <https://gobgc.org/cih/>.

New material is underlined.

Section 1. Title 24 of the Rules of the City of New York is amended by adding a new chapter 40, to read as follows:

Chapter 40: Certification of Radon and Other Vapors Levels in Certain Basement and Cellar Apartments

§ 40-01. Scope and applicability.

This chapter applies to the certification for permissible maximum radon and other vapor levels in basement or cellar apartment units as required by section 28-507.4.5.2 of the Administrative Code and sections U202.9 and U202.10 of Appendix U of the New York City Building Code (Chapter 8 of Title 28 of the Administrative Code).

§ 40-02. Definitions.

Terms used in this chapter have the same meanings as the terms defined in section 28-507.1 of the Administrative Code and in Appendix BC U102 of Appendix U of the New York City Building Code. In addition, the following definitions shall apply:

“Certification” means the certification described in sections U202.9 or U202.10 of Appendix U of the New York City Building Code.

“Certified Industrial Hygienist” means an individual certified as such by the Board for Global EHS Credentialing.

“Department” means the Department of Health and Mental Hygiene.

“Qualified Environmental Professional” has the same meaning as such term is defined in 6 NYCRR 375-1.2(ak).

“Qualified radon tester” means an individual or firm certified as such by the American Association of Radon Scientists and Technologists, the National Radon Safety Board, the State of New Jersey, or the Commonwealth of Pennsylvania.

§ 40-03. Methods of indoor air testing.

All indoor air samples must be tested and reported by a laboratory certified by the New York State Environmental Laboratory Approval Program to analyze air samples for radon and volatile organic compounds using the appropriate sampling method:

(a) Radon.

Testing of indoor air for radon must be conducted by a qualified radon tester using a testing device approved by the National Radon Proficiency Program, the National Radon Safety Board, or an equivalent program that verifies device compliance with the latest publication of ANSI/AARST (Performance Specification for Instrumentation Systems Designed to Measure Radon Gas in Air).

(b) Volatile Organic Compounds.

Testing of indoor air for the volatile organic compounds listed in section 40-06 must be conducted by a Certified Industrial Hygienist or Qualified Environmental Professional using the process described in United States Environmental Protection Agency, Method TO-15A: Determination of Volatile Organic Compounds (VOCs) in Air Collected in Specially Prepared Canisters and Analyzed by Gas Chromatography–Mass Spectrometry (GC-MS), Sept. 2019.

§ 40-04. Radon level certification.

The radon level in any eligible basement or cellar apartment or ancillary dwelling unit must be less than two picocuries per liter of air based upon laboratory results as certified by a qualified radon tester.

§ 40-05. Volatile organic compound vapor level certification.

The indoor air levels for the following volatile organic compounds must be less than the limit for each such compound set in the table below, as certified by a Qualified Environmental Professional:

<u>Compound</u>	<u>Limit (µg/m³)</u>
<u>Tetrachloroethene</u>	<u>30</u>
<u>Trichloroethene</u>	<u>2</u>
<u>Methylene chloride</u>	<u>60</u>
<u>Vinyl chloride</u>	<u>0.2</u>
<u>Carbon tetrachloride</u>	<u>1</u>
<u>1,1-dichloroethene</u>	<u>1</u>
<u>1,1,1-trichloroethane</u>	<u>10</u>
<u>Cis-1,2-dichloroethene</u>	<u>1</u>
<u>Benzene</u>	<u>10</u>
<u>Toluene</u>	<u>50</u>
<u>Ethylbenzene</u>	<u>10</u>
<u>o-Xylene</u>	<u>10</u>
<u>m,p-Xylene</u>	<u>20</u>
<u>Naphthalene</u>	<u>10</u>
<u>Cyclohexane</u>	<u>10</u>
<u>2,2,4-Trimethylpentane</u>	<u>10</u>
<u>1,2,4-Trimethylbenzene</u>	<u>10</u>
<u>1,3,5-Trimethylbenzene</u>	<u>10</u>
<u>Heptane</u>	<u>20</u>
<u>Hexane</u>	<u>20</u>

§ 40-06. Submission of certification.

The certifications of the qualified radon tester and the qualified environmental professional who conducted or reviewed the indoor air testing pursuant to this chapter must be submitted on the forms provided by the Department to, and as required by, the Department of Buildings.



NEW YORK CITY DEPARTMENT OF
HEALTH AND MENTAL HYGIENE
Michelle Morse, MD, MPH
Acting Commissioner

Statement of Substantial Need for Earlier Implementation

I hereby find, pursuant to section 1043(f)(1)(c) of the New York City Charter, and represent to the mayor, that there is a substantial need for earlier implementation of new rules for certification of radon and other vapor levels in certain basement and cellar apartments upon the publication of their Notice of Adoption in the *City Record*. The new rules will be set forth in Chapter 40 of Title 24 of the Rules of the City of New York.

Local Law 127 of 2024 requires the Department of Health and Mental Hygiene ("the Department") to promulgate standards for radon and other vapor levels in basement and cellar apartments created as ancillary dwelling units ("ADUs"). The new Chapter 40 rules establish the maximum levels of radon and vapors in the indoor air of basement and cellar units, the qualifications of individuals or firms conducting the radon and vapor testing, the type of laboratory qualified to analyze the air samples, and the certification form required. Local Law 126 of 2024 authorizes a program to legalize occupancy of existing basement and cellar dwelling units in certain community districts. Among the program requirements is certification that the unit has been tested and meets the Department's standards for radon and soil vapors as set for ADUs within one year.

Both local laws went into effect on June 16, 2025. Implementation of these new rules upon publication is therefore necessary to ensure that the requirements of both laws can be met by new ADUs and those seeking to begin the process of legalizing basement and cellar unit in a timely manner.

A handwritten signature in black ink, appearing to read "Michelle Morse", written over a horizontal line.

Michelle Morse
Acting Commissioner

DATE: 9/30/25

APPROVED: A handwritten signature in black ink, appearing to read "Eric Adams", written over a horizontal line.

Eric Adams
Mayor

DATE: 9.30.25