ENVIRONMENTAL LAW INSTITUTE

Radon in Child Care

Review of State Policies

JULY 2021

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Part 1: Background

Across the United States, millions of young children spend their days in licensed child care facilities.[1] Child care licensing standards currently in place throughout the country cover a wide array of elements – from staff qualifications to program curriculum and nutrition. Licensing rules also typically address a variety of issues relating to the safety of the physical premises, including measures to address potential indoor environmental hazards. Reducing indoor environmental exposures is vital to protecting the health and wellbeing of children – who are especially vulnerable to the effects of pollutants – and of the early childhood professionals who care for them.[2]

The purpose of this report is to provide information about how states have addressed one indoor air contaminant that may pose serious health risks for children and child care staff: radon. A number of states have incorporated radon requirements into their laws and regulations governing child care facilities. These policies provide an important starting point for the many other states around the country that can benefit from establishing measures to reduce radon exposure.

The coronavirus pandemic has highlighted the central role of child care in our society – both in supporting the healthy development of young children and in enabling parents to remain in the workforce. At the same time, the pandemic has exacerbated a chronic shortage of affordable child care.[3] Although not the focus of this report, a central consideration in establishing radon and other facility standards is developing the financial and technical assistance resources needed to help child care providers identify and address health and safety hazards.

[1] Prior to the coronavirus pandemic, an estimated 10 million children were cared for by approximately 2 million early childhood educators. See U.S. Dept. of Health & Human Svcs., The Decreasing Number of Family Child Care Providers in the United States (Dec. 2019), https://www.acf.hhs.gov/occ/news/decreasing-number-family-child-care-providers-united-states; Univ. of Cal. Berkeley, Center for the Study of Child Care Employment (CSCCE), Early Childhood Workforce Index (Exec. Summ.) at 4 (2018), https://cscce.berkeley.edu/wp-content/uploads/2018/06/1-Executive-Summary.pdf. The pandemic has caused many child care providers to close either temporarily or permanently. See Univ. of Cal. Berkeley, CSCCE, Early Childhood Workforce Index 2020 at 16, https://cscce.berkeley.edu/workforce-index-2020/wp-content/uploads/sites/2/2021/02/Early-Childhood-Workforce-Index-2020.pdf.

[2] See U.S. Environmental Protection Agency (EPA), America's Children and the Environment at 4 (2019), https://www.epa.gov/sites/production/files/2019-10/documents/ace2019-v17s.pdf ("children may be more highly exposed to contaminants, and…are often more vulnerable to the toxic effects of contaminants"). Early childhood educators are predominantly women and often women of color. Univ. of Cal. Berkeley, CSCCE, Early Childhood Workforce Index 2020 (Key Findings), https://cscce.berkeley.edu/workforce-index-2020/introduction-policy-recommendations/key-findings/.

[3] See Child Care Aware of America, Checking in on the Child Care Landscape: 2019 State Fact Sheets, https://cdn2.hubspot.net/hubfs/3957809/State%20Fact%20Sheets%202019/2019StateFactSheets-Overview.pdf; Center on Budget and Policy Priorities and Center for Law and Social Policy, Child Care and Housing: Big Expenses with Too Little Help Available (2019), https://www.cbpp.org/research/housing/child-care-and-housing-big-expenses-with-too-little-help-available.

Identifying and Addressing Radon Problems in Buildings

Radon is a naturally occurring, radioactive gas produced by the breakdown of uranium in soil, rock, and water. Radon can move from the ground into the air inside a child care facility or other building through cracks and other openings in the foundation. A small amount of radon in indoor air may come from radon that accumulates in well water that is used for showering, washing dishes, or cooking. Radon in drinking water – not discussed here – is another exposure risk, though smaller than the risk of inhaling radon in indoor air.[4]

Radon can become concentrated in any type of building. Though radon problems are more prevalent in some areas of the country, elevated indoor radon levels have been found in every state.[5]

Radon Health Risks. There is wide agreement among public health officials and scientists about the potential health consequences of indoor radon exposure for smokers and non-smokers alike. Indoor exposure to radon is the second leading cause of lung cancer in the U.S. and the leading cause among nonsmokers. According to the U.S. Environmental Protection Agency (EPA), radon is responsible for an estimated 21,000 lung cancer deaths in the country each year, including around 2,900 deaths among people who have never smoked.[6]

As radon decays, radioactive particles are released and may be inhaled by building occupants. Inhaling radon over a period of years increases lung cancer risk; the higher the radon levels, the greater the risk.[7] According to the American Lung Association, the five-year survival rate for lung cancer is lower than that of many other leading types of cancer, and more than half of people with lung cancer die within one year of being diagnosed.[8]

Fortunately, there are techniques to effectively identify and remediate elevated indoor radon levels and thus reduce building occupants' exposure to the radioactive gas.

*Radon Testing and Mitigation***.** Because you cannot see, smell, or taste radon gas, the only way to know the radon level in a particular building is to test the building for radon. Radon levels can vary from one building to the next, so it is not enough to know the level next door or elsewhere in a neighborhood. EPA recommends testing a home in the lowest lived-in level.[9]

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[4] EPA, A Citizen's Guide to Radon at 4, 8 (2016), https://www.epa.gov/sites/default/files/2016-12/documents/2016_a_citizens_guide_to_radon.pdf. In a small number of homes, radon emanating from building materials may also contribute to indoor radon levels. Id.

[5] Id. at 3.

[6] EPA, Health Risk of Radon, https://www.epa.gov/radon/health-risk-radon.

[7] EPA, A Citizen's Guide to Radon at 11 (2016), https://www.epa.gov/sites/production/files/2016-12/documents/2016_a_citizens_guide_to_radon.pdf.

[8] American Lung Assoc., Lung Cancer Fact Sheet, https://www.lung.org/lung-health-diseases/lung-disease-lookup/lung-cancer/resource-library/lung-cancer-fact-sheet. See also American Lung Assoc., Radon, https://www.lung.org/clean-air/at-home/indoor-air-pollutants/radon.

[9] EPA, A Citizen's Guide to Radon at 6 (2016), https://www.epa.gov/sites/production/files/2016-12/documents/2016_a_citizens_guide_to_radon.pdf.

When done properly, testing can accurately measure indoor radon levels.[10] There are two general types of radon tests: short-term tests measure radon levels for as little as two days and up to 90 days, while long-term tests remain in place for more than 90 days.[11] Building owners and occupants can purchase radon test kits online or in home improvement stores and conduct the test themselves; alternatively, they can hire a qualified radon professional to carry out the testing.[12]

Because major renovations can change radon levels in a building, testing is recommended after such work is completed.[13] Some agencies and organizations recommend periodic testing every few years due to potential changes in environmental or building conditions.[14]

The EPA has established a radon "action level" of 4.0 picoCuries per liter of air (pCi/L) – the level at which a building owner should take action to reduce radon in the indoor air. This action level has been widely adopted in state radon policies and programs.[15] Because there is no known safe level of exposure to radon, EPA recommends that people also consider fixing their home or other building when radon levels are between 2.0 pCi/L and 4.0 pCi/L.[16] The Minnesota Department of Health defines radon mitigation as "any process or system used to reduce radon concentrations in buildings," with a goal of reducing indoor radon levels "as low as reasonably achievable."[17]

Radon mitigation techniques are well established, and installing a radon control system can lower radon levels effectively in most cases – by 50-99 percent, according to EPA.[18] The most common type of radon control system prevents radon from entering the building by drawing the radon from below the building

[10] EPA, Radon Frequently Asked Questions: Are Radon Measurements Accurate and Reliable?, https://www.epa.gov/radon/are-radon-measurements-accurate-and-reliable.

[11] EPA, A Citizen's Guide to Radon at 5 (2016), https://www.epa.gov/sites/production/files/2016-12/documents/2016_a_citizens_guide_to_radon.pdf.

[12] See EPA, Find a Radon Test Kit or Measurement or Mitigation Professional, https://www.epa.gov/radon/find-radon-test-kit-or-measurement-and-mitigation-professional. As EPA notes, some agencies and organizations offer low cost or free radon test kits.

[13] See EPA, A Citizen's Guide to Radon at 9 (2016), https://www.epa.gov/sites/production/files/2016-12/documents/2016_a_citizens_guide_to_radon.pdf.

[14] See, e.g., Minn. Dept. of Health, Radon Testing, https://www.health.state.mn.us/communities/environment/air/radon/radontestresults.html (recommending testing every 2-5 years and after changes to the foundation, heating, cooling or ventilation); Amer. Assoc. of Radon Scientists and Technologists, Current ANSI/AARST National Consensus Standards, available at: https://standards.aarst.org/ (recommending testing at least once every five years, and every two years to verify that an installed mitigation system is continuing to function effectively).

[15] For a listing of state policies addressing radon, see Environmental Law Institute, Database of State Indoor Air Quality Laws, https://www.eli.org/buildings/database-state-indoor-air-quality-laws.

[16] EPA, What is EPA's Action Level for Radon and What Does it Mean?, https://www.epa.gov/radon/what-epas-action-level-radon-and-what-does-it-mean; EPA, Health Risk of Radon, https://www.epa.gov/radon/health-risk-radon. The World Health Organization (WHO) has adopted a national annual average residential radon concentration reference level of 100 Becquerels per cubic meter (Bq/m^3 or **2.7 pCi/L**). WHO, Radon and Health, https://www.who.int/news-room/fact-sheets/detail/radon-and-health.

[17] Minn. Dept. of Health, Radon Mitigation Systems, https://www.health.state.mn.us/communities/environment/air/radon/mitigationsystem.html.

[18] EPA, Consumer's Guide to Radon Reduction at 16 (2016), https://www.epa.gov/sites/production/files/2016-12/documents/2016_consumers_guide_to_radon_reduction.pdf.

and venting it through a pipe to a discharge point above the building. These sub-slab depressurization systems may be active (including a fan to help draw radon out) or passive (not including a fan). Sealing cracks and other openings in the foundation to limit radon entry is a common adjunct to installing a radon control system.[19] Though not discussed here, radon control techniques for new building construction can effectively prevent dangerous levels of radon from accumulating in the building.[20]

EPA and other agencies generally recommend hiring a qualified radon professional to install a radon control system.[21] Many states require licensing or certification of those who conduct radon testing and mitigation, and there are also voluntary national certification programs through the National Radon Proficiency Program and the National Radon Safety Board.[22] The cost of a radon control system varies based on the type of building and system, but is considered to be in the general range of other common building repairs.[23]

In some cases, increasing ventilation may help dilute radon levels, as the entry of more outdoor air mixes with the air inside. A mechanical ventilation system can ensure a constant amount of outdoor air is provided to the home. While natural ventilation may be appropriate in some situations, it is only effective if the windows and doors remain open, which may not be feasible in many circumstances.[24]

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[19] EPA, Consumer's Guide to Radon Reduction at 8-11 (2016), https://www.epa.gov/sites/production/files/2016-12/documents/2016_consumers_guide_to_radon_reduction.pdf.

[20] See generally Minn. Dept. of Health, Radon-Resistant New Construction, https://www.health.state.mn.us/communities/environment/air/radon/radonresistant.html. See also Environmental Law Institute, Radon Control in New Home Construction (2012), https://www.eli.org/buildings/radon-control-new-home-construction-7 (providing an overview of state policies requiring radon control in new home construction).

[21] See EPA, Consumer's Guide to Radon Reduction at 4 (2016), https://www.epa.gov/sites/production/files/2016-12/documents/2016_consumers_guide_to_radon_reduction.pdf.

[22] See EPA, Who Should I Hire to Test or Fix My Home?, https://www.epa.gov/radon/find-radon-test-kit-or-measurement-and-mitigation-professional#who. See also Environmental Law Institute, Radon in Homes: Strengthening State Policy to Reduce Risk and Save Lives (2012), https://www.eli.org/buildings/radon-homes-strengthening-state-policy-reduce-risk-and-save-lives (providing an overview of state policies requiring licensing/certification).

[23] EPA, Consumer's Guide to Radon Reduction at 2 (2016), https://www.epa.gov/sites/production/files/2016-12/documents/2016_consumers_guide_to_radon_reduction.pdf. See also, e.g., Ill. Dept. of Public Health, Radon, https://dph.illinois.gov/topics-services/environmental-health-protection/toxicology/indoor-air-quality-healthy-homes/radon-faqs (estimating a cost range of $800-$1,200); N.J. Dept. of Environmental Protection, Radon Testing and Mitigation: The Basics, https://www.nj.gov/dep/rpp/radon/radontes.htm (estimating an average price of $1,200 and a range of $500-$2,500); Minn. Dept. of Health, Radon Mitigation Systems, https://www.health.state.mn.us/communities/environment/air/radon/mitigationsystem.html (estimating a price range of $1,500-$2,500).

[24] See EPA, Consumer's Guide to Radon Reduction at 12 (2016), https://www.epa.gov/sites/production/files/2016-12/documents/2016_consumers_guide_to_radon_reduction.pdf. See generally, EPA, Improving Indoor Air Quality: Improved Ventilation, https://www.epa.gov/indoor-air-quality-iaq/improving-indoor-air-quality#Ventilation_Improvements.

Standards of Practice for Radon Measurement and Mitigation

Third-party voluntary consensus standards that set forth best practices for conducting radon testing and mitigation can help inform policy and practice, and they have been adopted by many states that regulate radon services. EPA recommends that state, tribal, and local policymakers reference these standards to "help ensure public health protection by incorporating current science and technology, as well as potentially reducing marketplace confusion."

On its website, EPA references several standards established through an American National Standards Institute (ANSI) consensus-based process led by the American Association of Radon Scientists and Technologists (AARST). These ANSI/AARST standards, which are available to view online for free, include minimum requirements and guidance for conducting radon measurement and mitigation in single-family buildings, multifamily buildings, and schools/large buildings.

The ANSI/AARST mitigation standards provide detailed procedures and considerations for installing radon control systems, while the radon testing standards address key elements such as the use of approved devices, placement/location of devices, and building conditions to be maintained during testing.

Sources:

- U.S. EPA, Guidance on the Use of Voluntary Consensus Standards for State Indoor Radon Grant Recipients (2019), https://www.epa.gov/sites/production/files/2019-08/documents/august_2019_sirg_vcs_program_guidance_-epa402-b19-080.pdf.
- U.S. EPA, Current Radon Standards of Practice, https://www.epa.gov/radon/radon-standards-practice.
- AARST, Current ANSI/AARST National Consensus Standards, https://standards.aarst.org/.

Policy Framework for Reducing Radon Risks in Child Care

Federal Child Care Regulations

Although regulation of child care facilities is primarily a state, local, and tribal responsibility, federal regulations establish requirements that apply to providers who accept federal child care funds. Two of the main sources of federal funding are the Child Care and Development Fund program and the Head Start program, both run by the Administration for Children and Families of the U.S. Department of Health and Human Services. Neither program has adopted explicit radon requirements, though program regulations include related health and safety standards.

The Child Care and Development Fund (CCDF) is the largest federal funding program supporting the provision of child care services. The CCDF program helps working families with low incomes obtain child care by providing funds to states, tribes, and territories, which in turn distribute the funding within their jurisdictions. The CCDF law and regulations require states receiving funds to certify that they have,

among other things, requirements "that are designed, implemented, and enforced to protect the health and safety of children" and that apply to providers serving children who receive CCDF subsidies. The requirements must address "building and physical premises safety, including identification of and protection from hazards, bodies of water, and vehicular traffic."[25]

Head Start and Early Head Start programs promote school readiness of children aged five and younger from families with low incomes. All Head Start facilities must comply with federal program regulations, which include certain general health and safety standards. For example, grantees must have a system for ensuring that all facilities where children are served are "free from pollutants, hazards and toxins that are accessible to children and could endanger children's safety."[26]

State Laws and Regulations

States address radon through different areas of regulatory authority. The most common approach is to establish radon requirements within the framework of child care licensing.

Child Care Licensing. All 50 states and the District of Columbia – along with many tribes and local governments – require licensing of child care facilities and have established programs to oversee a wide range of licensing requirements, including environmental health and safety standards. Child care licensing requirements vary from state to state, and within a state the requirements often differ somewhat based on the size and type of facility. Licensed child care may be center-based (typically located in a non-residential building) or home-based (located in a residential building and often referred to as family child care). This report describes policies addressing both types of facilities.

Child care licensing is overseen by a state agency – health, education, social/human services, children/family services or other department – which often has local or regional offices that help administer the program. State laws establish the basic criteria and process for obtaining a child care license and may set forth certain operating requirements and standards for licensees.

Administrative regulations implementing the child care licensing law establish more detailed provisions and are updated periodically, pursuant to state laws governing the administrative process. Regulations typically include requirements for obtaining and renewing a license, minimum criteria for operating the child care facility, and oversight and enforcement mechanisms for ensuring compliance. Physical facility standards are one of several core components of state licensing regulations, which both delineate facility-related requirements and reference other federal, state, and local rules.

Other written policy documents are developed by licensing agencies to aid in the administration of statutory and regulatory requirements. For example, agencies develop license application forms, which may include information necessary for the agency to determine whether the facility complies with regulatory standards. Agencies also develop guidance documents and other educational materials that

[25] 45 Code Fed. Regs. (C.F.R.) 98.41(a). See generally U.S. Dept. of Health & Human Services, Introduction to the Child Care and Development Fund (CCDF), https://childcareta.acf.hhs.gov/ccdf-fundamentals/introduction-child-care-and-development-fund-ccdf.

[26] 45 C.F.R. §§1302.47(b). See generally U.S. Dept. of Health & Human Services, About the Office of Head Start, https://www.acf.hhs.gov/ohs/about.

explain the meaning of certain regulatory provisions and provide related background information to assist licensed facilities in achieving compliance.

Health and Sanitation Codes. In addition to child care licensing regulations, some states have health or sanitation codes that apply to child care facilities. These rules are implemented by state and/or local health agencies, and they generally involve separate inspections and approvals. In some jurisdictions, the requirements in these health codes are focused largely on food service within the child care facility.

Radon Laws and Regulations. Many states have radon laws and regulations incorporating a range of strategies – e.g., radon control in new construction, radon professional licensing/certification, and radon notification/disclosure in real estate transactions. Though less common, some radon laws and regulations require radon testing and mitigation in child care or other facilities that are operated or regulated by the state. These policies are often adopted and implemented under public health, radiation control, or environmental protection authorities.[27] In addition to implementing radon policies, state, tribal, and local agencies carry out a variety of radon risk reduction activities.[28] EPA provides funding for state and tribal radon programs through the federal State Indoor Radon Grants (SIRG) program.[29]

Health and Safety Standards of Practice for Child Care

Third-party voluntary standards can inform the development of child care health and safety policies and practices. A widely-referenced health and safety standard is *Caring for Our Children: National Health and Safety Performance Standards; Guidelines for Early Care and Education Programs* (4th Edition), a joint publication of the National Resource Center for Health and Safety in Child Care and Early Education, the American Academy of Pediatrics, and the American Public Health Association.

Caring for Our Children (CFOC) includes hundreds of best practices standards, including one addressing radon specifically: *Radon concentrations inside a home or building used for child care must be less than four picocuries (pCi) per liter of air. All facilities must be tested for the presence of radon, according to U.S. Environmental Protection Agency (EPA) testing protocols for long-term testing (i.e., greater than ninety days in duration using alpha-track or electret test devices). Radon testing should be conducted after a major renovation to the building or HVAC system*. CFOC 5.2.9.4 (Radon Concentrations).

More information about the standards, including how they are developed and updated, is available at https://nrckids.org/CFOC.

[27] ELI tracks and discusses state radon policy through an online database and other materials. See Environmental Law Institute, Publications by Topic: Radon, https://www.eli.org/buildings/publications-topic#radon.
[28] See generally, Conference of Radiation Control Program Directors, https://www.crcpd.org/mpage/RadonMap.
[29] EPA, State Indoor Radon Grants (SIRG) program, https://www.epa.gov/radon/state-indoor-radon-grant-sirg-program.

Scope of the Report

This report provides information for policymakers, agency officials, advocates, and others who work to advance policies and practices that promote health and safety in child care. The report focuses on state policies, but the information may also be useful to tribes and localities that license child care facilities, as well as to federal agencies that establish health and safety standards for their child care programs.

The report describes 10 state policies that require radon testing and/or mitigation in licensed child care facilities. The report does not aim to present an exhaustive listing of state radon-related requirements for child care, and there may be other relevant state policies beyond those reviewed here. For example, the report does not discuss a New Hampshire rule that requires child care providers to address known radon hazards but does not require – and is not currently implemented to require – that providers test for radon to find out if there is a radon hazard.[30] Nor does the report discuss general health and safety standards found in many state laws and regulations – e.g., requirements to address or eliminate "hazards" – that could be applied to require child care providers to address known radon problems.

The state policies reviewed in the report:

- Incorporate express radon requirements into *laws or regulations*, with one exception (New York).
- Include *mandatory* radon testing provisions. The report does not discuss education and other activities to promote voluntary radon testing/mitigation, such as recent initiatives in Wisconsin, Idaho, and other states to create voluntary property checklists that help child care license applicants identify and address radon and other potential environmental site hazards.[31] Nor does the report discuss state programs that recognize providers who voluntarily adopt practices that exceed existing regulatory standards – e.g., as part of a state's Quality Rating and Improvement System (QRIS).[32]
- Address radon in *existing buildings*. The report does not discuss state requirements for radon control in new construction, which could apply to the construction of certain child care facilities.
- Govern child care that is provided for very young children in *residential or non-residential buildings* and that is *licensed* by the state. The report does not address whether the requirements apply to school-age or school-based child care facilities, nor does the report include requirements related to residential care facilities where children live.

The remainder of the report consists of three sections. Part 2 provides an overview of the 10 state policies included in the report, while Part 3 offers suggested considerations for policymakers in addressing key policy elements. The Appendix includes short summaries of each of the 10 policies.

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[30] N.H. Code Admin. Rules He-C 4002.14(i) ("When there is information indicating that the building or water supply may contain radon hazards, programs shall submit evidence that the building has been inspected by a licensed radon inspector and is free of radon hazards or submit a plan of action to reduce or eliminate any existing contamination to be approved by the department"); ELI Communications with N.H. Dept. of Health & Human Services Officials (May 2021).

[31] Wis. Dept. of Health Services, Voluntary Property Checklist for Child Care Providers, https://www.dhs.wisconsin.gov/forms/f02410.pdf; Idaho STARS, Choose Safe Places for Early Care and Education, Idaho Early Childcare Property Checklist, https://idahostars.org/portals/61/Docs/Providers/CCHC/CSP_PropertyChecklist.pdf.

[32] See U.S. DHHS, Admin. for Families & Children, QRIS Resource Guide. A leading *non-governmental* voluntary accreditation program for child care includes radon testing/mitigation as a recommended best practice. Natl. Assoc. for the Educ. of Young Children, NAEYC Early Learning Program Accreditation Standards and Assessment Items at 111 (2019).

Part 2: Overview of Existing Policies

This section of the report presents an overview of 10 state policies that require radon testing of licensed child care facilities, focusing on several key policy elements: the area of regulatory authority and implementing agency; the types of licensed child care facilities covered; radon testing; radon mitigation; and radon documentation and notification. This part closes by noting some of the administrative tools – e.g., licensing forms and guidance materials – developed by state agencies to facilitate implementation of the requirements. The Appendix provides summaries of each policy.

10 State Policies Reviewed in the Report

Colorado	Iowa
Connecticut	Michigan
Delaware	New Jersey
Florida	New York
Illinois	Rhode Island

The following information is based mainly on a review of state laws, regulations, and guidance documents. Citations and links to these sources are provided in the Appendix. The overview also reflects communications with agency officials in each of the 10 states.

Area of Regulatory Authority/Implementing Agency

In eight of the states reviewed, the radon requirements are incorporated into the state's child care licensing rules, and the licensing agency has authority to implement the requirements. In two of these eight states, the radon requirements are also included in public health laws or regulations – either as radon control (RI) or environmental health (NJ) measures – and those public health agencies also play a role in implementation.

In the other two states reviewed, the radon requirements are not part of the child care licensing rules, but rather are included only in public health laws/regulations, and public health agencies are responsible for implementation – either through the radon control program (FL) or through the child care health/sanitation program (CO).

Licensed Child Care Facilities Covered by the Requirements

Radon policies in six of the 10 states cover both center-based and home-based child care facilities. Of the other four states, three (CO, IA, NJ) only require testing in center-based facilities, while Michigan only requires testing in home-based child care.

A few states further limit the requirements to facilities that have certain characteristics. Two states (FL, NY) limit the requirements to covered facilities that are also located in specified geographic areas based on average radon potential. Three states (CT, FL, IA) limit the requirements to covered facilities that use lower levels of the building, such as the basement, ground level, or first floor.

Radon Testing

All 10 states require radon testing, though the details of the requirements vary somewhat.

Testing Frequency. All of the states require radon testing in connection with initial licensing of a facility (and within a specified period of time for facilities that were already licensed when the state radon testing requirements were adopted). Six of the states reviewed also require periodic testing at designated intervals following initial testing – every five years (DE, NJ), four years (MI), three years (IL, RI), or two years (IA). Florida requires one additional round of testing five years after initial testing.

The radon testing rules in three of the 10 states (CO, DE, FL) indicate that additional testing is or may be required in connection with facility renovations, while licensing guidance in Iowa and New York indicate that testing may be required in those situations.

Testing Procedures. For the most part, child care providers in the 10 states reviewed here may conduct the required radon testing themselves or hire a professional**.**

State child care licensing policies generally do not require child care providers to hire a qualified professional to conduct radon testing. However, six of the states (CO, FL, IL, IA, NJ, RI) have separate laws and regulations that require state licensing or certification of those who conduct radon measurements. All six of these policies include exemptions for people who test properties that they own and/or occupy. Thus, depending on the specific provisions of a state's radon professional licensing law/rules – e.g., Rhode Island's rules and Colorado's new law limit the licensing exemptions to *residential* property owners/occupants – certain child care providers might qualify for an exemption and be allowed to conduct radon tests in their child care home or center.

State radon professional licensing rules also typically require licensed professionals to comply with third-party and/or state-approved testing procedures. Apart from any such professional licensing requirements, nearly all of the states reviewed here have established mandatory or recommended procedures for conducting required radon testing in child care. In Rhode Island, mandatory testing protocols are included within the radon testing rule itself, while in Florida and Colorado the radon testing law/rules reference separate state testing guidance and/or third-party protocols that are to be used. In other states, the radon testing rules do not reference specific testing protocols, but state agencies have published guidance setting forth procedures to be followed in conducting the tests.

The testing procedures outlined in state laws, rules, and guidance documents vary among the 10 states, but they address a similar set of items, including the type of test, where to place test kits, testing conditions, interpretation of results/next steps, and where to obtain additional information or test kits. Links to each state's rules and guidance documents are provided in the Appendix.

Radon Mitigation

Most – but not all – of the policies reviewed here include an express requirement for mitigation of elevated radon levels.

Mitigation Requirement. Seven of the 10 states have laws or regulations that explicitly require mitigation when radon levels in child care equal and/or exceed 4.0 pCi/L (CT, DE, IA, MI, NY, NJ, RI). In most cases, these provisions are straightforward. In states that lack an express mitigation requirement, child care rules may already include a general facility health and safety standard that could be applied if radon testing reveals elevated levels. In Colorado, e.g., the child care sanitation rules establish that the "building...shall not pose a health hazard to children enrolled." In Florida, child care buildings must be "maintained in a safe condition," and in Illinois, the "building and indoor space…shall provide a safe, comfortable environment for the children."

Mitigation Procedures. The child care licensing policies reviewed here generally do not require that providers hire a professional to conduct radon mitigation. Several of the states reviewed have separate laws and rules requiring licensing/certification of those who perform radon mitigation (CO, CT, FL, IL, IA, RI, NJ). As with radon testing, however, the rules typically include exemptions for a person who mitigates a building they own or occupy. Thus, in some cases, child care providers themselves may be allowed to conduct mitigation on their child care home or center.

Radon professional licensing/certification rules commonly include or reference third-party or state-adopted mitigation protocols that must be followed by the credentialed radon professionals. Apart from any such requirements, state rules that require radon mitigation in child care facilities typically do not specify the procedures that must be followed. In Delaware, the child care licensing rules require that mitigation be carried out according to "industry standards." A few states, including Michigan, include information about radon mitigation in radon guidance developed specifically for child care providers. Other states, including Illinois, have published information about radon mitigation for the general public. Links to each state's rules and guidance documents are included in the Appendix.

Radon Documentation and Notification

All states have child care licensing programs that incorporate regular compliance reviews of licensed facilities. These reviews are the primary mechanism for overseeing radon testing and mitigation requirements in most of the states reviewed here.

Review of Radon Documentation. States oversee compliance with radon testing and mitigation requirements primarily by requiring child care providers to submit to the state documentation of radon test results (e.g., radon laboratory reports) and/or to maintain this information on site at the facility.

Most of the 10 states review and verify the radon testing documentation in connection with the issuance of a child care license. This review is undertaken during an on-site inspection of the facility (or

in some cases, a file review at the agency offices) that also reviews compliance with a range of other licensing requirements. Inspectors typically check both the date and results of the radon test; less commonly, they may also review which rooms were tested.

For new child care facilities, most of the states require proof of acceptable radon testing prior to issuance of the initial license. In some cases, child care providers may be given a period of time after the initial license is issued to complete the testing. For example, in Colorado – where radon testing is not overseen by the child care licensing agency – the Department of Public Health and Environment carries out a pre-licensing health and sanitation inspection but allows providers six months following the inspection to complete radon testing; compliance is reviewed at the next facility inspection.

For existing child care facilities, most states check to make sure radon documentation is up to date and in compliance with regulations during regular facility inspections, which in some states occur as often as annually. These inspections may be linked to license renewals and/or they may occur more frequently.

Notification to Families/Guardians. Another oversight tool used by several states is the requirement to notify families of radon test results. Connecticut, Illinois, and New Jersey require posting of radon results at the child care facility. Illinois goes further by requiring the radon results to be accompanied by a radon statement specified in the law, with language noting radon health effects, the state recommendation for mitigation when radon levels are 4.0 pCi/L or higher, and where to get more information. Regulations in Michigan and Rhode Island do not require posting, but they do require generally that providers notify families of children in care if testing reveals elevated radon levels. In Florida, radon testing reports required to be submitted to the Department of Health are public records, and the agency posts them online.

Implementation Tools

All of the states reviewed here have created administrative forms, as well as agency guidance materials to assist in implementing their radon testing and mitigation requirements for child care providers.

Administrative Forms. A few of the states have incorporated information into their license application forms and checklists in order to make prospective providers and license renewal applicants aware of the radon requirements. Michigan also includes information about the radon requirements in agency presentation slides used during orientation sessions for new family and group family child care providers.

Some states have incorporated the radon requirements into a form or checklist used by child care facility inspectors to document compliance with licensing requirements. Other radon-related forms developed by agencies include a form for reporting radon testing results (FL), and a form for posting radon test results at the child care facility (IL).

Agency Guidance Materials. Most of the states reviewed here have developed guidance for child care providers – typically short fact sheets – on how to conduct radon tests. Colorado has developed a thirty-minute online training for child care providers on how to conduct radon testing. A few states include limited information about radon mitigation along with the radon testing information. Illinois is an example of a state radon program that has developed detailed information on radon mitigation for the general public.

Unlike the other states reviewed in the report, New York establishes the details of its radon testing and mitigation requirements mainly through guidance, which implements a general regulatory requirement that child care centers be "free from environmental hazards." New York's guidance implementing this requirement directs facilities in certain radon zones to test for and mitigate elevated radon levels.

Part 3: Considerations for Developing Policies

The 10 states described in this report have taken important steps to address a potential indoor environmental hazard in child care facilities. Many other states can improve public health by establishing policies to address radon risks in child care, and they have a regulatory framework already in place to do so.

There are many technical elements of a policy to identify and mitigate radon hazards in licensed child care facilities, and a variety of practical and institutional factors will influence how the policy is shaped and implemented in a particular jurisdiction. The remainder of this section highlights some of the important items for policymakers to consider in addressing the core elements of a radon policy.

Area of Regulatory Authority/Implementing Agency

- All 50 states and the District of Columbia – along with many local governments and tribes – require licensing of child care facilities and have programs that oversee a wide range of licensing requirements, including environmental health and safety standards. The revision of existing child care licensing regulations – which occurs periodically in most states – presents an opportunity to establish or strengthen radon testing and mitigation provisions. In states where radon testing and mitigation requirements for child care are adopted through radon control laws and regulations, those requirements can be referenced in child care licensing rules and integrated with the licensing process in order to facilitate implementation.

- Coordination among state agencies is critical to both developing and implementing an effective radon policy for licensed child care. Radon control and other public health and environmental programs have an important role to play in providing technical guidance and support on radon testing and mitigation to child care licensing agencies and to child care professionals. In addition, multiple state agencies may manage funding programs that could potentially be implemented – in their current form or in an expanded form – to support radon testing and mitigation at child care facilities.

Licensed Child Care Facilities Covered by the Requirements

- Because radon can accumulate in any type of building, policymakers should consider applying radon requirements to licensed child care facilities located in both residential and non-residential spaces.

- Most existing policies apply radon requirements throughout the state, rather than in specified radon "zones" (e.g., counties, cities, towns) based on average radon potential. This is important, because the data used to create radon zones can become outdated quickly, and even where the zone designations are based on robust data, buildings with elevated radon levels may be found in zones that are not designated as having high radon potential.

- A policy limiting radon requirements to facilities that use certain levels of a building – e.g., the basement, ground level, or first floor – can be difficult to implement and may exclude child care facilities that have elevated radon levels despite being located on a higher floor in the building. Instead, rules or guidance documents can identify which areas of the facility need to be tested.

Radon Testing

- In addition to requiring radon testing when a child care facility is first licensed, most of the policies reviewed here take the notable step of requiring periodic testing at specified intervals in the future and/or in conjunction with building renovations that may affect radon levels.

- It is essential that policies incorporate measures to help ensure the required radon testing is done properly. While many states in the U.S. require licensing or certification of those who conduct radon testing, the policies typically include exemptions for people who test properties they own and/or occupy. Third-party professional radon testing of child care facilities can improve reliability and increase the credibility of the testing report. However, funding options to offset the potential financial impact of third-party testing – especially on those who provide *home-based* child care – should be addressed as part of any policy requirement.

- Regardless of who carries out radon testing in child care, states should establish clear testing procedures that are consistent with the most protective state, federal, and/or industry radon measurement protocols and that address key testing practices – e.g., the use of approved testing devices, which spaces to test, how to place devices, conditions to maintain during the test, and when re-testing is recommended.

- In states that require licensing/certification of those who test for radon, the radon program is responsible for overseeing compliance with testing protocols and other credentialing requirements. To facilitate oversight by child care licensing agencies, those carrying out required radon testing in child care facilities could be required to complete and submit to the agency a checklist that tracks required testing procedures.

Radon Mitigation

- In order to ensure that elevated radon levels are reduced, policymakers should follow the lead of most of the states described here and include an express requirement for providers to take action to reduce radon levels to below 4.0 pCi/L (or a lower action level set by the state) when testing reveals elevated levels. Although more general health/safety standards in child care licensing rules could potentially be applied to require providers to address elevated radon levels, an explicit provision is important for clarifying provider responsibilities and facilitating agency oversight. Licensing rules or agency guidance can further clarify the time frames for conducting mitigation and for submitting evidence of acceptable radon levels following mitigation.

- Where a mitigation system is needed to achieve acceptable radon levels, policymakers should consider requiring that the system be installed by a qualified professional in a manner consistent

with state, federal, and/or industry radon mitigation protocols. Such protocols also include key recommendations for proper operation, maintenance, and monitoring of the system. Many states require licensing or certification of those who conduct radon mitigation, though some of the policies exempt people who mitigate their own properties.

Radon Documentation and Notification

- Oversight of compliance with radon testing and mitigation requirements for child care is a critical policy element and should include both (1) requiring submission of all radon test results, and (2) verifying required radon documentation either through file review at the agency or through on-site inspections at the child care facility. When any radon test results are at or above the specified action level, the agency can request additional information about what measures were taken to reduce radon levels.

- Where radon requirements are incorporated into child care licensing rules, the licensing agency can verify that a facility meets the radon requirements prior to issuing an initial license or as soon thereafter as feasible. Verification of future periodic testing at specified intervals can be coordinated with the regular inspection schedule and/or license renewal process, and addressing testing in connection with remodeling can be linked to plan review or other agency approvals that are required for such activities.

- Given the wide range and large number of items that are checked during regular child care inspections, it may be helpful to streamline radon compliance review to the extent possible. Some of the main items to review include the date of the most recent radon testing, the testing results, and the number and location of test devices deployed. Where radon test results are above the action level, the review can also include reports of any radon mitigation/remediation activities and any required posting or notification of radon test results. Requiring the radon tester to complete a checklist of radon testing procedures may help inspectors verify that required procedures were followed.

- A requirement that providers notify families/guardians and child care staff of radon levels in the facility is important, especially in situations where testing reveals elevated levels that have not been mitigated. In such cases, a state-approved notification letter provided directly to families/guardians and staff is likely to be more effective at conveying information than posting a notice at the facility.

- On a broader level, state analysis of radon testing results *across* child care facilities could help identify needed rule revisions, supplemental guidance, or other related program actions to reduce radon risks. Such analysis requires electronic records of test results and adequate agency resources to analyze the data. Both child care licensing and radon control agencies have a role to play in analyzing radon testing data, and in some jurisdictions, state-credentialed radon professionals and/or laboratories are required to submit radon testing and mitigation reports to the state radon program.

Implementation Tools

- Including line items describing radon requirements in the forms and checklists used during licensing inspections and file reviews can facilitate agency recordkeeping and promote consistency in verifying radon requirements.

- Education and outreach addressed specifically to child care providers is important in order to notify providers of the radon requirements and to offer information on radon testing and mitigation. States can communicate this information in a number of ways – e.g., through child care license application forms; presentations at orientation sessions for license applicants; video and in-person training materials for child care providers; and written guidance documents. This outreach can complement state radon education efforts directed to the general public and to parents/guardians of children in care.

- Financial assistance may be needed to help some providers comply with the radon requirements and to avoid reducing the availability of affordable child care. This is especially the case when a radon mitigation system is needed, but assistance may also be necessary if professional testing is required in some types of facilities or in certain situations. In addition to considering new legislative initiatives to fund radon testing and mitigation, states should review opportunities to leverage existing federal, state, and local funding programs. Having an express child care licensing requirement for radon testing and mitigation may make it easier to access federal and other funds for this purpose.[33]

[33] A 2018 Environmental Law Institute report describes selected federal and state programs that could potentially support environmental remediation at child care facilities. Environmental Law Institute, Funding for Environmental Assessment and Remediation at Child Care Facilities, https://www.eli.org/sites/default/files/eli-pubs/funding-env-assmt-and-remed-child-care.pdf. See also, Minn. Dept. of Health, Financial Assistance for Radon, https://www.health.state.mn.us/communities/environment/air/radon/financial.html.

Appendix

This Appendix includes short summaries of the following 10 state policies that require radon testing and/or mitigation in licensed child care facilities:

Colorado	Iowa
Connecticut	Michigan
Delaware	New Jersey
Florida	New York
Illinois	Rhode Island

The information in each summary is drawn primarily from state laws, regulations, and agency guidance documents; citations and links to those materials are included. The summaries also reflect communications between ELI and agency officials in each of the states.

COLORADO
Radon Requirements for Child Care

Area of Regulatory Authority/Implementing Agency

- Public Health (child care sanitation)/Colorado Department of Public Health and Environment (CDPHE).

Licensed Child Care Facilities Subject to the Requirements

- "Child care facilities" – includes child care centers, but does not include family child care homes.

Radon Testing

When is testing required?

- Testing is required within six months of occupancy.
- Testing may be required by health officials in connection with facility remodeling.

Are any testing protocols specified?

- Testing must be carried out pursuant to CDPHE guidance (see below) and the ANSI/AARST radon measurement protocol for schools/large buildings.
- State legislation enacted in 2021 (H.B. 21-1195), effective July 2022, requires those who test for radon to obtain a state license and to comply with applicable ANSI/AARST radon measurement protocols or other state-approved national consensus standards. The law exempts from licensing those who perform radon testing on a single-family home they own and occupy.

Radon Mitigation

When is mitigation required?

- CDPHE rules do not explicitly require radon mitigation.
- Related standards: (1) CDPHE rules: "The building...shall not pose a health hazard to children enrolled." (2) Child care licensing rules: "Buildings must be kept in good repair and maintained in a safe condition."
- CDPHE guidance (see below) recommends further testing and mitigation if radon levels exceed 4.0 pCi/L.

Are any mitigation protocols specified?

- CDPHE guidance (see below) advises that "mitigation systems should only be installed by a certified contractor."
- Radon licensing law (effective 2022) requires those who mitigate radon to be licensed and to comply with ANSI/AARST radon mitigation protocols or other state-approved national consensus standard. The law exempts those who perform radon mitigation on a single-family home they own and occupy.

COLORADO (Cont.)

Radon Documentation and Notification

- Radon test results must be kept on file at the facility and be available for review.
- CDPHE conducts inspections prior to licensing and informs new applicants at that time that radon testing must be completed within six months; compliance is verified at the facility's next regular inspection. (CDPHE uses a risk-based methodology for routine inspections – facilities are inspected at least every two years and up to twice per year, depending on risk.) If required radon documentation is not provided at the inspection, this is a "critical area" violation and testing must be completed within 30 days.

Agency Forms

- The CDPHE Child Care Inspection Report Form includes space for recording radon test results.
- The CDPHE Plan Review Form (for new construction or remodeling of child care facilities) includes space for recording radon test results.

Agency Guidance Materials

- Radon Testing – Understanding How to Do It Yourself: 2-page CDPHE fact sheet on radon testing describing when to test and the placement of test devices.
- CDPHE training on radon testing for child care: 30-minute web-based training.
- Radon – Get the Facts: 2-page CDPHE fact sheet on radon and the testing requirement for child care.

Of Note...Colorado has a legislatively-established program to help fund radon mitigation in homes. The Low Income Radon Mitigation Assistance program (LIRMA) is not open to commercial facilities such as child care centers, but it may be an option for income-eligible, home-based child care providers who choose to address radon in the home they own.

Citations

CDPHE child care sanitation rules: 6 Colorado Code of Regulations 1010-7:7.14.2(H).

Colorado Dept. of Human Svcs. child care licensing rules: 12 Colorado Code of Regulations 2509-8:7.702.81(A).

Radon professional licensing law: https://leg.colorado.gov/bills/hb21-1195.

CDPHE web pages with radon information:

- https://cdphe.colorado.gov/child-care-health-regulations (child care sanitation program).
- https://cdphe.colorado.gov/radon (radon program).

CONNECTICUT
Radon Requirements for Child Care

Area of Regulatory Authority/Implementing Agency

- Child Care Licensing/Connecticut Office of Early Childhood (CT OEC).

Licensed Child Care Facilities Subject to the Requirements

- Child care centers and group child care homes that use a basement level or the first floor.
- Family child care homes are not subject to radon requirements.

Radon Testing

When is testing required?

- A minimum of one test is required and must be carried out during the months of November–April.
- Testing is required prior to initial licensing or during the next November–April period following licensing.

Are any testing protocols specified?

- Testing must be carried out with a testing device or service listed by the National Radon Proficiency Program and approved by the Connecticut Department of Public Health (CT DPH).

Radon Mitigation

When is mitigation required?

- When test results show radon levels at or above 4.0 pCi/L, provider must "ensure that the radon gas is reduced" to below 4.0 pCi/L.

Are any mitigation protocols specified?

- The provider must hire a "qualified residential mitigation service provider" as defined in state law. State public health law (Ct. Stat. 20-419, 420) requires radon mitigation contractors to be certified by a national radon proficiency program (which in turn requires adherence to approved radon mitigation protocols). The law exempts those who perform mitigation on their own private residence or residential rental property.

CONNECTICUT (cont.)

Radon Documentation and Notification

- CT DPH and the local health department must be notified of radon test results.
- Radon documentation is provided prior to licensing; however, if licensing occurs outside the required testing months (November–April), documentation is reviewed at the next (annual) facility inspection.
- Provider must post radon test results with the license "in a conspicuous place, accessible to the public."
- Annual CT OEC inspections review whether test results are posted and verify the test date and results.

Agency Forms

- CT OEC Child Care License Application Form and related facility checklist include radon requirements.
- CT OEC Child Care Center/Group Inspection Form includes space to record radon test date and results.

Agency Guidance Materials

- Radon Testing Guidance for Child Care Centers & Group Care Homes: 2-page CT DPH document describing when to test and the placement of test devices.

Of Note... *The state child care licensing and public health agencies work together closely on radon issues. The CT OEC sends radon test results to the CT DPH and refers providers with radon tests over 4.0 pCi/L to CT DPH for guidance. CT OEC licensing specialists also follow up in such cases to make sure that providers take action to reduce radon levels and that retesting confirms levels below 4.0 pCi/L.*

Citations

CT OEC child care licensing rules: Ct. Admin. Code 19a-79-3a, 19a-79-7a.

CT DPH web pages with information about radon generally and the radon requirements for child care: https://portal.ct.gov/dph/Environmental-Health/Radon/Radon-Program.

DELAWARE

Radon Requirements for Child Care

Area of Regulatory Authority/Implementing Agency

- Child Care Licensing/Delaware Office of Child Care Licensing (DE OCCL).

Licensed Child Care Facilities Subject to the Requirements

- Early care and education centers; family and large family child care homes.

Radon Testing

When is testing required?

- Testing is required upon initial licensing, then once every five years. Testing must take place between the months of October and March.
- Testing is required within six months after any remodeling, renovation or construction, as part of the plan review process.

Are any testing protocols specified?

- Child care licensing rules provide that testing may be performed by the property owner or by a professional certified through current national certification programs or other organization recognized by U.S. EPA or the state of Delaware.
- State guidance provides recommended protocols (see below).

Radon Mitigation

When is mitigation required?

- Mitigation is required when testing indicates a radon level greater than 4.0 pCi/L.
- If radon test results are at or above 4.0 pCi/L, DE OCCL creates a corrective action plan that requires a long-term radon test showing levels below 4.0 pCi/L and/or mitigation.

Are any mitigation protocols specified?

- Radon mitigation must be conducted “according to industry standards.”

DELAWARE (Cont.)

Radon Documentation and Notification

- Child care license applicants must submit to DE OCCL "evidence showing the building to be free of radon hazards."
- Licensees must submit to DE OCCL copies of radon test results within five business days of receiving results.
- Licensing inspectors verify compliance with radon requirements during pre-licensing inspections and subsequent annual inspections (in conjunction with license renewals).
- When the radon requirements first took effect, documentation of satisfactory initial test results for existing licensed facilities was reviewed during the facility's next (annual) license renewal.

Agency Forms

- The DE OCCL License Application checklist includes the radon requirements.
- The DE OCCL Inspector's "Compliance Record" checklist for early care and education centers and family and large family child care homes includes verification of the radon requirements.

Agency Guidance Materials

- Testing for Radon in Child Care Centers and Homes: DE OCCL 3-page guidance document summarizing the radon requirements, including recommendations on when and where to place test devices.

Of Note... *The DE OCCL worked with the state Department of Natural Resources and Environmental Control (DNREC) when revising the child care licensing rules to incorporate radon testing and mitigation requirements. The two agencies also worked together to create guidance for providers, which is handed out at DE OCCL information sessions for new license applicants. The information sessions communicate the health effects of radon exposure and review the radon testing and mitigation requirements.*

Citations

DE OCCL child care licensing rules: 9 Del. Admin. Code ch. 101 and 103.

DE Dept. of Health & Human Services web pages with general radon information: https://www.dhss.delaware.gov/dhss/dph/hsp/hhinsideradon.html.

FLORIDA
Radon Requirements for Child Care

Area of Regulatory Authority/Implementing Agency

- Public Health (radon)/Florida Department of Health (FDOH).

Licensed Child Care Facilities Subject to the Requirements

- State-licensed day care centers, including child care facilities, large family child care homes, and family child care homes.
- Only applies to above facilities that (1) are located in specified counties based on average radon potential, and (2) use first floor spaces in the building.

Radon Testing

When is testing required?

- Testing is required within one year of licensing and again five years later.
- Testing is also required if "significant structural changes" occur.

Are any testing protocols specified?

- Required radon testing must follow procedures established by FDOH (see below), which address elements such as placement of devices and test conditions. Initial measurements are required in 20% of habitable spaces, and follow-up measurements in 5% of habitable spaces.
- Florida law requires state certification of those who conduct radon measurement for remuneration.

Radon Mitigation

When is mitigation required?

- State law does not explicitly require mitigation.
- Related standards (child care licensing rules): "Buildings must be kept in good repair and maintained in a safe condition."
- FDOH radon testing protocols (see below) recommend mitigation if results are 4.0 pCi/L or higher.

Are any mitigation protocols specified?

- State law requires state certification of those who conduct radon mitigation for remuneration and requires compliance with state mitigation standards, which are incorporated by reference in the Florida Building Code.

FLORIDA (Cont.)

Radon Documentation and Notification

- Results of required radon tests must be reported to FDOH, and radon mitigation professionals are required by state law to submit to FDOH a mitigation report following installation of mitigation systems.
- Radon reports submitted to FDOH are public records, and the agency posts them online.

Agency Forms

- FDOH Report Forms for Mandatory Testing: Forms to be used for required submission of radon measurements to FDOH.

Agency Guidance Materials

- FDOH Mandatory Radon Testing Protocols (DH\PI 150-334): 24-page document describing required radon testing procedures and providing background information.
- Florida Dept. of Children and Families provides information on how to become a child care provider that includes a description of the radon requirements. See Opening a Licensed Child Care Facility, Opening a Large Family Child Care Home, Opening a Licensed Family Child Care Home, available at https://www.myflfamilies.com/service-programs/child-care/child-care-licensure.shtml ("How to Become a Provider").

Of Note...In 2020, FDOH sent a letter to licensed child care facilities in counties covered by the radon requirements to remind providers of the requirement to test for radon and submit results to FDOH. The letter included links to the required reporting form and testing protocols, as well as to the state radon test results database to verify whether the facility had completed the required testing.

Citations

Health Law (Radiation): Fl. Stat. 404.056.

FDOH (radon program) web pages with information about the radon requirements:

- http://www.floridahealth.gov/environmental-health/radon/mandatory-testing.html.
- http://www.floridahealth.gov/environmental-health/radon/maps/index.html.

ILLINOIS
Radon Requirements for Child Care

Area of Regulatory Authority/Implementing Agency

- Child Care Licensing/Illinois Department of Children and Family Services (IL DCFS).

Licensed Child Care Facilities Subject to the Requirements

- Day care centers, day care homes, and group day care homes.

Radon Testing

When is testing required?

- Radon testing is required every 3 years.

Are any testing protocols specified?

- State radiation protection law and rules require radon professionals to be licensed by the state and to follow the testing protocols in state radon licensing rules; an exemption to the licensing requirements is provided for those who test a dwelling in which they reside.
- The state radon program (Illinois Emergency Management Agency or IEMA) has developed guidelines for radon testing by homeowners (see below).

Radon Mitigation

When is mitigation required?

- State law and regulations do not explicitly require radon mitigation.
- Related standards (child care licensing): The building and indoor space "shall provide a safe, comfortable environment for the children."

Are any mitigation protocols specified?

- State radiation protection law and rules require radon mitigation to be conducted by a state-licensed professional and to follow protocols in the state radon licensing rules. The rules provide an exemption for those who mitigate a dwelling in which they reside.
- The state radon program (IEMA) has developed guidelines for radon mitigation for the general public (see below).

ILLINOIS (Cont.)

Radon Documentation and Notification

- Child care licensing law requires the IL DCFS to require proof of radon testing within the past three years, as part of initial and renewal license applications.
- Current radon test reports must be posted in the child care facility next to the license and must include a statement specified in the child care licensing law noting radon health effects, the state recommendation for mitigation when radon levels are 4.0 pCi/L or higher, and where to get more information. Copies of the radon test report must also be provided to parents or guardians upon request.
- The state radon program (IEMA) receives radon test results directly from laboratories, which must be licensed by IEMA.

Agency Forms

- IL DCFS Form CFS 585-2 (Facility's Radon Test Certification): Form for posting notice of radon test results.

Agency Guidance Materials

- IEMA Guidelines for Radon Measurements in the Home: 2-page general guidance on radon testing for homeowners.
- IEMA Guide to Radon Mitigation: 2-page guidance on radon mitigation for the general public.

*Of Note...**The IL DCFS refers providers to the state radon program (IEMA) for information and guidance on radon testing. IEMA regularly receives calls from home-based child care providers who conduct the required radon test themselves and who need information about what the results mean. IEMA encourages providers to conduct mitigation when radon levels are 4.0 pCi/L or greater.*

Citations

IL DCFS child care law/rules: 225 Il. Comp. Stat. 10/5.8; 89 Il. Admin. Code 406.8, 407.370, 408.30.

IEMA radon licensing rules: 32 Ill. Adm. Code 422.

IEMA general radon web pages: https://www2.illinois.gov/iema/NRS/Radon/Pages/default.aspx.

IL Dept. of Public Health web pages with information about radon requirements for child care facilities: https://www.dph.illinois.gov/topics-services/environmental-health-protection/toxicology/radon-testing.

IOWA
Radon Requirements for Child Care

Area of Regulatory Authority/Implementing Agency

- Child Care Licensing/Iowa Department of Human Services (IA DHS).

Licensed Child Care Facilities Subject to the Requirements

- Child care centers.
- Requirements only apply to centers that are at ground level, use a basement area as program space, or have a basement beneath the program area.

Radon Testing

When is testing required?

- Testing is required within one year of being issued an initial and renewal license (every two years).
- The child care licensing handbook (see below) notes that testing may also be required in connection with facility remodeling.

Are any testing protocols specified?

- State public health law and regulations require those who conduct radon measurement to be certified by the state and to follow EPA measurement guidelines and protocols; the regulations exempt those who do not receive compensation or who test a building they own.
- The state radon program (Iowa Department of Public Health or IA DPH) has created a fact sheet with procedures for conducting radon testing in child care centers (see below).

Radon Mitigation

When is mitigation required?

- Mitigation is required when testing confirms radon levels above 4.0 pCi/L.

Are any mitigation protocols specified?

- State public health law and rules require those who perform radon mitigation for remuneration to be credentialed by the state and to follow EPA and ASTM standards. The rules exempt those who mitigate radon in buildings they occupy for their own use.

IOWA (Cont.)

Radon Documentation and Notification

- IA DHS requires child care centers to maintain radon test records so that the agency can verify compliance.
- IA DHS conducts a file review in conjunction with required annual child care inspections, including verification of the date and results of the center's most recent radon test. If the required radon testing documentation is not up to date, the agency will require compliance within a specified period of time.
- State-certified radon professionals must report test results to the IA DPH.

Agency Forms

- IA DHS Licensing Regulation Checklist: Inspector's checklist that includes verification that "testing and plan for remedy of radon is conducted." Checklist available at: IA DHS Licensing Standards and Procedures.

Agency Guidance Materials

- Radon Testing Protocols for Iowa Child Care Centers: 4-page IA DPH fact sheet on where and how to test for radon.
- Licensing Standards and Procedures: Licensing handbook for child care centers includes the radon requirement plus commentary.

Of Note...In April 2021, IA DHS announced the Investing in Iowa Child Care funding program, supported by funds from the federal Coronavirus Response and Relief Supplemental Appropriations Act of 2021. In addition to providing start-up and expansion funding, the program has accepted applications for "urgent regulatory funding" – a category that covers a variety of health and safety measures, including radon test kits and radon mitigation.

Citations

IA DHS child care licensing rules: 441 Iowa Admin. Code 109.11(7).

IA Dept. of Public Health radon licensing law and rules: Iowa Code ch. 136B; 641 Iowa Admin. Code ch. 43, 44.

IA Dept. of Public Health web pages with general radon information: https://idph.iowa.gov/radon.

MICHIGAN
Radon Requirements for Child Care

Area of Legal Authority/Implementing Agency

- Child Care Licensing/Michigan Department of Licensing and Regulatory Affairs (MI LARA).

Licensed Child Care Facilities Subject to the Requirements

- Family and group child care homes.
- Child care centers are not subject to radon requirements.

Radon Testing

When is testing required?

- Testing is required before the initial license is issued and every four years thereafter at the time of license renewal.

Are any testing protocols specified?

- MI LARA's technical assistance manual describes how to conduct a radon test (see below).

Radon Mitigation

When is mitigation required?

- Licensing rules require mitigation when radon levels exceed 4.0 pCi/L in the lowest level of the child care home, and the licensee has up to 12 months from the date of the first radon test to meet the standard. MI LARA requires that where levels exceed 8.0 pCi/L, initial license applicants must mitigate before the license is issued, and license renewal applicants must close operations until the radon standard is achieved.

Are any mitigation protocols specified?

- MI LARA's technical assistance manual includes general information about radon mitigation (see below).

MICHIGAN (Cont.)

Radon Documentation and Notification

- Documentation of radon test results must be kept "on file" in the child care home.
- For initial testing, the radon test report must be submitted to MI LARA as part of the application process. For future testing (required every 4 years), the required documentation is verified on site as part of the license-renewal inspection; these reviews are aligned with 4-year safety reviews required for fuel-fired furnaces.
- Providers must notify parents if radon levels exceed 4.0 pCi/L in the lowest level of the child care home.

Agency Forms

- MI LARA online licensing application instructions: Notifies applicants that they will be required to submit as part of the online application, "documentation that the level of radon gases does not exceed 4 [pCi/L] ...in the lowest level of your home" and provides a link for additional information.

Agency Guidance Materials

- MI LARA Technical Assistance and Consultation Manual for Family and Group Child Care Homes: Provides several pages of information about radon, including details about radon testing and where to find a mitigation professional.
- MI LARA Family and Group Home Orientation: Agency presentation slides noting the radon requirements.

Of Note...When radon testing reveals levels above 4.0 pCi/L, MI LARA refers child care providers to the state Department of Environment, Great Lakes, and Energy (radon program) for technical assistance and to the Department of Health and Human Services for help in identifying any funding programs that may be available to assist with radon mitigation costs.

Citations

MI LARA child care licensing rules: Mi. Admin. Code R 400.1934.

MI Dept. of Environment, Great Lakes, and Energy (radon program) web pages with general radon information: https://www.michigan.gov/egle/0,9429,7-135-3312_4120_4196---,00.html.

NEW JERSEY
Radon Requirements for Child Care

Area of Regulatory Authority/Implementing Agencies

- Child Care Licensing/New Jersey Department of Children and Families (NJ DCF).
- Public Health/New Jersey Department of Health (NJ DOH).
- Environment (Radiation Protection)/New Jersey Department of Environmental Protection (NJ DEP).

Licensed Child Care Facilities Subject to the Requirements

- Child care centers.

Radon Testing

When is testing required?

- Testing is required prior to a child care center operating in a building, and every five years thereafter.

Are any testing protocols specified?

- Testing must be completed in each classroom on the lowest level of the building used by children.
- State radiation protection rules require state certification of those who test for radon and establish radon testing protocols for certified radon testing professionals and businesses. The rules provide an exemption from certification for people who test a building that they own.
- NJ DEP has adopted radon testing guidelines for child care centers (see below).

Radon Mitigation

When is mitigation required?

- NJ DCF requires mitigation if radon levels are 4.0 pCi/L or higher. Child care licensing rules require centers to "take any steps required by the Office of Licensing to correct conditions in the building or center that may endanger the health, safety, and well-being of the children served."
- NJ DOH IEHA rules establish a radon standard of 4.0 pCi/L. Child care centers with elevated radon levels that were not required to complete an Indoor Environmental Health Assessment (IEHA) through the NJ DOH (see "Of Note" below) are referred by NJ DCF to the IEHA program for review and action as needed.

Are any mitigation protocols specified?

- State radiation protection rules require state certification of those who mitigate radon and establish radon mitigation protocols that certified radon mitigation professionals and businesses must follow. The rules provide an exemption from certification for those who mitigate a building that they own.

NEW JERSEY (Cont.)

Radon Documentation and Notification

- During NJ DCF inspections at child care centers, inspectors check that the most recent radon test results are current, within acceptable levels, and posted at the facility. Centers are required to submit radon test results to the NJ DCF if they are not available for review during licensing inspections.
- Child care centers that are required to obtain a Safe Building Interior Certification from NJ DOH must submit radon test results to the NJ DOH as part of the IEHA process; this is required upon initial licensing and may also be required during license renewals, which occur every three years.
- Certified radon professionals are required to report the results of testing/mitigation activities to NJ DEP.
- Child care centers must post radon test results in a "prominent location in all buildings at the center."

Agency Forms

- NJ DCF, Center's Administrative Records Checklist: Self-assessment checklist that includes the radon testing and posting requirements. Available in Understanding Licensing Regulations Documents.

Agency Guidance Materials

- NJ DEP, Radon Testing in Child Care Centers: Web page with several fact sheets, including Testing for Radon in Child Care Centers guidance document (also referenced in NJ DCF, Understanding Licensing Regulations).

Of Note...New Jersey law requires child care centers to complete an Indoor Environmental Health Assessment (IEHA) and obtain a Safe Building Interior Certification from NJ DOH if the building was constructed before 1979, if there is suspected environmental site contamination, or if a prior or current use of the property includes industrial or other high hazard purpose. Facilities going through the NJ DOH IEHA process must meet a radon standard of 4.0 pCi/L. Child care centers not required to go through the IEHA process based on the above criteria must still test for radon under child care licensing rules; if levels are above 4.0 pCi/L, the center is referred to the IEHA program for review and action as needed.

Citations

NJ DCF child care licensing rules: N.J. Admin. Code 3A:52-5.3(a)(19), 3A:52-5.3(i)(6), (8).

NJ DOH (IEHA) law/rules: N.J. Stat. 52:27D-130.4; N.J. Admin. Code 8:50-1.1, 3.1, 4.1.

NJ DEP radon certification rules: https://www.state.nj.us/dep/rpp/radon/index.htm.

NJ DOH IEHA information: https://www.state.nj.us/health/ceohs/environmental-occupational/indoor-envi-education-facilities/.

NEW YORK
Radon Requirements for Child Care

Area of Regulatory Authority/Implementing Agency

- Child Care Licensing/New York State Office of Children and Family Services (NYS OCFS).

Licensed Child Care Facilities Subject to the Requirements

- Child day care centers; small day care centers; family and group family day care programs.
- Requirements only apply to the above facilities if they are located in towns or cities on the state's list of Zone 1 radon areas.

Radon Testing

When is testing required?

- Radon testing is required before an initial license is issued.
- NYS OCFS guidance (see below) notes that testing is also required following major renovations or construction.

Are any testing protocols specified?

- NYS OCFS provides guidance on how to test and which rooms must be tested (see below).

Radon Mitigation

When is mitigation required?

- Mitigation is required when the radon level is at or above 4.0 pCi/L.

Are any mitigation protocols specified?

- The state radon program (Dept. of Health or NYS DOH) has a web page with information about radon mitigation for the general public (see below), which recommends hiring a qualified radon mitigation contractor.

NEW YORK (Cont.)

Radon Documentation and Notification

- Child care providers who are required to test for radon must submit to NYS OCFS a radon test report showing levels below 4.0 pCi/L.
- Radon documentation is reviewed by NYS OCFS prior to licensing. NYS OCFS guidance on submitting the required environmental hazards statement (see below) provides, "If your town or city is listed as a zone 1 radon site (list provided) and your home or building has not already been tested, you must complete testing and resolve any identified problems before registration/licensing is completed."

Agency Forms

- NYS OCFS Directions for Completing the Environmental Hazards Statement – LDSS 7041: Form to be submitted at the time of licensing indicating whether an environmental hazard is present.
- NYS OCFS application packet for operating a child care program: Describes radon testing requirement.

Agency Guidance Materials

- NYS OCFS Environmental Hazards Guidance Sheet – LDSS 7040: Provides guidance for completing the Environmental Hazards Statement.
- NYS OCFS Guidelines for Radon Testing in Day Care Centers and Guidelines for Radon Testing in Family and Group Family Day Care Programs: Short web-based information on when and where to conduct radon test; notes that mitigation is required if levels are 4.0 pCi/L or higher.
- NYS DOH, What is Radon Mitigation: Web page with information for the general public.

Of Note... *New York's child care licensing rules require providers to certify that the premises are "free from environmental hazards" and to include documentation of related testing. NYS OCSF implements this provision to require child care facilities in state-designated Zone 1 radon areas to test for and mitigate elevated radon levels and to submit radon documentation prior to initial licensing. For facilities in existence when the requirement took effect, test results were required upon license renewal (which occurs every four years).*

Citations

Child care rules: 18 N.Y. Comp. Codes Rules and Regs. 416.2, 417.2, 418-1.1, 418-2.22.

NYS OCFS web pages with information about radon requirements and related resources: https://ocfs.ny.gov/programs/childcare/radon/.

NYS DOH web pages with general information about radon: https://www.health.ny.gov/environmental/radiological/radon/radon.htm.

RHODE ISLAND
Radon Requirements for Child Care

Area of Regulatory Authority/Implementing Agencies

- Public health (radon)/Rhode Island Department of Health (RI DOH).
- Child care licensing/Rhode Island Department of Human Services (RI DHS).

Licensed Child Care Facilities Subject to the Requirements

- Child care centers, family child care homes, and group family child care homes.

Radon Testing

When is testing required?

- Radon testing is required every three years.

Are any testing protocols specified?

- Child care licensing rules require testing to be completed in accordance with RI DOH radon rules, which require testing and set forth testing protocols, including device placement.
- RI DOH radon rules require state licensing of those who test for radon and require licensed professionals to use testing methods and protocols determined acceptable by the agency and the National Radon Measurement Proficiency Program. The rules exempt from licensing those who test a private home that they own, lease, or occupy.

Radon Mitigation

When is mitigation required?

- RI DOH radon rules require mitigation of any area of the building that has an annual average radon level of 4.0 pCi/L or higher. The rules specify deadlines for completing mitigation, which range from 60 days to one year, based on radon levels in the building.

Are any mitigation protocols specified?

- RI DOH rules require state licensing of those who install radon mitigation systems and require licensed professionals to install systems in accordance with the national third-party standards referenced in the rules for various building types. The rules exempt from licensing those who mitigate a private home that they own, lease, or occupy.

RHODE ISLAND (Cont.)

Radon Documentation and Notification

- The RI DOH radon rules require owners of buildings that are required to test for radon to "submit a radon testing schedule to the Department, identifying each building and the dates of initial short-term radon testing scheduled for each building" and to report test results to the RI DOH within 30 days of receipt of results.
- Child care licensing rules require providers to show compliance with RI DOH radon requirements. RI DHS requires proof of radon testing that meets the RI DOH radon standard within the past three years, prior to issuance of initial and renewal child care licenses. RI DHS also checks radon documentation during facility inspections.
- RI DOH radon rules require child care facilities to notify families of radon test results of 4.0 pCi/L or higher within 30 days of receipt of the results, using language supplied by the agency.

Agency Forms

- RI DHS child care license application materials reference the radon requirements.

Of Note... *Rhode Island's radon control rules establish detailed radon testing and mitigation requirements for public and "high priority" buildings (defined to include child care facilities), including a requirement to submit test results and mitigation reports to RI DOH. The RI DHS child care licensing rules incorporate these radon control requirements, providing a separate mechanism for overseeing compliance in connection with initial child care licensing and licensing renewals.*

Citations

RI DOH radon law/rules: R.I. Gen. Laws 23-61; 216-RICR-50-15-2.

RI DHS child care licensing rules: 218-RICR-70-00-1; 218-RICR-70-00-2; 218-RICR-70-00-7.

RI DOH radon program web pages with general information about radon: https://health.ri.gov/programs/detail.php?pgm_id=28.

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