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Reducing Environmental Exposures in Child Care Facilities

A Review of State Policy

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TABLE OF CONTENTS

CHAPTER 1

Introduction

Early care and education programs play an important role in helping children reach their full potential in school and throughout their lives. Six million children under five years old receive care outside of their homes – about 30 percent of all children in this age group.[1] The facilities that provide this care are numerous and diverse, including approximately 300,000 licensed child care centers and child care homes across the country.[2] As the number of children in licensed child care has grown, so has public recognition of the importance of the child care setting to children's physical, emotional, and intellectual development.

This recognition has led to significant changes in standards of quality for licensed child care programs. Standards currently in place throughout the U.S. cover a wide array of elements for ensuring a healthy, safe, and enriching environment – from caregiver qualifications and program curriculum, to fire safety and nutrition. In recent years, facility standards for child care have begun to address exposure to *environmental* hazards as well. This shift reflects greater scientific knowledge of the potential harm to children's health from exposure to environmental contaminants, as well as the availability of well-established facility operation and maintenance practices that can be put in place to help create healthier indoor environments.

The purpose of this report is to provide information to help states strengthen their laws, regulations, and programs to address indoor environmental contaminants in child care facilities. The report is designed for policymakers, agency officials, non-governmental organizations and associations, and others who work to promote quality child care and advance children's health. The following chapters offer an overview of how policies currently address several key indoor environmental quality (IEQ) issues in licensed child care facilities. For each issue, the report highlights examples of policy strategies for states to consider, along with notable non-regulatory initiatives that are being implemented by state agencies.

Individual state policy priorities and strategies to promote healthy child care environments will vary depending on a variety of factors, including the state's existing regulatory standards and agency programs, the types of indoor environmental issues that are most pressing in the state, and the resources available for implementing new requirements. The financial impact of new regulatory requirements on child care providers – especially those who provide affordable child care to

[1] U.S. Census Bureau, Who's Minding the Children? Child Care Arrangements: Spring 2011 at 2 (2013), *at*: http://www.census.gov/content/dam/Census/library/publications/2013/demo/p70-135.pdf.
[2] U.S. Department of Health and Human Services (DHHS), Trends in Child Care Center Licensing Regulations and Policies for 2011 at 17 (2013), *available at*: https://childcareta.acf.hhs.gov/resource/research-brief-1-trends-child-care-center-licensing-regulations-and-policies-2011.

families with limited incomes – is also an essential consideration in the development of state policies. While touched on only briefly in this report, future materials will explore more fully the policy and programmatic options for ensuring that all child care facilities have the resources needed to prevent and address environmental hazards.

The Importance of Indoor Environmental Quality in Early Care and Education

Because people in the United States spend most of their time indoors, attention to indoor environmental exposures is critical to protecting public health. Studies by the U.S. Environmental Protection Agency (EPA) indicate that indoor levels of pollutants may be two to five times higher than outdoor levels, and occasionally as much as 100 times higher.[3] A range of health consequences are associated with indoor biological and chemical contaminants and with building conditions such as dampness and poor ventilation. These health effects include upper and lower respiratory disease and symptoms, headaches, skin problems, fatigue, neurological impairment, developmental disorders, and cancer.[4] Many indoor pollutants that can cause or trigger asthma may have particularly harmful effects on the nearly seven million children and 18 million adults in the U.S. who suffer from asthma.[5]

Addressing indoor contaminants in early care and education settings is particularly important, because it is now widely understood that children are not simply little adults when it comes to environmental exposures. The recent EPA report, *America's Children and the Environment,* summarizes why children may be more highly exposed to chemicals and more vulnerable to their harmful effects:

> Children generally eat more food, drink more water, and breathe more air relative to their size than adults do, and consequently may be exposed to relatively higher amounts of environmental chemicals. Children's normal activities, such as putting their hands in their mouths or playing on the ground, can result in exposures to chemicals that adults do not face. In addition, some environmental contaminants may affect children disproportionately because their bodies are not fully developed and their growing organs can be more easily harmed.[6]

Exposure to environmental contaminants may not only cause immediate health effects on children, but may also jeopardize their future healthy growth and development. Research

[3] U.S. EPA, *IAQ Tools for Schools* Action Kit: IAQ Backgrounder at 1, *available at*: http://www.epa.gov/iaq/schools/actionkit.html. *See also* U.S. EPA, Air and Radiation: Basic Information, *at*: http://www.epa.gov/air/basic.html.
[4] *See generally* California Air Resources Board, Indoor Air Pollution in California: Executive Summary at 1-9 (2005), *available at*: http://www.arb.ca.gov/research/indoor/ab1173/ab1173.htm; U.S. EPA, America's Children and the Environment (3rd ed.) (2013), *available at*: http://www.epa.gov/ace/. The health effects associated with the contaminants covered in this report are noted briefly at the outset of the each chapter.
[5] Centers for Disease Control and Prevention (CDC), Fast Stats: Asthma, *at*: http://www.cdc.gov/nchs/fastats/asthma.htm.
[6] U.S. EPA, America's Children and the Environment, 3rd Ed. at 8 (2013), *at*: http://www.epa.gov/envirohealth/children/pdfs/ACE3_2013.pdf.

studies describe unique developmental "windows of vulnerability," the "critical periods in early development when exposures to even minute doses of toxic chemicals — levels that would have no adverse effect on an adult — can disrupt organ formation and cause lifelong functional impairments."[7] At the same time, the pace of research on children's environmental health has accelerated, establishing new associations between environmental exposures and disease and dysfunction in children.[8] Failure to address environmental exposures can subvert the considerable efforts underway to ensure nurturing and stimulating early care and education programs.

At particular risk from inattention to environmental hazards are children of color and low-income children, who suffer disproportionately from the impacts of certain environmental exposures. Black children are twice as likely to have asthma as white children; low-income populations, people of color, and children living in inner cities visit the emergency department more often and are more likely to be hospitalized or die due to asthma.[9] Young black children continue to have higher blood lead levels than children from other races/ethnicities, and young children from families living below the poverty line have higher blood lead levels than those at or above the poverty line.[10]

It is now widely recognized that children are not simply "little adults" when it comes to environmental exposures.

The Role of Policy

Over the past few years there have been notable initiatives to improve indoor environmental quality in child care through outreach, training, and education – in particular, non-governmental initiatives to develop national health and safety performance standards for child care, to create guidance on green cleaning and integrated pest management in child care, and to establish a national endorsement program for environmentally healthy child care.[11] Education and scientific

[7] Philip J. Landrigan & Lynn R. Goldman, "Children's Vulnerability to Toxic Chemicals: a Challenge and Opportunity to Strengthen Health and Environmental Policy," 30(5) *Health Aff.* (Millwood) 842–850 at 843 (2011), *available at*: http://content.healthaffairs.org/content/30/5/842.long.

[8] *Id.* at 844-845 (discussing effects of exposures to PCBs, chlorpyrifos, phthalates, environmental tobacco smoke, and fine particulates). *See also* National Institute of Environmental Health Sciences, Child Development and Environmental Toxins (2011), *at:* http://www.niehs.nih.gov/health/assets/docs_a_e/child_development_and_environmental_toxins_508.pdf.

[9] CDC National Asthma Control Program, Investment in America's Health at 6 (2013), *at*: http://www.cdc.gov/asthma/pdfs/investment_americas_health.pdf.

[10] U.S. EPA, America's Children and the Environment (3rd ed.) at 125 (2013), *at*: http://www.epa.gov/ace/; CDC, Preventing Lead Exposure in Children (2004), *available at*: http://www.cdc.gov/nceh/lead/publications/primarypreventiondocument.pdf.

[11] *See* National Resource Center for Health and Safety in Child Care and Early Education, Caring for Our Children: National Health and Safety Performance Standards; Guidelines for Early Care and Education Programs, 3rd Edition, *available at*: http://cfoc.nrckids.org/; UCSF Institute for Health & Aging, UC Berkeley Center for Environmental Research and Children's Health (CERCH), Informed Green Solutions & Cal. Department of Pesticide Regulation (DPR), Green Cleaning, Sanitizing, and Disinfecting: A Toolkit for Early Care and Education (2013), *available at*: http://cerch.org/research-programs/child-care/greencleaningtoolkit/; UCSF School of Nursing, UC Berkeley CERCH, UC Statewide IPM Program & Cal DPR, Integrated Pest Management: A Toolkit for Early Care and Education

research provide a foundation for changing child care practices. At the same time, public policy is vital to establishing the context in which individual choices are made and to ensuring that standards are in place to protect *all* children served by licensed facilities, as well as the adults who care for them. State law provides a ready framework for advancing key environmental health measures.

Child Care Licensing. All 50 states have licensing requirements for child care facilities. All states license child care *centers*, and all but two states license certain types of *home-based* child care providers.[12] These programs are governed by state laws and regulations that establish the process and requirements for obtaining a license and the minimum criteria for operating the child care facility. In some states, local governments are authorized to adopt their own child care licensing programs and requirements. These local programs generally must include health and safety requirements that are at least as stringent as the state requirements.

Physical facility conditions are a core component of state licensing requirements. Child care regulations typically address a variety of safety and health issues under headings such as "facilities," "physical environment," "health," or "environmental requirements." These regulations include measures for agencies to oversee compliance as well as penalties for violations. While not reviewed in this report, facility inspections are the central mechanism for ensuring compliance with health and safety standards. Inspection requirements and practices vary across states, however most states require inspections prior to licensing and at certain intervals thereafter for some or all types of facilities.[13]

Although regulation of child care facilities is primarily a state/local responsibility, federal regulations establish requirements that apply to providers who accept federal child care funds. The U.S. Department of Health and Human Services (DHHS) Office of Child Care implements the Child Care and Development Fund (CCDF) program, which provides funds to states, territories, and tribes to assist low-income families in obtaining child care. In order to participate in the CCDF program states must certify that they have, among other things, "requirements designed to protect the health and safety of children" (including "building and physical premises safety" requirements) that apply to providers serving children who receive CCDF subsidies.[14]

Programs, *available at:* http://goo.gl/udVsT; Children's Environmental Health Network , Eco-Healthy Child Care® Program, *at*: http://cehn.org/ehcc.

[12] *See* U.S. DHHS, Threshold of Licensed Family Child Care in 2014, *available at*: https://childcareta.acf.hhs.gov/resource/threshold-licensed-family-child-care-2014.

[13] *See* National Association of Regulatory Administration, The 50-State Child Care Licensing Study – 2011-2013 at 18-19, *at*: http://naralicensing.org/Resources/Documents/2011-2013_CCLS.pdf; U.S. DHHS, Contemporary Issues in Licensing: Child Care Licensing Inspection Policies, *at*: https://childcareta.acf.hhs.gov/sites/default/files/1408_inspection_policies_final_0.pdf; Child Care Aware of America, Effective Inspection Policies Promote Children's Safety and Healthy Development in Child Care (2012), *at*: http://www.naccrra.org/sites/default/files/default_site_pages/2012/inspections_white_paper_august_31.pdf.

[14] 42 U.S. Code 9858c. The federal law governing the Child Care and Development Block Grant program was amended in 2014. The new law includes significant changes to health and safety, inspection, and training requirements. *See generally* U.S. DHHS, Child Care and Development Block Grant Act (CCDBG) of 2014: Plain

In addition, the DHHS Office of Head Start oversees and administers grant funding to local agencies around the country that provide Head Start and Early Head Start services. These local programs may be based in schools, child care centers, or child care homes, and they must meet federal Head Start Program Performance Standards.[15]

Other State Laws and Regulations. In addition to the state child care licensing regime, a variety of state laws and regulations may address directly or indirectly environmental health in child care facilities. These other laws may be broad (e.g., building codes or food service codes) or they may address specific topics (e.g., smoking, pesticide use). They may apply to a variety of facilities, including child care, or they may focus exclusively on child care. Local ordinances may establish another overlay of minimum facility requirements on issues ranging from fire safety to lead-based paint hazards.

A variety of state laws may address environmental exposures in the licensed child care setting.

Requirements established through these other areas of state authority typically include oversight and enforcement mechanisms for the implementing agency. However, the requirements may also be referenced by or incorporated directly into the child care licensing regulations. Thus, the child care licensing agency may play a direct or indirect role in overseeing compliance with requirements established originally in other areas of state law, in coordination with other state agencies.

How to Use this Report

This report provides national context and highlights examples of notable policies to inform efforts to evaluate and strengthen state laws, regulations, and programs. The report discusses how state laws and regulations address several important environmental health issues in the child care setting, providing a breakdown and description of the different policy strategies established. The chapters that follow note the prevalence of state policies in each topic covered, but do *not* purport to provide an exhaustive listing of all state laws and regulations. Citations to the laws and regulations that form the basis for the discussion are provided at the end of each chapter. The report's Appendix lists state websites for locating the state laws and regulations cited in the report.

The information provided here is based primarily on review and analysis of the laws and regulations of the 50 states, compiled using electronic legal databases (Westlaw and LexisNexis) and state government websites. Information about non-regulatory initiatives is drawn in part from material on state agency websites and partly from conversations with state officials.

Environmental Health Topics Covered. This report focuses on *indoor* environmental quality in child care facilities and includes information about several contaminants and practices that are commonly addressed in national programs to reduce indoor asthma triggers and to improve indoor

Language Summary of Statutory Changes, *at:* http://www.acf.hhs.gov/programs/occ/resource/ccdbg-of-2014-plain-language-summary-of-statutory-changes.

[15] *See* U.S. DHHS, What We Do, *at*: http://www.acf.hhs.gov/programs/ohs/about/what-we-do.

environmental quality generally. The following issues are each discussed in separate chapters of the report:[16]

- Environmental Tobacco Smoke;
- Radon;
- Carbon Monoxide Alarms;
- Mold/Dampness;
- Ventilation/Temperature;
- Pesticide Use;
- Lead-Based Paint;
- Asbestos;
- Other Chemical Exposures; and
- Site/Location.

The discussion of these issues focuses primarily on indoor *air* exposures. While other exposure pathways are important for some issues, it is beyond the scope of the report to discuss policies addressing those exposures. Thus, for example, the chapters that address lead-based paint and radon do not discuss state laws and regulations on lead or radon in drinking water.

The discussion of specific indoor environmental quality topics highlights state laws and regulations that address those topics *explicitly*. Regulatory provisions that establish more general facility standards – e.g., requiring facilities to be safe, sanitary, or free of hazards – are not reviewed in detail, though they may establish a basis for state agencies to require child care providers to take action to address specific environmental contaminants.

Types of Child Care Facilities Covered: Licensed Facilities. This report discusses only state policies addressing licensed child care facilities. The terms "licensed" and "licensing" are used broadly in this report to include certification, registration, or other *mandatory* approvals established through the state child care licensing regime. The report uses the term "child care home" (or "home-based child care") to refer generally to licensed child care located in the provider's home; the term "child care center" (or "center-based child care") is used generally to refer to licensed facilities that are not located in a residence.[17] The report does not cover state laws

[16] These and other IEQ topics are addressed in non-governmental health and safety performance standards for child care. See National Resource Center for Health and Safety in Child Care and Early Education, Caring for Our Children: National Health and Safety Performance Standards; Guidelines for Early Care and Education Programs, 3rd Edition, *available at*: http://cfoc.nrckids.org/. For general information on best practices for addressing these issues and other contaminants in the indoor environment, see U.S. EPA, Indoor Air Quality, *at*: http://epa.gov/iaq/ and *IAQ Tools for Schools*, *at*: http://www.epa.gov/iaq/schools/index.html; Lawrence Berkeley National Laboratory, Indoor Air Quality Scientific Findings Resource Bank, *at*: http://www.iaqscience.lbl.gov/.

[17] Home-based child care often includes separate categories for "group" child care homes and smaller "family" child care homes. It is important to keep in mind that state laws and regulations use different terminology and definitions to categorize different types of child care facilities. *See generally* National Association of Regulatory Administration, The 50-State Child Care Licensing Study – 2011-2013 (Introduction), *at*: http://naralicensing.org/Resources/Documents/2011-2013_CCLS.pdf;

and regulations governing care for school-age children.

States vary considerably in the types of facilities that are subject to licensing. While all states license child care centers, many exempt facilities that provide care while parents are on the premises or that have only a small number of children in care, and about 12 states have exemptions for child care programs operated by religious organizations.[18] While nearly all states license home-based child care, regulations vary considerably in how they define child care homes that are subject to (or exempt from) licensing.[19] Although the report does not explain systematically how state regulatory requirements differ for different types of licensed facilities, some of these distinctions are highlighted in the discussion of a particular topic.

Types of Child Care Facilities Covered: Existing Facilities. This report covers state policies that establish requirements for existing facilities that provide child care (or that are applying for approval to operate); it does not review laws or regulations that establish construction standards for new or renovated facilities. Thus, for example, the chapter on radon does not provide information about state building codes that require new residential dwellings to include radon control features, even though some of those new dwellings will later house child care facilities. Similarly, the chapter on carbon monoxide alarms does not discuss state code provisions that require such devices only in connection with construction or renovation activities. The Site/Location chapter does not cover decisions about where to locate a child care facility, but rather the potential environmental impacts of the site/location of an existing facility or one that is applying for a child care license.

Types of Laws/Regulations Reviewed. The focus of this report is *state* laws and regulations. The following chapters discuss how each topic is addressed through state child care laws and regulations. For many topics, the report also provides an overview of other state laws and regulations that address the subject. Certain types of laws that may have relevance to child care facilities in some situations – e.g., housing codes or occupational health and safety regulations – may be noted, but are not reviewed in detail.[20] Each chapter indicates the types of laws and regulations that were reviewed to form the basis for the overview of the particular topic.

[18] *See* U.S. DHHS, Trends in Child Care Center Licensing Regulations and Policies for 2011 at 16 (2013), *available at*: https://childcareta.acf.hhs.gov/resource/research-brief-1-trends-child-care-center-licensing-regulations-and-policies-2011; U.S. DHHS, Trends in Family Child Care Home Licensing Requirements and Policies for 2011 at 4 (2013) , *available at:* https://childcareta.acf.hhs.gov/resource/research-brief-2-trends-family-child-care-home-licensing-requirements-and-policies-2011. This report does not discuss state requirements for license-exempt facilities that must be met as a condition of receiving subsidies.

[19] *See generally* National Association of Regulatory Administration, The 50-State Child Care Licensing Study – 2011-2013, *at*: http://naralicensing.org/Resources/Documents/2011-2013_CCLS.pdf; U.S. DHHS, Trends in Family Child Care Home Licensing Requirements and Policies for 2011 at 4 (2013), *available at:* https://childcareta.acf.hhs.gov/resource/research-brief-2-trends-family-child-care-home-licensing-requirements-and-policies-2011.

[20] Child care programs that are located in rental properties present a layer of complexity because, as the tenant, the child care provider may lack authority to fix certain indoor environmental problems discussed here.

State child care licensing agencies often establish written documents to assist in implementing their regulations. While not reviewed in this report, such agency policies and procedures, inspection forms, and other guidance materials may elaborate on general regulatory provisions in order to assist providers in addressing specific indoor environmental issues.

Local ordinances and regulations, not reviewed here, provide another opportunity to establish facility standards. Some localities may have independent requirements that apply in addition to or in lieu of state policies (though local policies will generally be at least as stringent as state law addressing the same issue). Federal regulations, such as those governing the Head Start or Child Care and Development Fund programs, are similarly outside the scope of this report.[21]

Non-Regulatory Initiatives. While the primary focus of this report is the role of laws and regulations in establishing environmental health protections, the report also discusses prominent examples of non-regulatory activities that state agencies have undertaken. Such initiatives can play a significant role in encouraging facilities to implement best practices that go beyond regulatory requirements. Chapter 12 includes descriptions of several state initiatives that address a broad range of environmental health issues through voluntary recognition programs, outreach and education, and financial and technical assistance for child care providers. In addition, many of the topic-specific chapters include short descriptions of how these and other state initiatives address individual environmental issues.

The laws, regulations, and agency initiatives discussed in the chapters that follow are not the only possible approaches, but they offer a variety of examples for states to consider in taking action to address key environmental health issues. Every state has child care, health, environmental, and other legal authorities that can be harnessed to prevent harmful exposures and help provide young children a healthy environment in which to learn and grow.

[21] In some states, Head Start facilities are expressly included or excluded from child care licensing requirements. Federal Head Start regulations establish some IEQ-related requirements, including: providing a "center-based environment free of toxins, such as cigarette smoke, lead, pesticides, herbicides, and other air pollutants as well as soil and water contaminants," and ensuring that "no child is present during the spraying of pesticides or herbicides" and that children do "not return to the affected area until it is safe to do so." *See* 45 C.F.R. 1304.53, *available at*: http://eclkc.ohs.acf.hhs.gov/hslc/standards/hspps/1304/1304.53%20Facilities,%20materials,%20and%20equipment..htm.

CHAPTER 2

Environmental Tobacco Smoke

Environmental tobacco smoke, also known as secondhand smoke, is the smoke emitted by burning tobacco products and exhaled by smokers. This smoke contains more than 7,000 chemicals, hundreds of which are toxic and at least 69 of which are known carcinogens.[22] Toxic chemicals and gases found in secondhand smoke include carbon monoxide, lead, arsenic, ammonia, formaldehyde, and butane. Concentrations of many of these chemicals can be higher in secondhand smoke than in the smoke inhaled by smokers.[23] Measures such as ventilating buildings, separating smokers from nonsmokers, and using air cleaners do not eliminate exposure to secondhand smoke.[24] Nonsmokers may also be exposed to "thirdhand smoke" – residual contamination from smoking that persists on furnishings, carpets, hair, and clothing even after cigarettes and other tobacco products have been extinguished.[25]

Environmental tobacco smoke poses serious health risks to children and adults, even in small quantities; there is no risk-free level of exposure.[26] The health effects of secondhand smoke for adults and children can include ear infections, more frequent and severe asthma attacks, respiratory symptoms such as coughing, sneezing, and shortness of breath, and respiratory infections such as bronchitis and pneumonia.[27] In U.S. children aged 18 months or younger, secondhand smoke exposure is responsible for approximately 150,000 to 300,000 new cases of

[22] Centers for Disease Control and Prevention (CDC), Secondhand Smoke (SHS) Facts, *at*: http://www.cdc.gov/tobacco/data_statistics/fact_sheets/secondhand_smoke/general_facts/index.htm.
[23] U.S. Dep't of Health and Human Services (DHHS), How Tobacco Smoke Causes Disease: The Biology and Behavioral Basis for Smoking-Attributable Disease: A Report of the Surgeon General (2010), *at*: http://www.ncbi.nlm.nih.gov/books/NBK53017/; CDC, There is No Risk-Free Level of Exposure to Secondhand Smoke, *at*: http://www.cdc.gov/tobacco/data_statistics/sgr/2006/pdfs/no-risk-free.pdf. Additionally, the U.S. Surgeon General's 2006 and 2014 reports on secondhand smoke are available at http://www.surgeongeneral.gov/library/reports/.
[24] CDC, Ventilation Does Not Effectively Protect Nonsmokers from Secondhand Smoke, *at*: http://www.cdc.gov/tobacco/data_statistics/fact_sheets/secondhand_smoke/protection/ventilation/index.htm?s_cid=tw_osh133.
[25] Public attention and scientific research have begun to focus on the risks of exposure to thirdhand smoke. *See, e.g.,* Mohamad Sleiman et al., "Inhalable Constituents of Thirdhand Tobacco Smoke: Chemical Characterization and Health Impact Considerations," *Environ. Sci. Technol.* (Nov. 2014) 48 (22): 13093–13101, *available at*: http://pubs.acs.org/doi/abs/10.1021/es5036333; Giuliana Ferrante et al., "Third-hand smoke exposure and health hazards in children," *Monaldi Arch. Chest Dis.* (Mar. 2013) 79(1): 38-4379, *available at:* http://www.ncbi.nlm.nih.gov/pubmed/23741945.
[26] CDC, There is No Risk-Free Level of Exposure to Secondhand Smoke, *at:* http://www.cdc.gov/tobacco/data_statistics/sgr/2006/pdfs/no-risk-free.pdf.
[27] U.S. EPA, Health Effects of Exposure to Secondhand Smoke, *at*: http://www.epa.gov/smokefree/healtheffects.html.

bronchitis and pneumonia and 7,500 to 15,000 hospitalizations annually.[28] Exposure to secondhand smoke also increases the risk of sudden infant death syndrome (SIDS).[29] Secondhand smoke can cause heart disease, stroke, and lung cancer in nonsmoking adults; secondhand smoke exposure increases the risk of heart disease in nonsmokers by 25 to 30 percent and increases the risk of lung cancer by 20 to 30 percent.[30]

This chapter provides an overview of state laws and regulations that govern smoking in and around child care facilities and in vehicles used in child care. Following the summary of state policies, the chapter describes notable non-regulatory activities undertaken by state agencies to reduce exposure to tobacco smoke in child care facilities. The chart at the end of the chapter provides citations to the state laws and regulations that form the basis for the policy overview.

Types of Laws/Regulations Included. This chapter summarizes the smoke-free provisions of state child care licensing laws and regulations, as well as state smoke-free laws (often referred to as state "Clean Indoor Air Acts"). These smoke-free laws typically prohibit smoking in public places and/or enclosed places of employment. Nearly all smoke-free laws apply to child care facilities either explicitly (by specifically prohibiting smoking in child care facilities) or implicitly (by including a definition of "public place" or "place of employment" that is broad enough to encompass child care facilities). Smoke-free laws commonly include enforcement mechanisms such as complaint procedures, inspection authorities, and penalties for violations. (Note that in some states, local governments have the authority to adopt smoke-free regulations that are more stringent and comprehensive than state law).

In many states, child care regulations address smoking in the same way as the state's smoke-free law, though in some cases the smoke-free provisions in child care regulations differ somewhat from the smoke-free law. In addition, smoke-free laws may impose certain requirements not addressed in the child care licensing regulations, such as requiring no-smoking signs to be posted or prohibiting smoking in vehicles used for business purposes. The summary below does not provide a breakdown of whether smoke-free provisions are found in the child care or smoke-free laws and regulations. To determine the particular requirements for a given state, consult the applicable child care *and* smoke-free laws and regulations, as noted in the chart at the end of the chapter.

Types of Child Care Facilities. All states prohibit or restrict smoking to some extent in both center-based and home-based licensed child care facilities. However, only about half of the states have smoking restrictions that are the same in both types of facilities. The remaining states regulate these facilities differently, typically applying more comprehensive or stringent smoke-free requirements in center-based child care than in home-based child care. For example, some states

[28] CDC, Secondhand Smoke (SHS) Facts, *at:* http://www.cdc.gov/tobacco/data_statistics/fact_sheets/secondhand_smoke/general_facts/index.htm.
[29] *Id.*
[30] *Id.*

prohibit smoking in child care centers at any time, while prohibiting smoking in child care homes only during operating hours or in the presence of children. Unless explicitly noted, it should not be assumed that a provision described in the following summary applies to all types of licensed child care facilities. Consult a state's laws and regulations to determine the applicability of specific smoke-free provisions.

General Smoke-Free Requirements for Child Care Facilities

States have adopted three main types of general prohibitions on smoking at child care facilities: (1) prohibiting smoking during the facility's *hours of operation*; (2) prohibiting smoking in the *presence* (or sometimes the view) of children; and (3) prohibiting smoking at the facility *at all times*. As noted earlier, some states apply different approaches to different types of facilities (e.g., center-based vs. home-based), and some states apply more than one approach to a single type of child care facility (e.g., no smoking while children are present *and* no smoking during hours of operation).

Smoking Prohibited During Hours of Operation. About half of all states have statutory or regulatory provisions that prohibit smoking during hours of operation for at least some types of facilities. This approach addresses exposure to secondhand smoke, but not to thirdhand smoke; thus, children may be exposed to residual contamination that remains on furnishings and other items in the residence or building where smoking has occurred outside of child care hours. In some states, the ban on smoking during hours of operation applies to centers and home-based child care. A more common approach is for states to prohibit smoking in home-based child care only during hours of operation, while prohibiting smoking at all times in child care centers.

Laws prohibiting smoking in facilities at all times reduce children's exposure to secondhand and "thirdhand" smoke.

Smoking Prohibited in the Presence of Children. About half of all states have smoke-free or child care laws and regulations that prohibit smoking at certain child care facilities in the presence (or view) of children. This approach could allow smoking within a facility after hours or during child care hours if children are not present in the facility. In some of these states, the restriction on smoking in the presence of children applies only to home-based child care, while child care centers are subject to different (usually more comprehensive) smoke-free requirements. For example, Delaware prohibits smoking at all times in child care centers, while prohibiting smoking in family child care homes and large family child care homes during hours of operation when children are present.

A restriction on smoking in the presence or view of children may exist *in addition to* a general prohibition on smoking at a child care facility, thereby extending the smoke-free requirement to locations outside or off the premises where care may be provided. For example, Vermont's child care regulations for licensed facilities provide: "There shall be no smoking on the premises. Staff shall not smoke in view of the children."

Smoking Prohibited at All Times. A prohibition on smoking at all times addresses exposure not only to secondhand smoke, but to thirdhand smoke as well. About half of all states prohibit smoking at all times in at least *some* types of child care facilities. In most of these states, though, the comprehensive smoke-free requirement applies only to child care centers, while a more limited smoking prohibition applies to home-based child care.

A small number of states, including Arkansas, California, Iowa, Louisiana, Mississippi, North Dakota, and Vermont, have child care laws and regulations that include explicit prohibitions on smoking at all times in all child care facilities required to be licensed. California enacted legislation in 2014 to amend its child care and smoke-free laws specifically to prohibit smoking in home-based child care at all times, rather than only while children are in care.

Comprehensive Smoking Restrictions - Arkansas

Arkansas's child care regulations include the following comprehensive smoking prohibitions for center- and home-based child care:

> Facilities shall comply with the Clean Indoor Air Act of 2006. Smoking (including e-cigarettes). . . is prohibited at all times. This includes:
> a. All areas of the facility, regardless of whether children are in care (includes time periods such as nights, weekends, holidays, etc., also includes office areas or other areas of the facility that share the same ventilation systems)
> b. Outdoor play area(s)
> c. Other outdoor areas when children are present
> d. In any vehicle used to transport children, whether children are present in the vehicle or not.

Source: Ar. Code Rules 016.22.1-1101, 016.22.4-1101, 016.22.6-1101

Most state smoke-free laws include restrictions on smoking in both center-based child care facilities and in private residences used for child care. The language of these provisions covering private residences varies from state to state. Some states exempt private residences from the smoke-free law "unless" or "if" the residence is used for child care, while others provide that private residences are covered by the smoke-free law "when" a residence is used for child care. To determine whether such a provision is applied to prohibit smoking in home-based child care at *all* times or only *during* child care hours, consult the state's child care licensing or Clean Indoor Air Act authorities.

Limits on Smoking in Outdoor Areas

Outdoor smoking restrictions can reduce children's exposure to secondhand smoke outside and also help reduce exposure indoors if smoking is prohibited in proximity to facility doors, windows, and other openings where smoke can enter the building. Over 30 states have statutory or regulatory provisions that explicitly prohibit smoking in areas outside of or in close proximity to child care facilities. These outdoor smoke-free provisions vary, but they usually apply when children are present or during the facility's hours of operation. Several states also explicitly prohibit smoking during field trips.

Limits on Smoking in Outdoor Areas Used by the Facility. Most commonly, states prohibit smoking in a child care facility's outdoor play area, in outdoor areas used by the facility, or on the facility premises. Some states refer generally to the outdoors, but others provide more detail. For example, Michigan prohibits smoking on real property that is under the control of a child care facility and upon which the facility is located, including other related buildings.

Limits on Smoking in Proximity to the Facility. Several states prohibit smoking within a certain number of feet from a facility or from air intake areas such as entrances, exits, open windows, and ventilation systems. Such provisions, often found in a state's smoke-free law, are designed to reduce occupants' exposure to tobacco smoke. The distance within which smoking is prohibited ranges from 8 to 25 feet. Rhode Island's distance-specific restriction is among the broadest, prohibiting smoking within 25 feet of a child care facility or the facility's outdoor play area. Rhode Island also prohibits smoking on facility grounds or premises in view of the children, which supplements the proximity smoking prohibition. New Mexico takes a slightly different approach, prohibiting smoking "near" a facility's entrances, windows, and ventilation systems, while South Carolina allows smoking only in designated areas that are a "safe distance" from the facility.

In addition to these provisions, states that prohibit smoking in the presence of children in care effectively restrict smoking outdoors while children are present outside.

Limits on Smoking in Vehicles Used in Child Care

Virtually all states prohibit or restrict smoking in vehicles used in child care. These prohibitions may be found in a state's smoke-free law (including recent laws in a few states prohibiting smoking in any vehicle when a child is present) or in child care regulations. The prohibition usually applies while the vehicle is being used to transport children. However, several states address thirdhand smoke exposure in vehicles by prohibiting smoking at any time in vehicles used to transport children, even if no children are present.

Smoking Prohibited in Vehicle Generally. Several states prohibit smoking at any time in vehicles used to transport children. For example, West Virginia prohibits smoking at any time in vehicles

operated by child care centers, even in the absence of children. Alaska's child care regulations provide generally that vehicles used to transport children must be smoke free.

Smoking Prohibited in Vehicle While Children are Transported. The most common approach taken by states is to prohibit smoking in vehicles while children in care are transported. These laws and regulations may refer to smoking in vehicles explicitly, or they may prohibit smoking in the presence of children or while children are being cared for by child care providers. Maine's smoke-free law places an additional restriction on child care facilities that are not home-based: smoking is prohibited in facility-designated vehicles while children are transported, and smoking is also prohibited in the vehicle within 12 hours before it is used to transport a child in the care of the facility. In Massachusetts, a child care vehicle in which smoking has occurred must be properly ventilated prior to use by children.

Other Prohibitions on Smoking in Vehicles. A few states' smoke-free laws prohibit smoking in motor vehicles when they are used for business purposes. For example, Montana prohibits smoking in a vehicle that serves as a place of work. These laws prohibit smoking in child care vehicles when the vehicles are being used to transport children and when they are being used for other business purposes. Additionally, a small number of states prohibit smoking in vehicles during hours of operation. For example, Minnesota's smoke-free law defines vehicles used for work purposes as places of employment subject to the law during hours of operation if more than one person is present; Georgia's child care regulations prohibit smoking in vehicles being used to transport children during hours of operation.

Notification and Signage Requirements

Notice to Parents. A considerable number of states require child care facilities to notify parents about the facility's smoking policies or practices. Several states (including Connecticut, Florida, Georgia, Hawaii, Maryland, Nebraska, Oklahoma, Tennessee, and West Virginia) require notice to parents if any member or resident of a child care facility smokes. This notice requirement typically applies to home-based child care where smoking is allowed outside of child care hours. Similarly, a few states (including Michigan, Minnesota, Ohio, Rhode Island, and Vermont) require parental notification if smoking is permitted outside the facility's hours of operation. In Vermont, if smoking occurs on the premises of a family child care home outside the hours when children are present and in care, prospective families must be notified that "their child will be exposed to an environment in which tobacco products or tobacco substitutes, or both, are used." Pennsylvania and Vermont require child care facility operators to inform parents of the facility's smoking/no smoking policy.

"No Smoking" Signs. Over one third of all states require "no smoking" signs to be posted in areas where smoking is prohibited in child care facilities. Some states specifically require signs to be posted in the entrance of the facility, and a few require signs in child care vehicles. Maryland is an example of a state that requires signs in both child care facilities and child care vehicles.

Other Smoking-Related Provisions

Post-Smoking Requirements. Several states that allow smoking at certain times or in certain locations also require individuals who smoke to take specified actions after they smoke. These provisions typically require smokers (staff members or volunteers) to wash their hands after smoking. New Hampshire requires smokers to change their clothing after smoking if they work with very young children: "Child care personnel who choose to smoke on their breaks shall change into fresh clothing, or remove smoke contaminated outerwear prior to returning to work with children younger than 24 months to reduce exposure to second hand smoke."

Restrictions on Children's Access to Tobacco Products or Materials. Federal and state laws prohibit the sale of tobacco products to minors across the U.S., and most states have additional restrictions on the possession and use of tobacco products by minors.[31] In addition, several states have adopted child care licensing regulations that restrict children's access to smoking or tobacco products in child care facilities. Some measures apply to all licensed facilities; others apply to particular types of facilities. The regulations require smoking products to be inaccessible to children, kept out of the reach of children, and/or kept out of children's sight.

Summary: State Laws and Regulations

All states prohibit or restrict smoking at child care facilities in some way, though only a few prohibit smoking at all times for all types of licensed child care facilities. In many states, smoking is prohibited in certain types of facilities (typically home-based child care) only during the hours of operation and/or in the presence of children. Virtually all states have some type of restriction on smoking in child care vehicles, though these provisions vary in their scope and specificity. To understand a state's smoking restrictions, it is necessary to review both its child care laws and regulations and its smoke-free laws and regulations, which may establish somewhat different prohibitions and restrictions.

States can build on the examples established in other jurisdictions to strengthen their own child care and/or smoking laws and regulations. According to the Centers for Disease Control and Prevention, "[e]stablishing a 100% smokefree environment is the only effective way to fully protect nonsmokers from secondhand smoke."[32] A comprehensive smoke-free requirement would prohibit smoking at any time on the child care facility premises and in vehicles used to transport children, as well as off the premises during child-care related activities.

[31] *See* American Lung Association, State Legislated Actions on Tobacco Issues (SLATI) Overview Data, *at*: http://www.lungusa2.org/slati/slatiOverview.php.
[32] CDC, Ventilation Does Not Effectively Protect Nonsmokers from Secondhand Smoke, *at:* http://www.cdc.gov/tobacco/data_statistics/fact_sheets/secondhand_smoke/protection/ventilation/index.htm?s_cid=tw_osh133.

Restrictions on the Use of Electronic Cigarettes

The U.S. Food and Drug Administration (FDA) describes electronic cigarettes (or "e-cigarettes") as: "battery-operated products designed to deliver nicotine, flavor and other chemicals. They turn chemicals, including highly addictive nicotine, into an aerosol that is inhaled by the user." U.S. FDA, Electronic Cigarettes (e-Cigarettes), *at*: http://www.fda.gov/newsevents/publichealthfocus/ucm172906.htm. E-cigarettes have become a subject of public debate as their use has increased dramatically over the past few years. This debate includes questions about the potential health risks from chemical components of the vapor that is inhaled and produced, as well as concerns about the risk of e-liquid poisoning (especially among children) and whether the devices may lead more people (especially young people) to begin using nicotine products.

States are beginning to incorporate explicit restrictions on the use of e-cigarettes in licensed child care facilities. New Jersey, Utah, Minnesota, and North Dakota are among the states that now have smoke-free laws or regulations that define smoking to include the use of e-cigarettes. Arkansas, Oregon, and Vermont are examples of states that have amended their child care laws or regulations recently to include e-cigarettes explicitly within the prohibition on smoking. Absent an explicit provision addressing e-cigarettes, whether a state restricts the use of e-cigarettes in child care facilities depends on the terms and definitions contained in a state's smoke-free and child care laws and regulations.

Non-Regulatory Initiatives

Non-regulatory initiatives can complement smoking laws and child care regulations by educating providers about minimum legal requirements and by encouraging providers to adopt policies that exceed those requirements. The following examples are discussed more generally in Chapter 12.

Recognition Programs. Indiana's voluntary Five Star Environmental Recognition Program for Child Care Facilities promotes comprehensive, tobacco-free policies. To achieve 5-star status under the program, participating center-based and home-based providers must have a written "100% Tobacco-Free Facility and Grounds" policy included in the staff and parent handbooks (or, where there are no handbooks, the facility must inform parents and staff about the policy). According to program guidelines, the policy must: "Prohibit staff, parents, volunteers, and visitors from tobacco use inside the building and outside on the grounds as well as in vehicles (private or facility owned)

used to transport children for child care activities and during field trips, walks, and other off-site activities." Additionally, the guidance notes that "(h)ookah; e-cigarettes; and smokeless, dissolvable, and flavored tobacco products are also all prohibited." The program checklist further requires that providers post signs about the policy, and free signage is offered to participants in the program.[33]

Pennsylvania's voluntary Early Childhood Education Healthy & Green Initiative incorporates a variety of environmental health criteria for child care providers who participate in the program, including a prohibition on tobacco use.[34] Model policies developed and made available in connection with the Initiative incorporate an approach to tobacco smoke that goes beyond the minimum required under state law, providing that: "Smoking is not allowed anywhere on the premises or in vehicles used to transport children at any time. To prevent thirdhand smoke exposure, anyone who smokes is required to keep and wear clean clothing at the facility that has not been worn when the individual was smoking and was not kept in an environment where smoking occurs."[35]

Educational and Guidance Materials. State asthma management programs and publications usually offer guidance and recommendations to protect children from environmental tobacco smoke. The Connecticut Department of Public Health's Asthma Program maintains a web site focused specifically on asthma in day care. Available on this site is the state's *Managing Asthma in Connecticut Child Care Facilities,* a 56-page resource guide that offers suggestions for steps that providers can take to prevent exposure to tobacco smoke, including: "Never smoke in any part of a home or a car where a child with asthma is going to be – even if they are not there at the time…. If someone does smoke, always go outside and wear a coat or shirt you can take off before going back in, so the smoke particles don't come inside."[36] Among the manual's resources for parents and providers is a checklist for asthma-friendly child care that incorporates two items related to smoking: "Smoking is not allowed anywhere on the premises…. This rule is strictly enforced;" and "Staff and parents are encouraged to participate in smoking cessation programs, and given referrals and assistance."

[33] *See* Ind. Dep't of Envtl. Mgmt., Five Star Child Care Guidelines, *available at:* www.in.gov/idem/health/2350.htm#general; Ind. Dep't of Envtl. Mgmt., Indiana Five Star Environmental Recognition Program for Child Care Facilities Application, *available at*: www.in.gov/idem/5157.htm#op2.
[34] As discussed in Chapter 12, the Pennsylvania initiative incorporates the criteria of the Eco-Healthy Child Care Program® (EHCC). The EHCC checklist includes this mandatory item for participating providers: "During operating hours, we do not permit smoking anywhere on the premises or in sight of children. (Note: For the healthiest environment for children and staff, smoking should not be allowed on the premises at any time)." The checklist is available at http://cehn.org/files/Checklist_English%201406.pdf.
[35] Early Childhood Education Linkage System (ECELS), Model Environmental Health Policy for Early Education and Child Care Programs, *at*: https://www.pakeys.org/uploadedContent/Docs/Healthy%20and%20Green/6-10-13%20v6%20finalCross-walk%20with%20model%20policies.pdf. *See also* Pa. Office of Child Devt. and Early Learning, Pennsylvania Reference Air Quality Fact Sheet, *available at*: https://www.pakeys.org/pages/get.aspx?page=Environmental_Health.
[36] Conn. Dep't of Public Health, Managing Asthma in Connecticut Child Care Facilities at 10 (2011), *at*: http://www.ct.gov/dph/lib/dph/hems/asthma/pdf/12-11_final_managing_asthma_in_ct_child_care_facilities.pdf.

Statutes and Regulations Cited in Chapter 2

The summary provided in this chapter is based on a review of the following statutes and regulations. The chart does not necessarily include every state statutory and regulatory provision that addresses smoking in child care facilities. The Appendix to this report includes a list of state websites for locating state statutes and regulations.

Note: Most citations below refer to the first section in the applicable statute or regulation, rather than a specific smoke-free provision. Citation to multiple child care regulations usually indicates that a state has smoke-free provisions addressing more than one type of child care facility.

	CHILD CARE STATUTES & REGULATIONS	SMOKE-FREE STATUTES & REGULATIONS
Alabama	Al. Admin. Code 660-5-26-.01, 660-5-27-.01	Al. Code 22-15A-1; Al. Admin. Code 420-3-28-.01
Alaska	7 Ak. Admin. Code 10.010, 57.010 , 41.200	Ak. Stat. 18.35.300
Arizona	Az. Admin. Code 6-5-5201, 9-3-101, 9-5-101	Az. Rev. Stat. 36-601.01
Arkansas	Ar. Code 20-78-201; Ar. Code Rules 016.22.1-101, 016.22.4-101, 016.22.6-101	Ar. Code 20-27-1801, 20-27-1901; Ar. Code Rules 016.24.3
California	Ca. Health & Safety Code 1596.70; 22 Ca. Admin. Code 101151, 102351.1	Ca. Labor Code 6404.5
Colorado	12 Co. Code Regs. 2509-8:7.701.1., 2509-8:7.707.4	Co. Rev. Stat. 25-14-103.5, 25-14-201
Connecticut	Ct. Agencies Regs. 19a-79-1a, 19a-87b-1	Ct. Gen. Stat. 19a-342
Delaware	9 De. Admin. Code 101-1.0, 103-1.0, 104-1.0	16 De. Stat. 2901; 16 De. Admin. Code 4452-1.0
Florida	Fl. Admin. Code 65C-20.008, 65C-22.001	Fl. Stat. 386.201; Fl. Admin. Code 64I-4.001
Georgia	Ga. Code 20-1A-10; Ga. Comp. Rules & Regs. 290-2-1-.01, 290-2-3-.01, 591-1-1-.01	Ga. Code 16-12-2, 31-12A-1
Hawaii	Hi. Rev. Stat. 346-151; Hi. Code Rules 17-892.1-1, 17-895-1, 17-891.1-1	Hi. Rev. Stat. 328J-1; Hi. Code Rules 11-81-1, 19-143-3
Idaho	Id. Code 39-1101; Id. Admin. Code 16.06.02.000	Id. Code 39-5501; Id. Admin. Code 16.02.23.010
Illinois	225 Il. Comp. Stat. 10/1; 89 Il. Admin. Code 406.1, 407.40, 408.1	410 Il. Comp. Stat. 82/1

Indiana	470 In. Admin. Code 3-4.7-1	In. Code 7.1-5-12-0.5
Iowa	Ia. Code 237A.1; Ia. Admin. Code 441-106.1(237B), 441-109.1(237A), 441-110.1(237A)	Ia. Code 142D.1; Ia. Admin. Code 641-153.1
Kansas	Ks. Stat. 65-501; Ks. Admin. Regs. 28-4-113, 28-4-122, 28-4-420	Ks. Stat. 21-6109
Kentucky	922 Ky. Admin. Regs. 2:100, 2:120, 2:180	
Louisiana	67 La. Admin. Code III.7301, 67 La. Admin. Code III.7355	La. Rev. Stat. 40:1300.251
Maine	Me. Code Rules 10-148-32, 10-148-33, 10-148-36	22 Me. Rev. Stat. 1541, 1580-A; Me. Code Rules 10-144-249
Maryland	Md. Code Regs. 13A.15.01.01, 13A.16.01.01, 13A.17.01.01, 13A.18.01.01	Md. Code, Health–Gen. 24-501; Md. Code Regs. 10.19.04.01 Md. Code, Lab. & Empl. 5-608
Massachusetts	606 Ma. Code Regs. 7.01	Ma. Gen. Laws 270, § 22; 105 Ma. Code Regs. 661.0001
Michigan	Mi. Comp. Laws 722.111; Mi. Admin. Code 400.8101, 400.1901	Mi. Comp. Laws 333.12601
Minnesota	Mn. Rules 9502.0315	Mn. Stat. 144.411
Mississippi	Ms. Code 15-11-55:1.1.1, 15-11-55:2.1.1	
Missouri	19 Mo. Code Regs. 30-60.010, 30-61.010, 30-62.010	Mo. Rev. Stat. 191.765
Montana	Mt. Admin. Rules 37.95.101	Mt. Code 50-40-101
Nebraska	391 Ne. Admin. Code 1-001, 2-001, 3-001, 5-001	Ne. Rev. Stat. 71-5716
Nevada		Nv. Rev. Stat. 202.2483
New Hampshire	N.H. Code Admin. Rules He-C 4002.01	N.H. Rev. Stat. 155:64; N.H. Code Admin. Rules He-P 1902.01
New Jersey	N.J. Admin. Code 10:122–1.1	N.J. Stat. 26:3D-55; N.J. Admin. Code 8:6-2.1
New Mexico	N.M. Code Rules 8.16.2.20, 8.16.2.30	N.M. Stat. 24-16-1; N.M. Code Rules 7.37.2
New York	18 N.Y. Comp. Codes Rules & Regs. 416.1(1), 417.1(1), 418-1.1	N.Y. Pub. Health Law 1399-n

North Carolina	10A N.C. Admin. Code 9.0102	N.C. Gen. Stat. 130A-491
North Dakota	N.D. Century Code 50-11.1-01	N.D. Century Code 23-12-09, 23-12-10
Ohio	Oh. Rev. Code 5104.01; Oh. Admin. Code 5101:2-12-01, 5101:2-13-01, 5101:2-14-01	Oh. Rev. Code 3794.01; Oh. Admin. Code 3701-52-01
Oklahoma	Ok. Admin. Code 340:110-3-1, 340:110-3-35, 340:110-3-80	63 Ok. Stat. 1-1521.; Ok. Admin. Code 310:355-1-1; 21 Ok. Stat. 1247
Oregon	Or. Rev. Stat. 329A.330; Or. Admin. Rules 414-205-0000, 414-300-0000, 414-350-0000	Or. Rev. Stat. 433.835
Pennsylvania	55 Pa. Code 3270.1, 3280.1, 3290.1	35 Pa. Cons. Stat. 637.1
Rhode Island	R.I. Admin. Code 03 000 016, 03 000 018, 03 000 019	R.I. Gen. Laws 23-20.10-1; R.I. Code Rules 31-1-17:1.0
South Carolina	S.C. Code Regs. 114-500, 114-510, 114-520	S.C. Code 44-95-10
South Dakota		S.D. Codified Laws 34-46-13
Tennessee	Tn. Comp. Rules & Regs. 1240-04-01-.01, 1240-04-02-.01, 1240-04-03-.01 , 1240-04-04-.01	Tn. Code 39-17-1801; Tn. Comp. Rules & Regs. 0800-06-01-.01
Texas	40 Tx. Admin. Code 746.101, 747.101	
Utah	Ut. Admin. Code 430-50, 430-60, 430-70, 430-90, 430-100	Ut. Code 26-38-1; Ut. Admin. Code 392-510
Vermont	33 Vt. Stat. 3504; Vt. Code Rules 12-3-101:1, 12-3-102:1, 12-3-103:1	18 Vt. Stat. 1421, 1741; 23 Vt. Stat. 1134b
Virginia	22 Va. Admin. Code 40-185-10, 40-111-10	Va. Code 15.2-2820
Washington	Wa. Admin. Code 170-295-0001, 170-296A-0001	Wa. Rev. Code 70.160.011
West Virginia	W.V. Code Rules 78-1-1, 78-18-1, 78-19-1; .V. Code Rules 64-21-1	
Wisconsin	Wi. Admin. Code DCF 202.01, 250.01, 251.01	Wi. Stat. 101.123
Wyoming	Wy. Code Rules 049-185-07, 049-185-08, 049-185-09	

CHAPTER 3

Radon

Radon is a naturally occurring, radioactive gas produced by the breakdown of uranium in soil, rock, and water. Indoor exposure to radon is the second leading cause of lung cancer in the United States and the leading cause of lung cancer among nonsmokers. According to the U.S. EPA, indoor radon exposure is responsible for about 21,000 lung cancer deaths in the country each year, with nearly 3,000 deaths among people who have never smoked.[37]

Radon can move from the ground into the air inside a building through cracks and other holes in the foundation. 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. However, because there is no known safe level of exposure to radon, EPA also recommends that people consider fixing their home when radon levels are between 2.0 pCi/L and 4.0 pCi/L. The only way to know the radon level in a particular building is to test the building for radon. The EPA and other organizations have developed radon testing guidelines. If testing reveals elevated levels, there are well-established, cost-effective methods for installing radon reduction systems.[38]

This chapter provides an overview of the laws and regulations of eight states that have established radon testing and/or mitigation requirements for *existing* child care facilities.[39] Following the summary of state policies, the chapter describes notable non-regulatory initiatives implemented by states to promote radon risk reduction in child care facilities.

Types of Laws/Regulations Included. The discussion that follows covers state child care laws and regulations, as well as other state laws and regulations that address radon in child care facilities. While the chapter summarizes only explicit radon provisions in state laws and regulations, states may address radon in the licensing process based on other regulatory provisions. For example, New York requires child care facilities in high radon potential zones to test for and resolve any radon problems as part of the licensing process. This requirement is based on a regulatory requirement that "the building, its property and premises, and the surrounding neighborhood and environment

[37] U.S. EPA, Radon Health Risks, *at:* http://www.epa.gov/radon/healthrisks.html.
[38] U.S. EPA, Why is radon the public health risk that it is?, *at*: http://epa.gov/radon/aboutus.html; U.S. EPA, Radon Publications and Resources, *at*: http://www.epa.gov/radon/pubs/index.html.
[39] For a summary of several state laws and regulations that establish radon requirements for *new* home construction, see Environmental Law Institute, Radon Control in New Home Construction: Developments in State Policy, *available at*: http://www.eli.org/buildings/policy-briefs.

are free from environmental hazards."[40] (For a fuller description of this requirement, see Chapter 11 - Site/Location.)

Types of Facilities Covered. While some of the radon laws and regulations discussed below apply to all types of licensed facilities, some of the states included here have radon requirements that apply more narrowly – only to child care centers, or in one case only to home-based facilities. Consult individual state laws and regulations to determine precisely which licensed facilities are subject to the state's radon testing and mitigation requirements. The chart at the end of the chapter provides citations to the laws and regulations reviewed for the report.

Radon Testing Requirements for Child Care Facilities

All but one of the eight states discussed here include radon testing provisions in their child care licensing laws and regulations. Florida and Rhode Island have separate radon laws that establish requirements applicable to child care facilities.

Testing Requirement. The states profiled in this chapter all require radon testing in one or more types of licensed child care facilities. In Iowa, child care regulations qualify this requirement somewhat by stating that testing is required "if test kits are available from the local health department or the Iowa Radon Coalition."

The only way to know the radon level in a building is to test the building for radon.

The state of Maine, not included in this summary, is currently the only state in the U.S. that requires landlords to test their *rental dwellings* and notify tenants of the results. Thus, while the state does not directly require radon testing in child care facilities, facilities located in covered rental dwellings would be tested as required by this law.

Testing Protocols. By specifying testing practices and procedures, state policies can help ensure consistency with best practices and reliability of radon testing results.

Most of the states that require radon testing also set forth *testing procedures* for carrying out the testing. In a few states, these procedures are explicitly referenced in the regulations. In Rhode Island, for example, testing protocols are incorporated directly into the state's radon regulations. In Florida, radon regulations call on the Department of Health to establish testing protocols and the agency has published a detailed radon testing guidance document.[41] Similarly, Illinois' child care regulations require radon testing to be conducted "pursuant to rules established by" the state's radon program; the rules establish protocols that must be followed by individuals or companies certified by the state to perform radon testing. In a few states (Connecticut, Iowa, and New Jersey)

[40] 18 N.Y. Comp. Codes Rules & Regs. 416.1(1), 417.1(1), 418-1.2, 418-2.2. *See also* N.Y. State Office of Children & Family Services (OCFS), Environmental Hazards Guidance Sheet, *available at*: http://www.ocfs.state.ny.us/main/documents/docsChildCare.asp

[41] Fla. Dep't of Health, Mandatory Radon Testing Protocols, *at*: http://www.floridahealth.gov/healthy-environments/radon/_documents/proto96.pdf.

the regulations do not establish or require detailed testing procedures, but state health or environmental agencies have developed guidance for meeting the radon testing requirements under the state's child care regulations.[42]

A number of states require *re-testing* at periodic intervals, though the prescribed interval varies. Illinois and Rhode Island require testing every three years, while Iowa requires testing more frequently (every two years) and New Jersey less frequently (every five years). In Florida, a second test is required five years after the initial test; additional testing is only required if significant structural changes are made to the facility.

In additional to establishing testing protocols, some states require the use of qualified testing professionals or services. Several states covered in this chapter have a separate law or regulation requiring individuals or companies that conduct radon testing to be licensed or certified by the state. Such certification laws also may establish protocols that certified testers must follow.[43]

Reporting and Notification. Reporting of radon test results is important not only for making parents/guardians aware of facility conditions, but also for facilitating state oversight of testing requirements and giving state agencies a better understanding of the scope of the radon problem within the state.

Several of the states discussed here require that radon test results in child care facilities be *reported to the state.* Three states (Illinois, New Jersey, and Rhode Island) explicitly require facilities to provide evidence of radon testing at the time of license application and/or renewal. Connecticut's child care regulations require generally that test results be provided to the state and local child care agencies. Radon laws and regulations in Rhode Island and Florida require reporting of radon test results to the state agency (Health Department) that administers the state radon program and radon regulations. States with radon certification laws may have additional reporting requirements that apply to professionals covered by those laws.

Some states require that results of radon testing be *available to parents*. Connecticut requires posting of results next to the child care facility license, while New Jersey law requires that facilities post the results of the radon test and any mitigation measures "at a location in the building which is readily visible to persons having responsibility for any child that attends the child care center." Illinois has adopted detailed provisions, requiring facilities to provide copies of the report to

[42] *See* N.J. Dep't of Envtl. Protection, Radon Testing in Child Care Centers, *at*: http://www.state.nj.us/dep/rpp/radon/scl_day.htm; Iowa Dep't of Public Health, Radon, *at*: http://www.idph.state.ia.us/Radon/Test.aspx; Conn. Dep't of Public Health, Radon Testing Guidance for Child Care Centers and Group Day Care Homes, *at:* http://www.ct.gov/dph/lib/dph/environmental_health/radon/pdf/Radon_Testing_Guidance.pdf.

[43] For a 2012 summary of state radon certification laws, see Envtl. Law Institute, Radon in Homes: Strengthening State Policy to Reduce Risk and Save Lives, *available at*: http://www.eli.org/buildings/radon-homes-strengthening-state-policy. Five of the eight states covered here (Florida, Illinois, Iowa, New Jersey, and Rhode Island) have radon certification laws whose provisions may affect radon testing carried out in child care facilities. Some of these laws are limited in application to those who receive remuneration, and most exempt those who test buildings they own and/or reside in.

parents/guardians upon request, post the most current radon measurement report next to the license, and include the following statement with the report:

> *Every parent or guardian is notified that this facility has performed radon measurements to ensure the health and safety of the occupants. The Illinois Emergency Management Agency (IEMA) recommends that all residential homes be tested and that corrective actions be taken at levels equal to or greater than 4.0 pCi/L. Radon is a Class A human carcinogen, the leading cause of lung cancer in non-smokers, and the second leading cause of lung cancer overall. For additional information about this facility contact the licensee and for additional information regarding radon contact the IEMA Radon Program . . . .*

Applicability Limited by Location of Facility. The only way to know the radon levels in a building is to test the building. Some states limit their radon testing requirement to facilities or structures that they believe present the greatest potential for elevated radon levels based on their location.

Since radon enters a building through cracks and other openings in walls and floors in contact with the ground, radon testing protocols generally call for testing in the lowest lived-in *level of a building* (i.e., a frequently used space). Some states limit radon testing requirements to child care facilities that use the lower levels of a building. For example, Connecticut requires radon testing only if the child care facility uses the first floor or basement of a building. Iowa's regulatory requirement applies to facilities that are at ground level, use a basement area as program space, or have a basement beneath the program area. Michigan requires documentation of radon results for the "lowest level of the child care home."

The EPA has created a map of *radon zones* that designates counties within the U.S. as having high, moderate, or low average radon potential, based on radon testing and other data.[44] As EPA notes, however: "This map is not intended to be used to determine if a home in a given zone should be tested for radon. Homes with elevated levels of radon have been found in all three zones. All homes should be tested regardless of geographic location." Florida has created its own Florida Radon Protection Map and limits applicability of its radon testing requirements to those licensed day care facilities located in areas of "Intermediate" or "Elevated" radon potential on the map.

Radon Mitigation Requirements for Child Care Facilities

Mitigation Requirement. Most of the states reviewed here – Connecticut, Iowa, Michigan, New Hampshire, and Rhode Island – explicitly require mitigation of elevated radon levels and establish a mitigation action level of 4.0 pCi/L. While New Jersey's child care licensing regulations require radon testing but do not explicitly address mitigation, the regulations require certain child care centers to obtain an Indoor Environmental Health Assessment (IEHA); the IEHA, in turn, includes testing for and mitigation of elevated radon levels. (For a summary of New Jersey's IEHA provisions, see Chapter 11 – Site/Location.)

[44] U.S. EPA, Map of Radon Zones, *at*: http://www.epa.gov/radon/zonemap.html.

Mitigation Practices/Procedures. Some states that require mitigation of elevated radon levels also establish protocols for conducting the mitigation. In Iowa, for example, if testing reveals elevated levels, a plan using radon mitigation procedures established by the Department of Public Health must be developed with and approved by the agency prior to issuance of a full license. Rhode Island references EPA mitigation standards, establishes additional provisions (including post-mitigation follow-up testing), and requires the facility to submit formal notification to the Department of Health prior to commencing the mitigation activities.

There are now well-established, cost-effective methods for reducing elevated radon levels.

As noted earlier, some states require certification or licensure of radon mitigation professionals, and those laws and regulations may include protocols for carrying out mitigation activities. Child care regulations in Connecticut (which does not have a separate radon certification program) require that radon mitigation in child care facilities be carried out by service providers that have received third-party certification.

Summary: State Laws and Regulations

Several states have taken steps to reduce radon risks in licensed child care facilities by establishing explicit radon requirements in their laws and regulations. These policies typically require testing for and mitigating elevated radon levels, and most establish certain minimum practices for carrying out the required testing and mitigation and for notifying the state and/or parents of the results. There are many other states throughout the U.S. that have areas of high and moderate radon potential and that can benefit from strengthening their policies to reduce radon exposure for children and staff in child care facilities. In addition to adopting radon testing and mitigation requirements in connection with child care licensing, states can help to identify and marshal resources to assist providers who serve low-income families in mitigating elevated radon levels.

Non-Regulatory Initiatives

Some states that do not require licensed child care providers to address radon risks nonetheless have established formal agency initiatives to encourage radon testing and mitigation in child care facilities. These activities, which are discussed more generally in Chapter 12, include voluntary recognition programs, outreach, and technical and financial assistance.

Recognition Programs. Indiana and Pennsylvania have voluntary recognition programs that incorporate radon testing and mitigation. Indiana's Five Star Environmental Recognition Program for Child Care Facilities requires testing for and mitigating elevated radon levels in order for a program to receive 3-star status (the basic endorsement). Free radon test kits are currently available to applicants through a partnership with the American Lung Association of Indiana.[45]

[45] *See* Ind. Dep't of Envtl. Mgmt., Five Star Child Care Guidelines, *available at:* www.in.gov/idem/health/2350.htm#general; Ind. Dep't of Envtl. Mgmt., Indiana Five Star Environmental Recognition Program for Child Care Facilities Application, *available at*: www.in.gov/idem/5157.htm#op2.

Pennsylvania's Early Childhood Education Healthy & Green Initiative includes criteria for participating providers that address radon, and also is notable for offering providers mini-grants that may be used for a variety of facility-related improvements, including radon testing and mitigation.[46]

Outreach and Technical/Financial Assistance. The Minnesota Department of Health Indoor Air Unit's Healthy Homes for Family Child Care program addresses a variety of environmental health issues, with a particular emphasis on radon. Two in five homes in the state have elevated radon levels. The project was launched with aggressive outreach to in-home child care providers to encourage them to complete an online self-assessment of their homes.[47] After completing the assessment, providers receive a detailed report on their home facility and, depending upon their answers to the self-assessment questions, a customized action plan. They also receive a radon test kit. According to state officials, as of October 2014, 653 child care providers had completed the assessment and 509 had submitted radon test results. Child care providers who completed these steps by April 30, 2014 were eligible to be among the 40 homes that receive radon mitigation under the program through a certified radon contractor. The 40 homes were to be selected based on greatest need, as determined by radon test results, household income, and the number of children in care in the home.

Following this initial phase of the project, the self-assessment checklist will remain on the agency website and available to the public. Those who complete the checklist will receive a customized action plan and be recognized on the program website.

[46] Information about the Healthy & Green Initiative is available at http://www.pakeys.org/pages/get.aspx?page=Healthy_Green.

[47] The assessment is similar to and based on the agency's Minnesota Healthy Homes Assessment Tool, which can be accessed at http://www.health.state.mn.us/divs/eh/homes/forpartners/hhassesstool.pdf.

Statutes and Regulations Cited in Chapter 3

The summary provided in this chapter is based on a review of the following statutes and regulations. The chart does not necessarily include every state statute and regulation that addresses radon in child care facilities. The report's Appendix includes a list of state websites for locating state statutes and regulations.

Note: Most citations below refer to the first section in the applicable statute or regulation, rather than a specific radon provision. Citation to multiple child care regulations usually indicates that there are separate radon provisions in the regulations for different types of child care facilities.

	CHILD CARE STATUTES & REGULATIONS	OTHER STATUTES & REGULATIONS*
Connecticut	Ct. Agencies Regs. 19a-79-1a	
Florida		Fl. Stat. 404.056; Fl. Admin. Code 64E-5.1208 (Health/Radon)
Illinois	225 Il. Comp. Stat. 10/1; 89 Il. Admin. Code 406.1, 407.40, 408.1	
Iowa	Ia. Admin. Code 441-109.1 (237A)	
Michigan	Mi. Admin. Code 400.1901	
New Hampshire	N.H. Code Admin. Rules He-C 4002.01	
New Jersey	N.J. Stat. 30:5B-1; N.J. Admin. Code 10:122-1.1	N.J. Admin. Code 8:50-1.1 (Health/Indoor Envtl. Health Assmt.)
Rhode Island	R.I. Admin. Code 03 000 016, 03 000 018, 03 000 019	R.I. Gen. Laws 23-61-1; R.I. Code Rules 31-1-25:A.1 (Health/Radon)

* This chart does not include radon certification laws, which may be applicable to the radon testing and mitigation requirements discussed in this chapter. *See* Envtl. Law Institute, Radon in Homes: Strengthening State Policy to Reduce Risk and Save Lives, *available at*: http://www.eli.org/buildings/radon-homes-strengthening-state-policy.

CHAPTER 4

Carbon Monoxide Alarms

Carbon monoxide (CO) is an odorless, colorless gas produced from the incomplete burning of fuels such as gas, oil, kerosene, wood, and charcoal. In child care facilities, sources of carbon monoxide may include malfunctioning fuel-burning appliances (e.g., furnaces, water heaters, unvented space heaters, gas stoves, wood stoves) or flues, as well as automobile exhaust from attached garages or nearby parking areas. Portable generators may also lead to CO poisoning if they are used in an enclosed space or are placed outdoors at a location that is too close to windows, doors, or vents.[48]

If carbon monoxide builds up in the air inside a child care facility, children and staff can be harmed by breathing in the gas. Early symptoms of CO poisoning may mimic the flu and include headache, dizziness, weakness, nausea, vomiting, chest pain, and confusion. Long-term breathing of carbon monoxide can affect memory, brain function, behavior, and cognition. At high concentrations, acute CO exposure can cause loss of consciousness and death. The Centers for Disease Control and Prevention (CDC) estimates that every year in the U.S. more than 400 people die from unintentional CO poisoning, more than 20,000 visit hospital emergency departments, and over 4,000 are hospitalized for CO poisoning.[49]

Early symptoms of CO poisoning may mimic the flu or other common ailments.

Regular inspections of fuel-burning equipment can help prevent the buildup of CO indoors by ensuring that the equipment is operating properly and is vented to the outside.[50] Since a person cannot see or smell carbon monoxide, another key measure for preventing CO poisoning is the use of indoor CO alarms, which measure the concentration of carbon monoxide in the indoor air and alert occupants to elevated CO levels within a building.[51] Use of CO alarms increases the likelihood that evacuation or other preventive measures can be

[48] *See* U.S. Consumer Product Safety Commission (CPSC), Carbon Monoxide Questions and Answers, *at*: http://www.cpsc.gov/en/Safety-Education/Safety-Education-Centers/Carbon-Monoxide-Information-Center/Carbon-Monoxide-Questions-and-Answers-/.
[49] *See* Centers for Disease Control and Prevention (CDC), Carbon Monoxide Poisoning: Frequently Asked Questions, *at*: http://www.cdc.gov/co/faqs.htm.
[50] *See generally*, U.S. EPA, Sensible Steps to Healthier School Environments, *at*: http://nepis.epa.gov/Exe/ZyPDF.cgi/P100EQOE.PDF?Dockey=P100EQOE.PDF.
[51] For purposes of this chapter, the term "CO alarm" includes any device designed to measure CO in the indoor air and alert the building's occupants; however, state laws and regulations may refer to "devices," "detectors," or "warning equipment."

taken before CO concentrations reach dangerous levels. According to the U.S. EPA, half of all unintentional CO poisoning deaths could be prevented with the use of CO alarms.[52]

This chapter provides an overview of state laws and regulations establishing CO alarm requirements for certain types of *existing* child care facilities.

Types of Laws/Regulations Included. The summary below covers child care laws and regulations as well as other types of state laws and regulations (such as statewide fire codes or public health/safety codes[53]) in which CO alarm requirements are found. The chapter does not review requirements found in landlord-tenant laws or property maintenance codes applicable to rental dwellings only.[54] Nor does the chapter cover laws and regulations that require the installation of CO alarms in connection with the construction or renovation of a building or with the sale of a building. Citations for the laws and regulations reviewed here are included in the table at the end of the chapter.

In addition to the laws and regulations summarized here, state child care licensing agencies may use their general regulatory authority to develop written policies or guidance documents or to develop voluntary initiatives to promote the use of CO alarms. For example, the Indiana Department of Environmental Management's voluntary Five Star Environmental Recognition Program for Child Care Facilities (described in Chapter 12) requires a CO alarm in order for a participating facility to achieve 3-star status under the program.

Types of Child Care Facilities. In many states, the CO alarm requirement is limited to certain types of licensed child care facilities. For example, a number of states require installation of CO alarms in child care homes, but not in child care centers. Precisely which facilities are covered depends on the specific CO provision and the state's licensing categories; consult individual state laws and regulations to determine the applicability of the requirements discussed in this chapter to various types of regulated facilities within the particular state.

[52] U.S. EPA, Fact Sheet: Preventing Carbon Monoxide Poisoning (2009), *at:* http://www.epa.gov/aging/factsheets/pcmp/pcmp_english_100-F-09-001.pdf; *see also* CPSC, Carbon Monoxide Questions and Answers, *at:* http://www.cpsc.gov/en/Safety-Education/Safety-Education-Centers/Carbon-Monoxide-Information-Center/Carbon-Monoxide-Questions-and-Answers-/.

[53] This chapter reviews *state* fire codes only; in some states child care facilities may be subject to local fire codes that include CO alarm requirements.

[54] Landlord-tenant provisions may affect child care facilities located in rental dwellings, particularly in states with no other CO alarm requirements applicable to existing buildings. Typically, requirements applicable to rental facilities specify that the building's *owner* or landlord is responsible for installation of the CO alarm; however, the tenant (i.e., the child care provider) may be responsible for replacing batteries or otherwise maintaining the device. A few of the laws and regulations included in this summary contain provisions that address rental dwellings in addition to requirements for other types of buildings.

Types of Laws and Regulations that Establish CO Alarm Requirements

At least 40 percent of all states have requirements related to CO alarms in their child care licensing laws and regulations. Around the same number of states have separate laws or regulations (e.g., statewide fire codes) implemented by other states agencies, which apply CO alarm requirements to child care facilities or to buildings in which child care facilities may be located. There is some overlap in these two categories — several states include CO alarm requirements in their child care regulations and in other areas of state law and regulation. These policies may apply to center-based child care, to home-based child care, or to both types of facilities.

CO Alarm Required in Child Care Facilities

A majority of states have established statewide CO alarm requirements applicable to certain existing licensed child care facilities, though some of these states limit the applicability of the CO alarm requirement based on the type of occupancy or facility. Most states provide exemptions for buildings or units without a carbon monoxide source.

Requirement Limited to Residential Buildings. Of the states that have CO alarm requirements for child care facilities, around one third have requirements that apply only to child care facilities located in certain types of residences.[55] In some of these states, the CO alarm requirement is included in the child care licensing regulations for home-based facilities. In other states, the CO alarm requirement is part of a statewide fire or public health/safety code whose applicability to existing buildings is limited to certain residential occupancy classifications (e.g., single family dwellings, one- or two-family dwellings, multifamily dwellings); these laws and regulations would thus apply only to child care facilities located in the types of dwellings covered by the laws.

Requirement Applicable to Home-based and Center-based Child Care. Of the states that have CO alarm requirements for child care facilities, around two thirds have requirements that apply to both center-based and home-based child care facilities.[56] In most of these states, the CO alarm

[55] These states include: Colorado, Delaware, Illinois, Maine, Minnesota, New Hampshire, New Jersey, Ohio, Oklahoma, Pennsylvania, and Wisconsin. (Note: Delaware has proposed a set of updated child care regulations that include a CO alarm requirement for child care centers.) States that require CO alarms only in *center-based* facilities include Iowa and Oregon.

[56] These states include: Alaska, Arkansas, California, Connecticut, Idaho, Kentucky, Massachusetts, Michigan, Mississippi, Missouri, New York, Rhode Island, South Carolina, Texas, Utah, Vermont, Washington, West Virginia, and Wyoming.

provisions are found in the child care licensing regulations. In a few of these cases, the child care regulations only require CO alarms in home-based facilities, while the center-based requirement is spelled out in the state fire code. In a few other cases, CO provisions applicable to center-based and home-based facilities are included in both types of laws/regulations.

In a small number of states, the CO alarm requirement is applied to both types of child care facilities exclusively through the fire code. In Vermont, for example, all licensed child care facilities are classified as "public buildings" that require CO alarms pursuant to the Vermont Fire and Building Safety Code. A few states, including South Carolina, Idaho,[57] and Utah, established CO alarm requirements for both center- and home-based licensed child care facilities through adoption of the 2012 edition of the model *International Fire Code* (IFC).[58] Previous editions of the IFC (in effect in many states) require CO alarms only in new occupancies; however, in 2012, the IFC was updated to require installation of CO alarms in both new and existing *residential* (Group R) occupancies, as well as in existing *institutional* (Group I-4) child care occupancies caring for five or more children.[59] In coming years, as more states update their fire codes to incorporate the provisions of the 2012 IFC (or subsequent editions), the number of states requiring CO alarms in existing homes and child care centers (as defined by the IFC) is likely to increase.[60]

A majority of states require CO alarms in certain types of child care facilities.

Requirement Limited to Buildings with Fuel-Burning Equipment or Attached Garage. Most of the state policies discussed in this chapter limit the requirement for CO alarms to child care facilities located in buildings with fuel-burning equipment or an attached parking garage, since the risk of CO poisoning is lower in buildings without such features. New Jersey requires that every unit in a multiple-dwelling building be equipped with a CO alarm "unless it is determined that no potential carbon monoxide hazard exists for that unit."

[57] In Idaho, existing buildings must meet 2012 IFC requirements "only, if in the opinion of the fire code official, they constitute a distinct hazard to life or property." Id. Admin. Code 18.01.50.038.
[58] In addition, Oregon adopted an amended 2012 IFC with CO alarm requirements applicable only to existing center-based child care facilities.
[59] Under the 2012 IFC, the CO alarm requirement does not apply to existing facilities classified as Group E (Educational), which include: (a) facilities caring for fewer than 100 children over two-and-a-half years of age, and having no children under two-and-a-half years; or (b) facilities where each room in which children are cared for is located on a level of exit discharge with an exit door leading directly to the outside. In addition, the 2012 IFC exempts residential and child care occupancies that have neither fuel burning equipment nor an attached garage. *See* International Code Council, 2012 International Fire Code, *available at* http://shop.iccsafe.org/2012-international-fire-code-1.html.
[60] States are free to amend the IFC when they adopt the code, so some states may opt not to include the new CO requirements. States may also expand the IFC's CO alarm provisions to cover additional facilities. For example, Utah amended the IFC to require CO alarms in child care facilities classified as Group E in addition to Groups I-4 and R.

Requirements for CO Alarms in All Licensed Facilities — Missouri

Missouri's child care licensing regulations include the following requirement for installing CO alarms in child care centers, group child care homes, and family child care homes:

> Facilities using equipment or appliances that pose a potential carbon monoxide risk, including facilities with attached garages, shall install a carbon monoxide detector(s). The detector(s) shall be installed according to the manufacturer's instructions. The fire inspector may require additional carbon monoxide detectors if the fire inspector determines that the safety of the occupants is endangered...Carbon monoxide detectors shall be in good operating condition….

Facilities must also "develop, implement, and maintain policies and procedures for responding to a disaster or emergency, including a written plan for … emergencies and disaster situations that could pose a hazard to staff and children, such as … exposure to carbon monoxide." The child care regulations also establish detailed procedures to be followed if an elevated carbon monoxide level is detected during a fire inspection.

Source: 19 Mo. Code Regs. 30-62.010, 30-61.010

Specific Installation Requirements

All of the policies discussed in this chapter require at least one CO alarm per covered facility, and most address how CO alarms are to be installed.

***Location in Building*.** Nearly all of the policies discussed here specify the location of the required CO device(s) to some degree. In many cases, these location requirements reflect the state's recognition of certain risk factors for CO poisoning – e.g., mandating installation of CO alarms in the vicinity of fuel-burning appliances or in/near each bedroom or sleeping area. In some states (e.g., Alaska, Iowa, Kentucky, Ohio), at least one CO alarm is required on each level of the building used for child care. In states that require installation of CO alarms in accordance with the National Fire Protection Association's Standard for the Installation of Carbon Monoxide Detection and Warning Equipment (NFPA 720) – which include, but are not limited to, states that have adopted the 2012 IFC – detailed alarm location requirements apply to both commercial buildings and dwelling units.

***Certification of Device*.** A majority of the policies discussed in this chapter establish minimum specifications for the device itself. Many states require that the CO alarm be certified by Underwriters Laboratories (whose safety standard, UL 2034, has been incorporated into the 2012

IFC and a number of other states' CO alarm laws/regulations) or another testing laboratory, or be listed by the state as an approved device. Of the states that include requirements related to power source, most allow either battery power or hard-wiring in existing facilities; however, Maine and West Virginia are examples of states that require CO alarms in existing occupancies to be powered by electricity with battery backup.

Specific Operation and Maintenance Requirements

A CO alarm is effective only as long as it remains operable, and regular maintenance of CO alarms is important for ensuring that devices are functioning properly.

General Maintenance. Typical maintenance practices for CO alarms include periodic testing, cleaning to keep the device free of dust and debris, and replacing batteries. In addition, due to the limited life of the CO sensor, CO alarms generally must be replaced "when either the end-of-life signal is activated or the manufacturer's replacement date is reached."[61] Many states have incorporated general maintenance requirements from manufacturers' instructions and/or third party standards such as UL 2034 and NFPA 720, which cover inspection/testing, alarm replacement, and battery replacement. Colorado's requirement that CO alarms be "maintained in accordance with NFPA 720 and the manufacturer's instructions" is representative of a general directive in numerous states that CO alarms be maintained in operable condition.

A few states detail specific maintenance practices in laws or regulations directly, such as replacement of batteries in CO alarms that are battery-operated. New York's fire code requires that batteries be replaced "when low," while child care regulations in Delaware include a requirement for annual replacement. In Washington, one extra battery for each CO alarm must be kept on the premises of a child care home. In Texas, child care licensees must replace the battery at least yearly and keep documentation of the replacement date available for review by parents and licensing authorities. Missouri's child care regulations state: "Carbon monoxide detectors shall be in good operating condition. If a battery-operated detector is not operational, the provider shall install a detector that is powered by the home's electrical system with a battery backup."

Testing and Inspection Requirements. To ensure continued operability, CO alarms should be inspected and tested regularly. A number of states have a general requirement that CO alarms be tested in accordance with manufacturer's instructions. In states that require testing in accordance with NFPA 720, monthly tests are required.[62] Oklahoma child care licensing rules expressly require

[61] National Fire Protection Association (NFPA) Standard 720: Standard for the Installation of Carbon Monoxide (CO) Detection and Warning Equipment (2012 ed.), *available at* www.nfpa.org . *See also* U.S. Consumer Product Safety Commission, Carbon Monoxide Question and Answers, *at:* http://www.cpsc.gov/en/Safety-Education/Safety-Education-Centers/Carbon-Monoxide-Information-Center/Carbon-Monoxide-Questions-and-Answers-/.

[62] Under NFPA 720, monthly tests are required for single-station CO alarms. Interconnected CO detection systems require additional inspection and testing of the sensor function by licensed technicians on an annual basis.

monthly testing, and Delaware and Texas mandate monthly testing and documentation of test dates. A few other states require testing but at less specific intervals, such as "regularly" or "frequently."

Tampering Prohibitions. In a further effort to ensure that CO alarms remain operable once installed, some states have adopted explicit tampering prohibitions. Wisconsin's rule that "[n]o person may tamper with, remove, destroy, disconnect, or remove batteries from an installed carbon monoxide detector, except in the course of inspection, maintenance, or replacement of the detector" is typical of such anti-tampering provisions.

Sources of Carbon Monoxide: Unvented Heaters

While this chapter summarizes only policies requiring the use of CO alarms, there are many states that have laws and regulations addressing potential sources of CO poisoning. For example, a majority of states prohibit or restrict the use of unvented heaters within licensed child care facilities. Unvented (or "vent-free") heating devices, which burn natural gas, propane, or other fuels, release CO and other combustion gases into the room rather than through a vent to the outdoors. Many states require all heating devices or appliances using combustible fuel within child care facilities to be vented to the outside, while a few states restrict the type of fuel that may be used (e.g., gas, kerosene). A number of states prohibit use of "portable" heaters of any type in the child care center. Some of these state restrictions are limited to certain types of child care facilities.

Summary: State Laws and Regulations

A majority of states require installation of a CO alarm in some or all types of existing licensed child care facilities. Many of these requirements are established in child care licensing regulations, though it is also common for CO provisions to be found in a state's fire or public safety code. Around one third of the states that require CO alarms in child care facilities apply the provision exclusively to home-based child care facilities or to certain types of residential structures (e.g., single-family homes, one- or two-family dwellings, multifamily properties). Because CO poisoning is a risk *regardless* of whether a child care facility is in a commercial or residential building, many states can strengthen their current policies to ensure that all types of licensed child care facilities, center-based and home-based, have working CO alarms if the facilities have any potential carbon monoxide sources.

Statutes and Regulations Cited in Chapter 4

The summary provided in this chapter is based on a review of the following statutes and regulations. The chart may not include every state statute and regulation that addresses CO alarms. The Appendix to this report includes a list of state websites for locating state statutes and regulations.

Note: Most citations below refer to the first section in the applicable statute or regulation, rather than a specific CO alarm provision. Citation to multiple child care regulations usually indicates that there are separate CO alarm provisions in the regulations for different types of child care facilities.

	CHILD CARE STATUTES & REGULATIONS	OTHER STATUTES & REGULATIONS
Alaska	7 Ak. Admin. Code 10.010	Ak. Stat. 18.70.095 (Fire Protection)
Arkansas	Ar. Code Rules 16.22.1-101, 16.22.4-101, 16.22.6-101	
California	Ca. Health & Safety Code 1596.954, 1597.45-46, 1597.543	Ca. Health & Safety Code 17926; 24 Ca. Code of Regs. 9 (Fire Code)
Colorado	12 Co. Code Regs. 2509-8	
Connecticut	Ct. Agencies Regs 19A-79-1a	
Delaware	De. Admin. Code 9-100-103-1.0, 9-100-104-1.0	
Idaho		Id. Admin. Code 18.01.50.004 (Adoption of IFC)
Illinois	89 Il. Admin. Code 406.1, 408.1	430 Il. Comp. Stat. 135/1 (Public Safety)
Iowa	Ia. Admin. Code 441-109.1	
Kentucky	922 Ky. Admin. Regs. 2:120, 2:100	
Maine		25 Me. Rev. Stat. 2468; Me. Code Rules 16-219-018 (Public Safety)
Massachusetts	606 Ma. Code Regs. 7.07	Ma. Gen. Laws 148, § 26F 1/2; 527 Ma. Code Regs. 31.01 (Fire Code)
Michigan	Mi. Admin. Code 400.8101, 400.1901	

Minnesota		Mn. Stat. 299F.51 (Public Safety)
Mississippi	Ms. Code Rules 15-011-01, 15-011-02	
Missouri	19 Mo. Code Regs. 30-62.010, 30-61.010	
New Hampshire		N.H. Rev. Stat. 153:10-a; N.H. Code Admin. Rules Saf-C 6015.04 (Public Safety and Welfare)
New Jersey		*N.J. Stat. 55:13A-7.17;* N.J. Admin. Code 5:10-28.1 (Mult. Dwellings)
New York	18 N.Y. Comp. Codes Rules & Regs. 416.1, 417.1, 418.1, 418.2	19 N.Y. Comp. Codes Rules & Regs. 1225.1 (Fire Code)
Ohio	Oh. Admin. Code 5101:2-14-10	
Oklahoma	Ok. Admin. Code 340:110-3-80	
Oregon		Or. Admin. Rules 837-040-0010 (Fire Code)
Pennsylvania		35 Pa. Cons. Stat. 7221 (Health and Safety)
Rhode Island	R.I. Admin. Code 03-000-18, 03-000-19	R.I. Gen. Laws 23-28.1-2 (Health and Safety) R.I. Admin. Code 28-1-1:8 (Fire Code)
South Carolina		S.C. Code Regs. 8-900 (Fire Code)
Texas	40 Tx. Admin. Code 746.101, 747.101	
Utah		Ut. Code 15A-5-204 (Fire Code)
Vermont		Vt. Code Rules 28-070-001 (Fire Code)
Washington	Wa. Admin. Code 170-296A-0001	Wa. Rev. Code 19.27.530; Wa. Admin. Code 51-54A-1103 (Fire Safety)
West Virginia	W.V. Code Rules 78-19-1	W.V. Code 29-3-16a (Fire Prevention & Control)
Wisconsin		Wi. Stat. 101.647; Wi. Admin. Code SPS 321.097, 328.01, 362.1200 (Safety & Prof'l Serv.)
Wyoming	Wy. Code Rules 049-185-010, 049-185-011	Wy. Code Rules 041-100-000 (Fire Prevention)

CHAPTER 5

Mold and Dampness

Molds are a type of fungi whose tiny spores can be found in indoor and outdoor air or settled on indoor and outdoor surfaces. Molds can grow almost anywhere provided they have nutrients and water. Since organic nutrients that mold can digest are generally always available, controlling water/moisture is the key to controlling mold indoors. Inside a child care center, residence, or other building, mold growth can result from problems such as flooding from heavy rains or plumbing failures, ongoing roof or plumbing leaks, uncontrolled humidity, or condensation.[63]

In recent years, scientific knowledge about the effects and extent of mold and dampness in buildings has increased considerably. A recent policy statement from the California Department of Public Health summarizing available health science research concluded that there is a "consensus among scientists and medical experts that the presence in buildings of (a) visible water damage, (b) damp materials, (c) visible mold or (d) mold odor indicates an increased risk of respiratory disease for occupants. Known health risks include: the development of asthma, allergies, and respiratory infections; the triggering of asthma attacks; and increased wheeze, cough, difficulty breathing, and other symptoms."[64] According to the statement, current information suggests that children are more sensitive to dampness and mold than adults.

Federal and state health agencies recommend taking action to address visible mold, mold odor, and dampness by correcting the water/moisture source and immediately drying and cleaning or removing damp or moldy materials. Public health agencies generally recommend against testing for mold in order to determine whether to remediate a mold problem.[65]

Types of Laws/Regulations Included. This chapter provides an overview of state *child care* licensing laws and regulations that address explicitly mold and/or dampness in *existing* child care facilities. Following the summary of state policies, the chapter describes notable non-regulatory activities undertaken by state agencies to reduce exposure to mold in child care facilities that may

[63] *See generally* U.S. EPA, Mold Remediation in Schools and Commercial Buildings: App. B - Introduction to Molds, *available at*: http://www.epa.gov/mold/append_b.html.
[64] *See* Cal. Dep't of Public Health (DPH), Statement on Building Dampness, Mold and Health (2011), *at:* http://www.cdph.ca.gov/programs/IAQ/Documents/statement_on_building_dampness_mold_and%20health2011.pdf; *see also* U.S. EPA, Mold Remediation in Schools and Commercial Buildings, *available at:* http://www.epa.gov/mold/append_b.html.
[65] *See, e.g.,* U.S. EPA, Mold Resources, *at:* http://www.epa.gov/mold/moldresources.html; Minn. Dep't of Health, Mold and Moisture, *at:* http://www.health.state.mn.us/divs/eh/indoorair/mold/; Cal. DPH, Statement on Building Dampness, Mold and Health (2011), *at:* http://www.cdph.ca.gov/programs/IAQ/Documents/statement_on_building_dampness_mold_and%20health2011.pdf.

include information on mold and dampness. Citations for the laws and regulations reviewed here are included in the table at the end of the chapter.

Other areas of state law not covered in this chapter may establish requirements related to mold/dampness that apply to certain child care facilities – e .g., housing or property maintenance codes that require property owners and occupants to take certain actions to prevent or address mold/dampness problems,[66] or state occupational safety and health (OSHA) regulations that establish requirements for employers.[67]

Facility Standards Related to Mold and Dampness

The following summary describes provisions that address mold/dampness directly or indirectly. The summary does not, however, include common child care regulatory provisions requiring that walls and other surfaces be kept sanitary, in good repair, or otherwise clean, or that kitchen and bathroom surfaces be non-absorbent or moisture resistant. Nor does this summary include provisions relating to exterior drainage.

Dampness/Moisture. A few states address dampness and moisture conditions explicitly in their child care licensing regulations. Connecticut requires day care centers and group day care homes affirmatively to establish a maintenance program that keeps facilities free of dampness. Maryland's child care regulations provide broadly that rooms may be used for child care only if they are free of moisture and dampness, while New York requires child care premises to be kept free from dampness. New Jersey requires child care centers to be "free of moisture resulting from water leaks or seepage." Regulations in Illinois and Arizona require more narrowly that floors and/or floor coverings be free of dampness.

Controlling moisture is the key to controlling mold indoors.

Some states have child care regulations addressing moisture from condensation, typically in connection with ventilation requirements. For example, Alaska requires ventilation in order to, among other things, "prevent the accumulation of … condensation," while Oregon and Vermont require that facilities be ventilated and "free of" condensation. A similar provision is contained in

[66] *See, e.g.,* 105 Ma. Code Regs. 410.020 (requiring structural elements of dwelling units to be free of "chronic dampness," defined as "the regular and/or periodic appearance of moisture, water, mold or fungi"); Ca. Health & Safety Code 17920.3 (establishing that "inadequate sanitation" of dwelling units includes "dampness of habitable rooms"); Vt. Code Rules 13-140-031 (sec. 8)(requiring rental dwellings to be "free from the regular or periodic appearance of standing water or excessive moisture which may result in visible mold growth"); Va. Code 55-248.13 (state landlord-tenant law requiring landlords to "[m]aintain the premises in such a condition as to prevent the accumulation of moisture and the growth of mold, and to promptly respond to any notices from a tenant").

[67] *See, e.g.,* 8 Ca. Admin. Code 3362 ("When exterior water intrusion, leakage from interior water sources, or other uncontrolled accumulation of water occurs, the intrusion, leakage or accumulation shall be corrected because of the potential for these conditions to cause the growth of mold.").

the U.S. Food and Drug Administration's model Food Code, and some states with food codes applicable to child care facilities may have comparable requirements.[68]

Missouri and Nebraska child care regulations set forth an affirmative requirement that facilities must be dry. In a few states (e.g., Kansas, Montana, and Oklahoma) this requirement is established specifically for basements that are used for child care. Indiana regulations include "flooding or water damage" in the list of conditions that pose an "immediate threat to the life or well-being of children in care" and may subject a child care center or child care home to an emergency or temporary closure order.

Also related to dampness are regulatory requirements for windows, doors, and other structural elements to be "weathertight" or "watertight." Such provisions are commonly found in housing/property maintenance codes, and some states (e.g., Michigan, Mississippi) include the requirement in their child care facility regulations as well. Michigan's guidance manual for child care centers describes the licensing requirement for weathertight and watertight facilities and further notes: "Children's environments must be protected from exposure to moisture and dust. Dampness promotes the growth of mold."[69]

Mold. A small number of states have child care regulations that refer specifically to mold. Nebraska's regulations require that "surfaces" be free of mold, while North Carolina's sanitation regulations for child care facilities require walls and ceilings to be "free of visible fungal growth." Washington requires family home child care providers to "take action to prevent child exposure" when they become aware of mold on the premises. Florida has a somewhat more limited provision, requiring that the ceiling in food preparation areas of child care facilities "must be easily cleanable or replaceable in the event of water and other damage, mildew, or mold."

In New Hampshire, providers must "maintain the child care environment free of . . . . [d]amp conditions which result in visible mold or mildew or a musty odor." The state's Health Officer Inspection Report for Child Care Programs, which must be submitted with a licensing application, includes the question: "Is the indoor environment free of damp conditions, visible mold/mildew and musty odor?"[70]

Odors. Child care regulations addressing odors may relate directly or indirectly to mold/dampness conditions, which typically produce odors. In addition to the New Hampshire regulation noted above, Nebraska addresses mold odor specifically, requiring not only that surfaces be free of mold,

[68] U.S. Food & Drug Administration, Food Code 2013, *available at*: http://www.fda.gov/Food/GuidanceRegulation/RetailFoodProtection/FoodCode/. All 50 states have adopted a food code based on current or prior versions of the federal model code, but states are free to add, delete, or change provisions of the model code. *See* Association of Food and Drug Officials, Food Code Adoption by State, *at*: http://www.afdo.org/page-1417772.

[69] *See* Mich. Dep't of Human Services, Child Care Center Rules Technical Assistance and Consultation Manual at 251 (2014), *available at*: http://www.michigan.gov/dhs/0,4562,7-124-5529_49572_49580---,00.html.

[70] *See* N.H. Dep't of Health & Human Services, Health Officer Inspection Report for Child Care Programs, *at*: http://www.dhhs.nh.gov/oos/cclu/documents/healthofficer.pdf.

but also that "[r]ooms, walls, floors, and ceilings must be kept . . . free of odor resulting from sewage, mold, mildew, or other environmental or biological hazards or unsanitary conditions." Several states require more generally that child care facilities be free of odors. For example, in Arizona, child care facility premises and furnishings must be maintained "free from odor." Oregon

and Vermont require that facilities be ventilated and free of "obnoxious" or "disagreeable" odors; a similar provision is contained in the model Food Code, and comparable provisions in state food codes may be applicable to certain child care facilities.

Summary: State Laws and Regulations

Almost half of all states have child care licensing regulations that address mold or dampness directly. These provisions vary considerably from state to state, with most requiring providers to maintain their facilities free from dampness, mold, and/or related conditions. States can build on these models by ensuring that their child care regulations include such standards and by establishing affirmative measures such as requiring providers to promptly identify and fix the source of water intrusion/dampness and to promptly clean and dry or remove moldy materials. States can also help reduce exposure to mold and damp conditions through education and training materials that inform providers about the associated health effects and the best practices for preventing and correcting problems.

Non-Regulatory Initiatives

Some state agencies have established formal, non-regulatory initiatives or activities to encourage child care facilities to address environmental health issues. Following are examples of how some of these initiatives, described more generally in Chapter 12, aim to promote action to prevent and remedy mold and dampness in child care facilities.

Recognition Programs. Indiana's Five Star Environmental Recognition Program for Child Care Facilities has developed a checklist that includes a mold-related requirement for a facility to achieve 3-star status (the basic endorsement): "We take action to reduce mold, fungi and allergens, including repairing leaks immediately, replacing damaged ceiling tiles, and removing affected carpet when possible." Pennsylvania's Early Childhood Education Healthy & Green Initiative incorporates a variety of environmental health criteria for participating providers, including avoiding practices that can encourage mold growth.[71] In addition, the program makes available a reference page on mold that provides extensive background information and agency recommendations.[72] According to program officials, mold, water damage, and leaks are a key

[71] As discussed in Chapter 12, the Pennsylvania initiative incorporates the criteria of the Eco-Healthy Child Care Program® (EHCC), which includes the following element in its checklist: "We avoid conditions that lead to excess moisture, because moisture contributes to the growth of mold and mildew. We maintain adequate ventilation (which can include exhaust fans and open screened windows). We repair water leaks and keep humidity within a desirable range (30-50%)." The EHCC checklist is available at http://cehn.org/files/Checklist_English%201406.pdf.
[72] Pa. Office of Child Devt. and Early Learning, Pennsylvania References for Eco-Healthy Child Care: Air Quality, *at:* http://www.pakeys.org/uploadedContent/Docs/Healthy%20and%20Green/Air%20Quality%20PA%20Reference%20Pa

component of the site visit conducted in connection with the program, and facilities cannot earn stars until necessary repairs are made.

Educational and Guidance Materials. Many states offer materials on asthma that include information about preventing and eliminating mold and other environmental triggers of asthma. The Connecticut Department of Public Health's Asthma Program has developed information specifically for the child care context. *Managing Asthma in Connecticut Child Care Facilities* describes conditions that lead to mold growth and how to prevent and clean up mold. The manual includes an asthma-friendly child care checklist with best practices to protect children from exposure to mold and mildew, such as fixing plumbing leaks promptly and using exhaust fans in bathrooms and kitchens to help remove humidity.[73]

Additionally, New York's Division of Child Care Services maintains a web-based resource list for child care providers that includes a recorded "Mold Cleanup for Child Day Care Providers" webinar, which was originally offered to help providers clean up properly after Superstorm Sandy.[74]

ge.pdf. *See also* Early Childhood Education Linkage System (ECELS), Manuals/Booklets/Pamphlets/Policies, *available at:* http://www.ecels-healthychildcarepa.org/eeccp/publications/manuals-pamphlets-policies.

[73] *See* Conn. Dep't of Public Health, Managing Asthma in Connecticut Child Care Facilities, *available at:* http://www.ct.gov/dph/cwp/view.asp?a=3137&q=399850.

[74] *See* N.Y. State Office of Children & Family Services, Mold Cleanup for Child Day Care Providers Webinar, *available at*: http://www.ocfs.state.ny.us/main/childcare/mold_webinar.asp.

Statutes and Regulations Cited in Chapter 5

The summary provided in this chapter is based on a review of the following statutes and regulations. There may be other state statutes and regulations relevant to mold and dampness in existing child care facilities, including areas of state law not covered here, such as housing or property maintenance codes. The Appendix to this report includes a list of state websites for locating state statutes and regulations.

Note: Most citations below refer to the first section in the applicable statute or regulation, rather than a specific mold/dampness provision. Citation to multiple regulations usually indicates that a state has mold/dampness provisions addressing more than one type of child care facility.

CHILD CARE STATUTES & REGULATIONS

Arizona	Az. Admin. Code 9-5-101
Alaska	7 Ak. Admin. Code 10.010
Connecticut	Ct. Agencies Regs. 19a-79-1a
Florida	Fl. Admin. Code 65C-22.001
Illinois	89 Il. Admin. Code 407.40
Indiana	470 In. Admin. Code 3-4.8-1
Kansas	Ks. Admin. Regs. 28-4-420
Maryland	Md. Code Regs. 13A.16.01.01, 13A.17.01.01, 13A.18.01.01
Michigan	Mi. Admin. Code 400.8101
Mississippi	Ms. Code Rules 15-11-55:1.1.1, 15-11-55:2.1.1
Missouri	19 Mo. Code Regs. 30-61.010, 30-62.010
Montana	Mt. Admin. Rules 37.95.101
Nebraska	391 Ne. Admin. Code 1-001, 2-001, 3-001, 5-001

New Hampshire	N.H. Code Admin. Rules He-C 4002.01
New Jersey	N.J. Admin. Code 10:122–1.1
New York	18 N.Y. Comp. Codes Rules & Regs. 416.1(1), 417.1(1), 418-1.1, 418-2.1
North Carolina	15A N.C. Admin. Code 18A.2801
North Dakota	N.D. Admin. Code 75-03-08, 75-03-10
Oklahoma	Ok. Admin. Code 340:110-3-1, 340:110-3-35
Oregon	Or. Admin. Rules 414-300-0000
Vermont	Vt. Code Rules 12-3-101:1
Washington	Wa. Admin. Code 170-296A-0001

CHAPTER 6

Building Ventilation and Temperature

Building ventilation is "the process of supplying air to or removing air from a space for the purpose of controlling air contaminant levels, humidity, or temperature within the space."[75] Ventilation is important not only for comfort, but also for maintaining healthy indoor air quality by diluting and removing pollutants that are released indoors. As the U.S. EPA recently noted, child care facilities and schools generally have a large number of occupants in a small space, so that "without proper ventilation a large number of children can be at risk for potential exposure to indoor contaminants."[76] Recent research has called attention to the importance of proper ventilation for removing pollutants associated with cooking appliances such as gas stoves.[77] A review of research on ventilation and health, focused primarily on offices and schools, found generally that "[i]ncreased ventilation rates are, on average, associated with fewer adverse health effects and with superior work and school performance."[78]

Ventilation can occur naturally through windows and other openings or mechanically through heating, ventilating, and air conditioning (HVAC) systems or exhaust fans. State and local building and mechanical codes establish minimum ventilation requirements for the construction and renovation of commercial and residential buildings. These building codes often incorporate third-party technical standards[79] that include minimum amounts of outside air for different types of occupied spaces.[80] Building code standards also include other ventilation system requirements to

[75] American Society of Heating, Refrigerating and Air-Conditioning Engineers (ASHRAE), ANSI/ASHRAE Standard 62.1-2013 – Ventilation for Acceptable Indoor Air Quality, §3, *available at*: http://www.techstreet.com/ashrae/products/1865968.
[76] U.S. EPA, America's Children and the Environment at 288 (2013), *available at*: http://www.epa.gov/ace/.
[77] *See, e.g.,* Jennifer M. Logue, Neil E. Klepeis, Agnes B. Lobscheid, & Brett C. Singer, "Pollutant Exposures from Natural Gas Cooking Burners: A Simulation-Based Assessment for Southern California ," *Envtl. Health Persp.,* 122(1): 43-50 (2014), *also available at:* http://eetd.lbl.gov/publications/pollutant-exposures-from-natural-gas-; Nasim A. Mullen, Jina Li, and Brett C. Singer, Impact of Natural Gas Appliances on Pollutant Levels in California Homes (2012), *at:* http://eetd.lbl.gov/sites/all/files/impact_of_natural_gas_appliances.pdf; Molly L. Kile, et al., "A cross-sectional study of the association between ventilation of gas stoves and chronic respiratory illness in U.S. children enrolled in NHANESIII,"*Envtl. Health* 13:71 (2014), *at:* http://www.ehjournal.net/content/13/1/71.
[78] Lawrence Berkeley National Laboratory, Indoor Air Quality Scientific Findings Resource Bank: Health and Economic Impacts of Building Ventilation (Summary), *at*: http://www.iaqscience.lbl.gov/vent-summary.html.
[79] Widely referenced standards include ASHRAE Standard 62.1 (Ventilation for Acceptable Indoor Air Quality) and 62.2 (Ventilation and Acceptable Indoor Air Quality in Low-Rise Residential Buildings).
[80] The ventilation rate is usually expressed as cubic feet per minute (cfm) of outdoor air per person, per square foot of space, or as air changes per hour. Minimum ventilation requirements for commercial buildings usually combine a minimum requirement per person with a minimum requirement per unit floor area. *See generally* Lawrence Berkeley National Laboratory, Indoor Air Quality Scientific Findings Resource Bank: Health and Economic Impacts of Building Ventilation (Supporting Information), *at:* http://www.iaqscience.lbl.gov/vent-info.html#vent-rate.

help reduce the likelihood of problems with indoor air quality. For example, codes often establish minimum efficiency ratings for particle filters and specify design features of outdoor air intakes.

These code requirements apply to the capabilities of building systems at the time of construction. Accordingly, the codes specify the minimum rates of ventilation that building systems must be capable of providing, rather than minimum rates of ventilation actually provided during operation. States and localities may address ventilation in the operation of existing buildings through laws and regulations governing rental housing, schools, commercial cooking establishments, and other specific types of occupancies.[81] A number of federal agencies have developed guidance on the operation and maintenance of ventilation equipment, including the use of appropriate filters and the replacement of filters regularly to help remove pollutants from the outdoor air entering the building.[82]

Ventilation is important not only for comfort, but also for removing and diluting indoor air pollutants.

This chapter summarizes building ventilation requirements, along with related standards for indoor temperature and humidity, for *existing* child care facilities. Requirements for construction and renovation of commercial or residential buildings are outside the scope of the report.

Types of Laws/Regulations Included. The summary below is based on a review of state *child care* laws and regulations only. Other state laws and regulations may have ventilation-related provisions governing existing child care facilities. For example, the U.S. Food and Drug Administration's (FDA) model Food Code contains a number of ventilation provisions, and states with food codes that are applicable to child care facilities may include important operations and maintenance requirements relating to ventilation.[83] State (and local) housing or property maintenance codes may also include ventilation provisions similar to those discussed in this chapter. Because this report focuses on existing child care facilities, the following summary does not discuss requirements for facilities to comply with state (or local) building codes, which may include detailed ventilation system requirements that apply to the design and construction of commercial and residential buildings.

[81] *See, e.g.,* 8 Ca. Admin. Code 5142 (occupational safety and health regulations requiring HVAC system to be maintained and operated continuously to provide at least the quantity of outdoor air required by the State Building Standards Code); Az. Rev. Stat. 15-2131, 2132 (requiring new HVAC systems in schools to operate continuously during school hours, in accordance with state ventilation standards).

[82] *See, e.g.,* U.S. EPA Energy Star Program, Maintenance Checklist, *at:* https://www.energystar.gov/index.cfm?c=heat_cool.pr_maintenance; Centers for Disease Control and Prevention (CDC), Indoor Environmental Quality: Building Ventilation, *at:* http://www.cdc.gov/niosh/topics/indoorenv/buildingventilation.html.

[83] For example, the model Food Code states: "If necessary to keep rooms free of excessive heat, steam, condensation, vapors, obnoxious odors, smoke, and fumes, mechanical ventilation of sufficient capacity shall be provided." U.S. FDA, Food Code (2013) at 6-304.11, *available at*: http://www.fda.gov/Food/GuidanceRegulation/RetailFoodProtection/FoodCode/. All 50 states have adopted a food code based on current or prior versions of the federal model code, but states are free to add, delete or change provisions of the model code. *See* Association of Food & Drug Officials, Food Code Adoption by State, *at*: http://www.afdo.org/page-1417772.

States may also address ventilation through voluntary initiatives to advance environmental health in child care. For example, Minnesota's Model Asthma Plan in Child Care, described in Chapter 12, incorporates detailed information on ensuring adequate ventilation in child care facilities.[84]

Ventilation Requirements

General Ventilation Standards. Virtually all states have child care regulations that include an explicit requirement to provide ventilation, for some or all types of licensed facilities. The regulations allow either mechanical or natural ventilation; some specify minimum requirements for window area. Rather than referencing specified ventilation rates or standards, child care regulations typically include only general, subjective standards – e.g., requiring facilities to have "adequate" ventilation or to be "well ventilated" or "properly ventilated."

Several states require that ventilation protect children's health and/or provide for their safety and comfort. For example, Maryland's regulations for child care centers state: "A room may be used for child care only if it. . . [h]as natural or mechanical ventilation that provides adequate exchange of air to protect a child's health and comfort. . . ." Additionally, a number of states require that ventilation be provided in order to control odors or prevent condensation. For example, Alaska's child care licensing regulations require ventilation "to keep air fresh and to prevent the accumulation of heat, steam, condensation, vapors, smoke, or fumes." Colorado's health/sanitations regulations for child care facilities require ventilation "to minimize health hazards including excessive drafts, odors, extreme temperatures, humidity and temperature fluctuations." Vermont requires facilities to be "sufficiently ventilated to be reasonably free of disagreeable odors, condensation, and toxic gases." Iowa requires child care centers to ensure that "[s]ufficient ventilation is provided to maintain adequate indoor air quality."

Ventilation Requirements for Specific Areas. Many child care regulations that address ventilation in the facility generally also explicitly require ventilation in certain rooms. Most common are regulations that require ventilation in *bathrooms*. These provisions are typically framed as general requirements for ventilation, though Connecticut specifies that toilet rooms in child care centers must be mechanically ventilated to the outside. Kansas, Montana, and Oklahoma are examples of states that require *basements* used for child care to be well ventilated.

Although few states specify ventilation in connection with specific activities, Oregon's regulations address two activities that may be associated with chemical exposures; after *painting* or *laying carpet*, child care centers in the state "must be aired out completely for at least 24 hours with good ventilation before children are allowed to return."

Operation and Maintenance of Ventilation Systems. While building codes establish standards for the design and capacity of ventilation systems, ongoing operation and maintenance practices are

[84] Minn. Dep't of Health, Model Asthma Plan in Child Care, *available at:* http://www.health.state.mn.us/divs/eh/indoorair/childcare/.

important to ensuring adequate ventilation as well.[85] Few states have child care regulations that include specific requirements for the operation of ventilation systems. New York's regulations governing child day care centers and small day care centers provide generally that "[b]uildings, systems and equipment must . . . operate as designed." In Michigan, child care centers that rely on mechanical ventilation must keep the system on at all times while the building is occupied.

Some child care regulations address maintenance of ventilation systems. The New York regulations noted above also require building equipment to be kept in good repair. Similarly, Tennessee's regulations for group child care homes require heating and ventilation units to be kept clean and in good repair. North Carolina's regulations governing sanitation in child care centers provide that "[a]ll ventilation equipment, including air supply diffusers (heating and cooling vents) and return grilles, fans, and all other ventilation equipment shall be kept clean and in good repair." Child care centers in New Jersey must ensure that ventilation outlets are clean and free from obstructions, and that filters are replaced "when saturated." In South Dakota, licensed day care facilities must obtain an annual HVAC inspection by a qualified person and maintain a written inspection report on file at the facility. Iowa is an example of a state that requires child care centers to have annual inspections of all fuel-burning appliances.

Indoor Temperature and Humidity Standards

The thermal environment encompasses a number of factors important for occupant comfort, including indoor temperature and humidity.[86] As with general building ventilation requirements, states may incorporate temperature and humidity standards into regulations addressing the operation of specific types of buildings, such as workplaces, rental dwellings, or schools.

Humidity control is important for indoor air quality, as it affects the potential for moisture problems and mold growth.[87] Few states include humidity standards in their child care regulations. In addition to the Colorado provision noted above (requiring ventilation "to minimize health hazards including . . . humidity and temperature fluctuations"), North Dakota requires center- and home-based child care providers to ensure adequate humidity for "the comfort and protection of the health of the children."

Nearly all states, however, have adopted indoor temperatures standards as part of their child care regulations for some or all types of licensed facilities. In some cases, the regulations require facilities to maintain a specified "draft-free" temperature.

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[85] *See generally* CDC, Indoor Environmental Quality: Building Ventilation, *at*: http://www.cdc.gov/niosh/topics/indoorenv/BuildingVentilation.html; U.S. EPA Energy Star Program, Maintenance Checklist, *at:* https://www.energystar.gov/index.cfm?c=heat_cool.pr_maintenance.

[86] A recognized industry standard that provides guidance on thermal comfort parameters is the ASHRAE Standard 55 – Thermal Environmental Conditions for Human Occupancy, *available at*: https://www.ashrae.org/resources--publications/bookstore/standard-55.

[87] *See generally* U.S. EPA, A Brief Guide to Mold, Moisture and Your Home (recommending indoor humidity between 30 and 50 percent and noting that humidity can be measured with a moisture or humidity meter, a small, inexpensive instrument available at hardware stores), *at*: http://www.epa.gov/mold/preventionandcontrol.html.

Minimum (Winter) Temperature Requirements. Most state child care regulations specify a minimum indoor temperature, typically either 65 or 69 degrees Fahrenheit; a few states provide a temperature range (e.g., 65-75 degrees) that must be maintained in winter. A small number of states set different minimum temperatures for center-based and for home-based facilities.

Maximum (Summer) Temperature Requirements. Only about half of the states that establish minimum temperatures also specify maximum facility temperatures. These states typically establish a maximum of either 82 or 85 degrees Fahrenheit, though several states set lower temperatures and a few states provide a required range of 68-82 degrees.

Most child care licensing regulations include indoor temperature standards.

In lieu of a maximum temperature standard, a few states require providers to use ventilation or cooling when the facility reaches a specified temperature. A few others use more qualitative standards. In Oregon, the temperature in child care centers and family child care homes may not be "so warm as to be dangerous or unhealthy" to children in care. Massachusetts requires facilities to "take appropriate measures to protect children from health risks associated with excessive heat," and Iowa requires centers to provide "[s]ufficient cooling . . . to allow children to perform tasks without being excessively warm or subject to heat exposure. " Missouri, which includes minimum and maximum temperatures, also provides that "[c]hildren shall not be overheated or chilled."

A few states include provisions aimed at ensuring temperature requirements are met. Alabama and Colorado require that thermometers be used to monitor room temperature. Delaware directs large family child care homes to close temporarily if the minimum or maximum room temperatures cannot be maintained during all hours of operation.

Summary: State Laws and Regulations

While building codes establish ventilation system capabilities at the time of construction, child care licensing regulations can address ventilation in the ongoing operation of a facility. Nearly all states have child care regulations that require facilities to be ventilated naturally or mechanically. Child care policies can elaborate on the typical general requirements for "adequate" or "proper " ventilation by requiring facilities to provide ventilation continuously during operating hours in accordance with building codes and standards applicable to the facility. States can also build on the models established in a few states that supplement general ventilation standards with requirements for ventilation in certain areas (e.g., bathrooms) or in connection with specific activities that may produce chemical emissions, such as cleaning, painting, and introduction of new furnishings. Regular preventive maintenance and inspection of ventilation equipment and filters (currently required in a small number of state child care regulations) is also important not only for safety, but for ensuring that the system functions properly as designed. Combined with ventilation requirements, minimum and maximum temperatures are clear, measurable standards for ensuring that children and facility staff are not exposed to extreme conditions that can affect their health. States can also consider incorporating measurable humidity standards to maintain comfort and help control moisture.

Statutes and Regulations Cited in Chapter 6

The summary provided in this chapter is based on a review of the following statutes and regulations. There may be other state statutes and regulations that include provisions relevant to ventilation in existing child care facilities not covered here. The Appendix to this report includes a list of state websites for locating state statutes and regulations.

Note: Most citations below refer to the first section in the applicable statute or regulation, rather than a specific ventilation/temperature provision. Citation to multiple child care regulations usually indicates that there are separate ventilation/temperature provisions in the regulations for different types of child care facilities.

	CHILD CARE STATUTES & REGULATIONS
Alabama	Al. Admin. Code 660-5-26-.01
Alaska	7 Ak. Admin. Code 10.010
Arizona	Az. Rev. Stat. 36-881; Az. Admin. Code 9-3-101, 9-5-101, 6-5-5201
Arkansas	Ar. Admin. Code 16.22.1-101, 16.22.4-101, 16.22.6-101
California	22 Ca. Admin. Code 101151, 102351.1
Colorado	12 Co. Code Regs. 2509-8:7.702.1, 2509-8:7.707.4; 6 Co. Code Regs. 1010-7:1-101 (Health/Sanitation)
Connecticut	Ct. Agencies Regs. 19a-79-1a, 19a-87b-1
Delaware	9 De. Admin. Code 101-1.0, 103-1.0, 104-1.0
Florida	Fl. Admin. Code 65C-20.008, 65C-22.001
Georgia	Ga. Comp. Rules & Regs. 290-2-1-.01, 290-2-3-.01, 591-1-1-.01
Hawaii	Hi. Code Rules 17-891.1-1, 17-892.1-1, 17-895-1
Idaho	Id. Admin. Code 16.06.02.000
Illinois	89 Il. Admin. Code 406.1, 407.40, 408.1

Indiana	470 In. Admin. Code 3-4.7-1
Iowa	Ia. Admin. Code 441-109.1
Kansas	Ks. Admin. Regs. 28-4-113, 28-4-420
Kentucky	922 Ky. Admin. Regs. 2:100, 2:120, 2:180
Louisiana	67 La. Admin. Code III.7301
Maine	Me. Code Rules 10-148-32, 10-148-33, 10-148-36
Maryland	Md. Code Regs. 13A.15.01.01, 13A.16.01.01, 13A.17.01.01, 13A.18.01.01
Massachusetts	606 Ma. Code Regs. 7.01
Michigan	Mi. Comp. Laws 722.111; Mi. Admin. Code 400.8301, 400.1901
Minnesota	Mn. Rules 9502.0315, 9503.0005
Mississippi	Ms. Code 15-11-55:1.1.1, 15-11-55:2.1.1
Missouri	19 Mo. Code Regs. 30-60.010, 30-61.010, 30-62.010
Montana	Mt. Admin. Rules 37.95.101
Nebraska	391 Ne. Admin. Code 1-001, 2-001, 3-001, 5-001
Nevada	Nv. Admin. Code 432A.010
New Hampshire	N.H. Code Admin. Rules He-C 4002.01
New Jersey	N.J. Admin. Code 10:122–1.1
New Mexico	N.M. Code Rules 8.16.2.20, 8.16.2.30
New York	18 N.Y. Comp. Codes Rules & Regs. 415.0, 416.1(1), 417.1(1), 418-1.1, 418-2.1
North Carolina	10A N.C. Admin. Code 9.0102; 15A N.C. Admin Code 18A.2801 (Health)

North Dakota	N.D. Admin. Code 75-03-08, 75-03-09, 75-03-10
Ohio	Oh. Admin. Code 5101:2-12-01, 5101:2-13-01, 5101:2-14-01
Oklahoma	Ok. Admin. Code 340:110-3-1, 340:110-3-35, 340:110-3-80
Oregon	Or. Admin. Rules 414-205-0000, 414-300-0000, 414-350-0000
Pennsylvania	55 Pa. Code 3270.1, 3280.1, 3290.1
Rhode Island	R.I. Admin. Code 03 000 016, 03 000 018, 03 000 019
South Carolina	S.C. Code Regs. 114-500, 114-510, 114-520
South Dakota	S.D. Admin. Rules 67:42:11:01
Tennessee	Tn. Comp. Rules & Regs. 1240-04-01-.01, 1240-04-03-.01
Texas	40 Tx. Admin. Code 746.101, 747.101
Utah	Ut. Admin. Code R430-50, R430-60, R430-70, R430-90, R430-100
Vermont	Vt. Code Rules 12-3-101:1, 12-3-102:1, 12-3-103:1
Virginia	22 Va. Admin. Code 40-111-10, 40-185-10
Washington	Wa. Admin. Code 170-295-0001, 170-296A-0001
West Virginia	W.V. Code Rules 78-1-1, 78-19-1; W.V. Code Rules 64-21-1 (Health)
Wisconsin	Wi. Admin. Code DCF 202.01, 250.01, 251.01
Wyoming	Wy. Code Rules 049-185-06, 049-185-07, 049-185-08, 049-185-09

CHAPTER 7

Pesticides

Effective control of pests is necessary for providing a sanitary child care environment. Insects and rodents can contaminate food, damage buildings, and exacerbate allergies and asthma.[88] Most states have child care, health, and/or food service regulations that require certain prevention-oriented measures for managing pests in child care facilities. These provisions may be general (e.g., requiring facilities to prevent infestation) or they may include specific action such as using screens, cleaning the facility, and removing and storing trash. Additionally, some of these laws and regulations specifically direct providers to eliminate pests.

The use of pesticides may help eliminate pests, but the pesticides themselves can impact the health of children and staff if they are exposed to the chemicals through, e.g., inhalation or contact with the skin or eyes. The U.S. EPA defines pesticides as insecticides, herbicides, fungicides, rodenticides, and other substances intended for preventing, destroying, repelling, or mitigating pests (unwanted plants, insects, mice, and other animals).[89] The health effects of pesticides depend on the extent of exposure and the type of pesticide used. Potential effects include skin/eye irritation, harm to the endocrine and nervous systems, and cancer.[90] A recent University of California, Berkeley study found that almost half of California child care centers report using pesticide sprays and foggers, which have a higher chance of exposing children and staff.[91]

This chapter provides an overview of state laws and regulations that aim to reduce exposure to pesticides at licensed child care facilities by establishing: requirements for integrated pest management; specified restrictions on pesticide use; and requirements for providing information about pesticide use. The chapter does not address general provisions in child care regulations that might be indirectly applicable to pesticide use in certain situations, such as requirements for protecting children from hazards or for keeping pesticides and other chemicals out of reach. See Chapter 10 (Other Chemical Exposures) for a summary of child care regulations that restrict the use of chemicals generally and that may be applicable to pesticide use in certain situations. Following the overview of state policies, the chapter describes notable non-regulatory activities undertaken by state agencies to reduce exposure to pesticides in child care facilities.

[88] *See* U.S. EPA, Asthma Triggers: Gain Control – Pests, *at:* http://www.epa.gov/asthma/pests.html.
[89] *See* U.S. EPA, What is a Pesticide, *at*: http://www.epa.gov/pesticides/about/.
[90] *See* U.S. EPA, Pesticides: Health and Safety, *at*: http://www.epa.gov/pesticides/health/human.htm, *See also* Nat'l. Pesticide Information Center, Pesticides and Human Health, *at*: http://npic.orst.edu/health/humhealth.html.
[91] UC Berkeley, School of Public Health Center for Environmental Research and Children's Health, Pest Management Study Findings, *at:* http://cerch.org/research-programs/child-care/pest-management-and-pesticide-use-in-california-child-care-centers/ipm-study-findings/.

Types of Laws/Regulations Included. This chapter summarizes provisions found in child care laws and regulations, as well as in other areas of state law that address directly the use of pesticides in child care facilities. In some states, provisions relevant to child care facilities are found in agriculture or other laws/regulations that regulate pesticides and pesticide applicators generally (but note that this chapter *does not* review common regulatory subjects such as pesticide registration or licensing/certification of pesticide applicators). A smaller number of states have adopted laws addressing pesticide applications in schools and child care facilities under their health, environment, or education authorities. In some states, the pesticide provisions contained in other laws may be explicitly referenced or reiterated in the state's child care licensing regulations. The chart at the end of the chapter provides citations to the laws and regulations discussed here.

Many states have adopted food codes that apply to some or all child care facilities. Often, these food codes are based in whole or part on the model Food Code published by the U. S. Food and Drug Administration (FDA), and they typically include provisions relating to pest control and use of pesticides. While some of the FDA model Food Code provisions are noted here, it is beyond the scope of this report to review state food codes that are applicable to child care facilities.[92]

Types of Facilities. Many states regulate center-based and home-based child care facilities differently with respect to the use of pesticides. Unless explicitly noted, it should not be assumed that a provision described in the following summary applies to all types of licensed child care facilities. Consult a state's laws and regulations to determine the applicability of specific pesticide provisions.

Integrated Pest Management Requirements

Integrated pest management (IPM) minimizes exposure to pesticides through a wide variety of pest control strategies that emphasize prevention, monitoring, and the careful use of least-hazardous pesticides after other nonchemical methods have been exhausted. Many states have child care regulations and/or food service codes that require child care facilities to take one or more specific actions aimed at preventing pest infestation and reducing the need to use chemical treatments – e.g., routine inspections of the premises for evidence of pests, use of screens and other protections against the entry of pests, and elimination of harborage conditions. This section describes the laws and regulations in five states – California, Illinois, Massachusetts, Michigan, and West Virginia – that go further and include requirements for child care facilities to have formal IPM plans or programs in place.[93]

[92] U.S. Food & Drug Administration, Food Code 2013, *available at*: http://www.fda.gov/Food/GuidanceRegulation/RetailFoodProtection/FoodCode/. All 50 states have adopted a food code based on current or prior versions of the federal model code, but states are free to add, delete, or change provisions of the model code. *See* Association of Food & Drug Officials, Food Code Adoption by State, *at*: http://www.afdo.org/page-1417772.

[93] This discussion does not include states with school IPM policies that may cover certain early childhood programs in a limited fashion. For example, Oregon's school IPM law defines schools to include preschools and Head Start centers, but not other child care facilities.

IPM Plan/Program Required. Of these five states, Massachusetts and West Virginia establish a direct requirement that child care centers adopt an IPM plan. California amended its Healthy Schools Act in 2014 to require child day care facilities (other than family day care homes) to develop an IPM plan if they choose to use a pesticide not exempted under the law. Similarly, Michigan requires that an IPM "program" be in place before a person applies pesticides at a child care center. Illinois requires an IPM plan for child care centers unless the center determines that a plan is "not economically feasible;" in such cases the center must, every five years, provide the state with its IPM and non-IPM cost calculations and undergo IPM training until it adopts a plan.[94] For the most part, these IPM requirements are established in the state agriculture or pesticide laws/regulations and affirmed in the child care licensing laws/regulations.

Some states now require child care centers to develop IPM plans or programs.

In these five states, the pesticide laws or regulations define "IPM" and determine the minimum *required elements of the IPM plan or program*. In Massachusetts and West Virginia, the minimum elements are spelled out in detail in the state law/regulations themselves. Michigan has adopted a regulatory definition of "IPM Program" that includes a variety of actions. In Illinois, the pesticide law requires IPM plans to incorporate guidelines developed separately by the state.[95] Under California law, the required IPM plan must be based on a template developed or approved by the state. Following are key minimum components of the IPM plan or program in each jurisdiction:

- Massachusetts: IPM coordinator contact information; IPM policy; IPM training and communication program for staff; description of conditions contributing to pest problems; and information about pesticides to be used, along with non-pesticide control techniques.

- West Virginia: IPM policy; pest management objectives; education of the building occupants in integrated pest management practices; inspection activities; monitoring activities; an evaluation of the integrated pest management strategies in practice; and action thresholds for common pests.

- Michigan: Site inspection and monitoring; consideration of the relationship between pest biology and pest management methods; consideration of all available pest management methods; pest control method selection criteria that consider the impact on human health

[94] The Illinois Department of Public Health has created a form that all child care centers must use to indicate whether or not they have developed and implemented an IPM plan; those who have not done so must include the required cost calculations and dates of most recent IPM training. *See* Ill. Dep't of Public Health, Integrated Pest Management Form (Licensed Day Care Centers), *at*: http://www.idph.state.il.us/envhealth/pdf/SP_Day_Care_Center_Form.pdf.

[95] *See* Ill. Dep't of Public Health, Developing and Implementing an Integrated Pest Management Program in Schools and Day Care Centers (2009) and related sample forms, *available at*: http://www.idph.state.il.us/envhealth/ipm/publications.htm.

and the environment; and continual evaluation of the effectiveness of the IPM program. (The state's child care regulations also include in the IPM program advance notice of applications and a restriction on liquid spray or aerosol insecticide applications in occupied spaces.)

- Illinois: Official IPM policy statement; roles and responsibilities (including designating an IPM coordinator); IPM objectives; action thresholds for pest activity; response times and outlines for specific pests; a periodic inspection, monitoring, and reporting system; and follow-up, evaluation, and recordkeeping.

- California: IPM strategy (incorporating techniques such as pest monitoring, treatment threshold levels, mechanical and physical controls); name of the designated IPM coordinator; the pesticides applied at the facility; and the timing of plan review/updating.[96]

West Virginia's IPM regulations establish considerable detail regarding the monitoring requirement of the IPM plan, and the state prohibits the application of pesticides unless these requirements are implemented. Similarly, Massachusetts pesticide regulations prohibit the use of pesticides unless the presence of a pest is documented or there is biological evidence of pest presence.

In addition to maintaining records of pesticide applications, providers must comply with certain *recordkeeping requirements* specific to their IPM plans.

- West Virginia and Massachusetts require facilities to maintain on site a copy of the IPM plan, pest surveillance data/logs, labels of pesticides used, and material safety data sheets for the products. West Virginia also requires the facility to keep sanitation and maintenance surveys and monitoring diagrams for the child care center or family child care facility.

- Michigan's agriculture agency (MDARD) interprets the state IPM regulations to require that a "verifiable copy of the IPM program be located in each individual building so that it is available for use and review by facility staff, parents/guardians or MDARD as needed or requested."[97]

- In Illinois, day care centers must maintain a copy of any written IPM plan and must assign a designated person to assume responsibility for pest management and for recordkeeping.

- California law also requires covered facilities to designate an employee to carry out the IPM actions and requires the designee to notify parents/guardians and staff that they may view the IPM plan at the facility.

[96] The 2014 amendments to California's Healthy Schools Act requiring an IPM plan direct the state to develop a template for an IPM plan consistent with the law's IPM definition.
[97] Mich. Dep't of Agriculture & Rural Development, Integrated Pest Management Program Information, *at*: http://www.michigan.gov/documents/mdard/MDARD-IPM_Program_Information_Feb_2013_412822_7.pdf.

Michigan's regulatory definition of an IPM Program requires pesticide applicators to maintain certain records – e.g., the inspection report, including the number of pests found or reported, and the conditions conducive to pest infestation; the pest management recommendations made by the applicator, such as structural or habitat modification; the structural or habitat modification or other measures that were initiated as a part of the pest management program; and information about any pesticides used.

Other IPM Policy Provisions Affecting Child Care Facilities. The state of Maine has adopted pesticide regulations that require *applicators* (defined as "commercial applicator or other persons who apply pesticides to occupied buildings") to use "appropriate elements" of IPM, including: identifying practical, non-pesticide control measures; taking into account toxicity and choosing low risk products; and considering the need to shut off ventilation systems during treatment and to

State Guidance on IPM and Pesticide Use Requirements

States with laws and regulations that establish IPM requirements and pesticide use restrictions at child care facilities can facilitate effective implementation by developing educational materials that explain the statutory and regulatory requirements.

Massachusetts' agriculture law and regulations limit indoor and outdoor pesticide use at child care facilities in a variety of ways – e.g., requiring an IPM plan with indoor *and* outdoor components, prohibiting pesticide applications when children are present; restricting the types of pesticides that may be used; and requiring advance notice of certain applications. The Department of Agriculture, in partnership with University of Massachusetts, developed a website with information about these requirements, including a compliance checklist, IPM Plan Guidelines, and an interactive tool for creating and submitting IPM plans electronically. The website also provides general IPM resources, such as a 50-page IPM Kit for Building Managers.

Illinois and *Michigan* also have enacted requirements relating to IPM in child care facilities and have developed a variety of guidance documents and sample forms to assist providers in complying with the laws and regulations.

California's Healthy Schools Act was amended in 2014 to require IPM plans in child care centers if non-exempt pesticides are used and to require the state to develop a template for an IPM plan. The state has developed a variety of educational materials to promote and facilitate the adoption of IPM programs at child care facilities.

Sources:
Massachusetts - http://massnrc.org/ipm/schools-daycare.html
Illinois - http://www.idph.state.il.us/envhealth/ipm/publications.htm
Michigan - http://www.michigan.gov/mdard/0,4610,7-125-1566_2405_37164---,00.html
California - http://apps.cdpr.ca.gov/schoolipm/

ventilate the treated rooms prior to re-entry. Maine's regulations, which exclude certain lower risk applications, would apply to pesticide applications in child care centers and some child care facilities in rental dwellings.

Restrictions on Pesticide Applications

Apart from IPM requirements, states have established certain restrictions on the use of pesticides in child care facilities. These provisions vary considerably from state to state, but the restrictions often explicitly exempt certain situations or types of applications, including: antimicrobials; rodent bait stations that are tamper-resistant or inaccessible; inaccessible crack/crevice treatments; situations where the facility will be unoccupied for a specified number of days following application; and emergency pesticide applications. Consult state laws and regulations to determine the precise scope of the restrictions described below.

Preference for Nonchemical Alternatives. States that do not require IPM plans or programs may nonetheless direct child care facilities to consider or give preference to nonchemical methods of controlling pests. In Colorado, the health department's regulations on sanitation in child care facilities allow the use of "poisonous compounds" only after other means of pest control have been used. In Alaska and Washington, child care regulations direct facilities to use nonchemical methods "whenever practical" or "where possible." Vermont's child care regulations allow pesticide applications only when other pest prevention and control measures fail and prohibit the use of pesticides to control pests for aesthetic reasons alone. In Vermont, the following information on pesticides and IPM is included as part of the child care regulations:

> Note: It is in everyone's best interest to reduce potential exposure of children to pesticides. Pesticides are designed to kill living organisms; therefore they pose special risks to children. Children play or sit on or near the ground and engage in hand to mouth behaviors. They also have developing organ systems that may not detoxify poisons as adults do. The best method to reduce pests and the possible need for pesticide application includes proper sanitation practices and habitat prevention steps…. Integrated Pest Management (IPM) is an environmentally sensitive approach to pest management. IPM uses knowledge of pest life cycles and their interactions with the environment in addition to the judicious use of pesticides. Risk depends upon hazard (toxicity) and exposure. A measure of hazard to humans and other mammals is provided by signal words on pesticide labels. The most toxic are labeled DANGER, followed by WARNING. The least toxic are labeled CAUTION.

Restrictions on Types of Pesticides Applied. Some states have adopted regulatory provisions that prohibit or restrict the use of specific pesticides or types of pesticides. For example, the FDA model Food Code and many state food codes (which often apply to child care facilities) restrict the use of tracking powders and require that rodent bait is contained in a tamper-resistant bait station. A number of states, including Colorado, Nevada, New Jersey, and Vermont, establish similar requirements through their child care, sanitation, or pesticide regulations. Other restrictions on

specific types of pesticides include Vermont's ban on anti-pest strips and Oregon's ban on automatic insecticide dispensers, vaporizers, or fumigants. California's Healthy Schools Act explicitly prohibits the use of certain pesticides at child day care facilities that have conditional, experimental use, or interim registrations, or have been canceled, suspended, or phased out.

Some states require authorization of the state regulatory agency in order to use pesticides. Wyoming's child care regulations allow nontoxic methods of insect and rodent control (e.g., physical restraint, stick-um fly strips, electronic killing devices), while they allow pesticides "if approved" by the authorized health inspector. Nevada regulations require operators of food establishments (including child care facilities) where pesticides are used regularly to obtain health department approval for a plan of application that includes the chemicals to be used, the dates/frequency of use, and the methods for protecting people and cleaning the establishment following application.

While some states ban certain types of pesticides, Massachusetts' pesticide law and regulations provide a limited list of pesticides that *may* be used indoors at a child care center: antimicrobials; rodent or insect bait stations that are tamper resistant or inaccessible; ready-to-use dust, powder or gel formulations of insecticide applied in inaccessible areas; termiticides in limited circumstances; and pesticides classified by EPA as exempt from regulation under federal law.

Prohibition on Applications while Children are Present. Over one third of all states limit pesticide use in child care facilities by placing restrictions on applying pesticides while children are present. These provisions are found in state child care, pesticide, and health laws/regulations. New Hampshire's ban on using pesticides "on the premises while children are present" is representative of the approach taken. A few states employ a narrower restriction – e.g., banning pesticide application in a room that is occupied by children, banning certain types of pesticide applications (e.g., spraying) while children are present, or applying such a ban only to certified applicators.

More than one third of all states restrict the application of pesticides while children are present.

Several of these states go further by establishing a minimum re-entry period following the application. The re-entry period is typically framed as the longer of either a stated number of hours or the amount of time provided on the pesticide label. Alaska's re-entry period of 24 hours (for pesticides other than bait stations, antimicrobials, and ready-to-use pesticides applied in inaccessible areas) is considerably longer than the two to four hours established by most states with this type of provision. Washington's family home child care regulations, which direct providers to use nonchemical methods where possible, require providers to wipe down surfaces that have been sprayed and air out rooms before allowing children to use sprayed areas.

***General Restrictions on Pesticide Exposures*.** Some states, while not specifically prohibiting the application of pesticides while children are present, nonetheless have general regulatory provisions aimed at limiting exposure. For example, Mississippi regulations applicable to small home-based child care facilities provide that children "shall not be exposed to insecticides or pesticides."

Georgia pesticide regulations require all applications by licensed applicators to be made in a manner that "minimizes the exposure of children … to the pesticide." Delaware's child care regulations establish that products and procedures used to address insect infestation in child care centers may not "present a hazard to children."

Restriction on Outdoor Applications. Some states explicitly restrict the application of pesticides outdoors on child care premises. For example, Connecticut's child care regulations prohibit the application of lawn care pesticides on the grounds of a child care facility, while New York's child care law and regulations prohibit child day care centers (and Head Start day care centers) from applying pesticides to any playgrounds, turf, or athletic/playing fields. Massachusetts' pesticide law and regulations prohibit applications on the outdoor grounds of a child care center for purely aesthetic purposes unless a municipal waiver is obtained, and further prohibit outdoor use of pesticides classified as known, likely, or probable human carcinogens or those that contain "List 1" inert ingredients of toxicological concern.

Pesticide Notification and Information Requirements

Advance Notice of Applications to Parents/Guardians. Around one third of states require certain licensed child care facilities to provide prior notice of pesticide applications to parents/guardians. Some of these states direct facilities to give parents the option of being placed on a list or registry for receiving notice of pesticide applications. These advance notice provisions, found in both child care and pesticide laws/regulations, typically require notice either 24 or 48 hours before the application is to take place. Common exemptions from the notification requirements are similar to the exemptions noted above with respect to restrictions on pesticide use: use of antimicrobials; use of rodent bait stations that are tamper-resistant or inaccessible; inaccessible crack/crevice treatments; situations where the facility will be unoccupied for a specified number of days following application; and emergency pesticide applications.

Most of the states that require direct advance notice to parents specify the *minimum content* – typically information about the products used; the date, time, and location of the application; and a contact for obtaining additional information. Some states have more extensive content requirements. For example, Massachusetts' law and regulations require the provision of three state-developed documents – a Pesticide Standard Written Notification form, which includes basic information about the application; a Consumer Information Bulletin for Schools and Daycare Centers, which includes information about minimizing exposure; and a chemical-specific fact sheet for each pesticide used. New York child care regulations require notice of pesticide applications to include the following statement:

> *This notice is to inform you of a pending pesticide application at this facility. You may wish to discuss with a representative of the daycare facility what precautions are being taken to protect your child from exposure to these pesticides. Further information about the product or products being applied, including any warnings that appear on the label of the pesticide or pesticides that are pertinent to the protection of humans, animals or the environment, can be obtained by calling. . . .*

In addition to requirements for notifying parents directly, several states also require child care facilities to *post signs* at or prior to the time pesticides are applied, generally in an area of common access at the facility. These requirements, some of which are limited to outdoor applications, are separate from general requirements for pesticide applicators to post signs. For example, New York's child care law requires day care facilities to post a notice at least 48 hours prior to each pesticide application in a common area that is conspicuously visible to persons dropping off or picking up children from the facility. The notice must contain certain information specified in the law.

Other Pesticide Information to Parents/Guardians. Some states also direct certain child care facilities to provide other pesticide-related information to parents/guardians. For example, Illinois' child care regulations require day care centers to provide a summary of their pest management plans and use of pesticides before a child is enrolled. Similarly, California's Healthy Schools Act requires annual notification of the pesticide products expected to be applied during the upcoming year. (Under amendments to the Act, covered facilities also must provide annual notice to the state if facility staff apply non-exempt pesticides.) Additionally, several states require child care facilities to maintain records of pesticide applications, and some require that these be made available to the state, the public, and/or parents on request.

***Pesticide Information to Child Care Providers*.** In some states, including California, the manager of a property in which a child care facility is located must provide specified information to the facility five days in advance of a pesticide application. In addition, a significant number of state pesticide laws and regulations require applicators to provide information to child care providers prior to applications undertaken at the facility. Often, this includes information that the state requires child care providers to give to parents.

Some third-party pesticide notice requirements that are not specific to child care providers and are not reviewed in this chapter may nonetheless affect child care facilities. These provisions may require pesticide applicators to provide customers with information about the pesticides used, and/or they may require provision of information to residents (e.g., a tenant) who did not request the pesticide application. Additionally, many states require pesticide applicators generally to post signs notifying the public that pesticides have been applied to lawns or other outdoor areas. Several states give customers the right to request from pesticide applicators advance notice of applications, particularly applications to nearby parks, playgrounds, or lawns. A smaller number of state pesticide laws/regulations establish a statewide registry of persons who require advance notification of pesticides for medical reasons. Child care facilities may be able to request such advance notice.

The California Healthy Schools Act

The California Healthy Schools Act (HSA) establishes a variety of provisions addressing pesticide use in schools and child care facilities. The law was first enacted in 2000; amendments in 2007 and 2014 added significant new provisions addressing IPM and pesticide use reporting.

IPM. Among the HSA's original provisions were requirements for the California Department of Pesticide Regulation (DPR) to promote and facilitate the adoption of IPM by child day care facilities. The law directs DPR to modify its school IPM program for the child day care setting, develop and update IPM educational materials for the child day care setting, and make those materials available to child care providers.

In 2014 the HSA was amended to require private child care centers to adopt DPR-approved IPM plans when using non-exempt pesticides. In addition, the law now requires (effective July 2016) that anyone applying *any* pesticide (including disinfectants) at a child care center receive training in IPM and the safe use of pesticides in regard to children's health. DPR is developing three online training courses to help providers and pest management professionals meet this requirement.

Pesticide Use Reporting. In 2007, the HSA was amended to establish right-to-know requirements (including notification, posting, and recordkeeping) for pesticide use at private child care centers. Child care centers are required to: provide annual information to staff and parents/guardians about all pesticide products expected to be applied during the upcoming year; provide advance notice if a pesticide product not included in the annual notification is subsequently intended for use; provide staff and parents the opportunity to register to receive advance (72 hours) notification of individual pesticide applications; post a warning sign 24 hours in advance in each area of the facility where pesticides will be applied (and leave the sign for 72 hours afterward); and maintain records of all pesticide use and make this information available to the public.

The HSA requires persons hired to apply pesticides to submit pesticide use reports; the 2014 amendments to the law added a requirement that child care centers report to the state on the application of non-exempt pesticides by facility staff.

Sources: Ca. Educ. Code 17608-17614; Ca. Food & Agric. Code 13180-13188; Cal. DPR, School Integrated Pest Management (IPM) Homepage, *at* http://apps.cdpr.ca.gov/schoolipm/

Other Pesticide-Related Requirements

Protection of Toys/Equipment. Some states (including Illinois, Colorado, New Mexico, and New Jersey) have adopted child care regulations that require, prior to pesticide applications, the removal of toys and other items mouthed or handled by children. Under North Carolina's child care center regulations, materials and equipment that are accessible to children may not be coated with, treated with, or contain toxic materials (such as pentachlorophenol or tributyltin oxide) or any finishes that contain pesticides. Additionally, the FDA model Food Code and many state food codes require covered facilities to protect food, equipment, and other articles from contamination by taking preventive measures such as removing or covering the items prior to the application of restricted use pesticides.[98]

Use of Certified Applicators. Many states require that applications of pesticides at some or all types of child care facilities be carried out by certified/licensed applicators. Such requirements, which may be found in child care, pesticide, or food service regulations, may help ensure that pesticides are applied properly and according to directions. States such as Massachusetts and West Virginia apply the requirement broadly to all pesticide applications. Illinois' child care regulations elaborate on the requirement, providing that any "extensive extermination of pest or rodents shall be conducted by a licensed pest control operator under the direct observation of a staff member to insure that residue is not left in areas accessible to children."

Staff Education/Training. Another policy strategy for ensuring the proper use of pesticides and for promoting alternatives to pesticide use is to require that child care staff receive training about pesticide use and/or about the state's regulatory requirements governing pesticides.

California's child care regulations require that applicants for a license attend an orientation given by the licensing agency; the regulations further direct the agency to include in the orientation information about the Healthy Schools Act, which establishes notice, recordkeeping, and other requirements related to pesticide use at child care facilities. Amendments to the Healthy Schools Act in 2014 added a requirement that child care center staff who intend to apply non-exempt pesticides receive annual training, including IPM and the safe use of pesticides in relation to the "unique nature of [child care facilities] and children's health." Pest management professionals hired to apply pesticides must also complete similar training on IPM. The Act directs the state Department of Pesticide Regulation to develop and provide the training course.

Summary: State Laws and Regulations

Only a handful of states currently have laws or regulations that require child care facilities to implement a formal IPM plan or program. However, at least 20 states restrict the use of pesticides while children are present, and several states have adopted regulations restricting the types of

[98] *See* U.S. FDA, Food Code at §§1-2, 7-202.12 (2013), *available at*: http://www.fda.gov/Food/GuidanceRegulation/RetailFoodProtection/FoodCode/.

pesticides that may be used in certain types of child care facilities. In addition, a considerable number of states have some type of advance notice requirement for pesticide applications. States can utilize these existing policy models to ensure that child care providers use least hazardous pesticides as a last resort and that they take specific precautions to prevent children's exposure to the chemicals. States can also follow the lead of some jurisdictions that have established formal, non-regulatory initiatives to change pest control practices in child care facilities.

Non-Regulatory Initiatives

As discussed in Chapter 12, some states have established formal agency initiatives or activities to encourage child care facilities to address environmental health issues. These activities include training and education, technical and financial assistance, and recognition programs. Following are examples of how some of these initiatives aim to reduce pesticide exposures in child care facilities.

Recognition Programs. Voluntary recognition programs in Indiana and Pennsylvania, discussed in more detail in Chapter 12, incorporate minimum practices related to pesticide use that go beyond current laws and regulations. For participating facilities to obtain 3-star status (the basic endorsement) under Indiana's Five Star Environmental Recognition Program, the provider must follow the Indiana Pesticide Review Board's 2003 Model Pest Control Policy for Indiana Child Care Facilities, which includes elements such as avoiding routine application of pesticides and providing advance notice to families of pesticide applications. To achieve 5-star status, the facility must have a written pest control plan that includes integrated pest management and must notify parents and staff of the policy.[99]

Pennsylvania's Early Childhood Education Healthy & Green Initiative incorporates a variety of environmental health criteria for participating providers, including use of nontoxic pest control techniques unless pesticide application is the only viable option and advance notification to parents and staff of any pesticide applications.[100] A reference page on pesticides has been developed in connection with the Initiative, providing extensive background information and agency recommendations for reducing use of chemical pesticides and incorporating IPM practices.[101] In addition, Penn State Extension promotes the adoption of IPM through several interrelated

[99] Ind. Dep't of Envtl. Mgmt., Indiana Five Star Environmental Recognition Program for Child Care Facilities Application, *at*: https://forms.in.gov/Download.aspx?id=5536.

[100] As discussed in Chapter 12, the Pennsylvania Initiative incorporates the criteria of the Eco-Health Child Care (EHCC) Program®, which includes this requirement: "We use non-toxic techniques both inside and outside the facility to prevent and control pests (both insects and weeds). If a serious threat remains and pesticide application is the only viable option, parents and staff are notified in advance and a licensed professional applies the least toxic, effective product at a time when children will have the least exposure to the application area for at least 12 hours (see manufacturer's instructions to ensure 12 hours is enough time)." The EHCC Program Checklist is available at http://cehn.org/files/Checklist_English%201406.pdf.

[101] Pa. Office of Child Devt. and Early Learning, Pennsylvania References for Eco-Healthy Child Care: Pesticides, *at*: https://www.pakeys.org/uploadedContent/Docs/Healthy%20and%20Green/Pesticides%20PA%20Reference%20Page.pdf. Additionally, the non-governmental Early Childhood Education Linkage System (ECELS) has developed extensive background information linked to each environmental health topic in the state Initiative, which is available at http://www.ecels-healthychildcarepa.org/eeccp/publications/manuals-pamphlets-policies.

education programs that offer a wide range of resources to supplement the Initiative, including: the Better Kid Care program, which provides professional development to early care and education and youth development professionals; additional online IPM training modules; guidelines for incorporating IPM into Pest Management Contracts for Childcare Centers; and links to other IPM resources.[102]

Education and Outreach. As noted earlier, California's Healthy Schools Act requires the state to facilitate the adoption of IPM, including IPM plans, by private K-12 schools and licensed child care centers. The California Department of Pesticide Regulation (DPR) has undertaken significant education and outreach activities to meet this mandate. According to officials, DPR has dedicated staff to provide outreach and education to child care providers, pest management professionals, child care licensing staff, and others. The DPR also has supported an electronic list serve and state-wide mailings, has developed a variety of materials, and undertakes frequent evaluations of its activities. The program web page provides extensive background information about IPM and pesticides generally and about the Act's requirements. The resources provided on the web page (many of which are offered in Spanish), include:

- a video training series on IPM for Child Care Centers, available online or on DVD;
- an extensive IPM toolkit and an IPM Checklist for child care facilities;
- the School IPM HELPR, for comparing the environmental and health impacts of pesticides;
- links to online IPM training modules for providers, as well as upcoming IPM trainings;
- links to articles on IPM in child care published in "Child Care Health Connections," a newsletter of the California Childcare Health Program at the University of California/San Francisco School of Nursing;
- brochures that explain IPM for child care providers; and
- fact sheets about reducing pesticide use around homes and gardens as well as about specific pests (e.g., Argentine ants, mice and rats, cockroaches, bed bugs).[103]

The DPR also has supported and funded research to improve understanding of pesticide use in California early care and learning environments, including a University of California, Berkeley survey study of pesticide use by California child care centers.[104]

In addition, the California Department of Social Services' Child Care Licensing Program publishes regular updates to inform the child care community about the licensing programs, and the agency has used this update as an opportunity to educate providers about pesticide use.[105]

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[102] Penn State Extension, IPM for Child Care and Early Learning Environments, *at:* http://extension.psu.edu/pests/ipm/schools-childcare/childcare.
[103] *See* Cal. Dep't of Pesticide Regulation, Child Daycare Facilities Integrated Pest Management (IPM), *available at*: http://apps.cdpr.ca.gov/schoolipm/childcare/main.cfm.
[104] UC Berkeley, Center for Children's Envtl Health Research, Pest Management and Pesticide Use in California Child Care Centers (2010), *at*: http://apps.cdpr.ca.gov/schoolipm/childcare/pest_mgt_childcare.pdf.
[105] *See* Cal. Dep't of Social Services, Child Care Updates (2010), *available at*: http://ccld.ca.gov/PG447.htm.

Statutes and Regulations Cited in Chapter 7

The summary provided in this chapter is based on a review of the following statutes and regulations. The chart does not necessarily include every state statute and regulation that addresses pesticides in child care facilities. The Appendix to this report includes a list of state websites for locating state laws and regulations.

Note: Most citations below refer to the first section in the applicable statute or regulation, rather than a specific pesticide provision. Citation to multiple child care regulations usually indicates that there are separate pesticide provisions in the regulations for different types of child care facilities.

	CHILD CARE STATUTES & REGULATIONS	OTHER STATUTES & REGULATIONS
Alaska	7 Ak. Admin. Code 10.010	
Arizona	Az. Rev. Stat. 36-898; Az. Admin. Code 9-3-101, 9-5-101	Az. Rev. Stat. 3-365 (Agric.) Az. Rev. Stat. 32-2307 (Professions)
California	Ca. Health & Safety Code 1596.70	Ca. Educ. Code 17608-17614 (Healthy Schools Act) Ca. Food & Agric. Code 13180-13188 (HSA)
Colorado		6 Co. Code Regs. 1010-7:1-101 (Health/San.) 35 Co. Rev. Stat. 10-101, 112 (Agric.)
Connecticut	Ct. Gen. Stat. 19a-79a	Ct. Gen. Stat. 22a-66a; Ct. Agencies Regs. 22a-66a-1 (Envir.)
Delaware	De. Admin. Code 9-100-101-1.0	De. Admin. Code 3-601-21.0 (Agric.)
Florida	Fl. Admin. Code 65C-20.008, 65C-22.001	
Georgia		Ga. Comp. Rules & Regs. 620-11-.01 (Agric.)
Illinois	225 Il. Comp. Stat 10/1; 89 Il. Admin. Code 406.1, 407.31, 408.1	225 Il. Comp. Stat. 235/1 (Professions) 415 Il. Comp. Stat. 65/1 (Envir.)
Indiana	470 In. Admin. Code 3-4.7-1, 3-4.4-1	357 In. Admin. Code 1-5-1- 3 (Pesticide Rev. Bd.)
Louisiana		51 La. Admin. Code 21:301 (Health/San.)
Maine		Me. Code Rules 01-026-26 (Agric.)
Maryland	Md. Code Regs. 13A.16.01.00	Md. Code, Agric. 5-208; Md. Code Regs. 15.05.01.16

Massachusetts	Ma. Gen. Laws 606, §7.01	Ma. Gen. Laws 132B, §§2, 6C-6I; 333 Ma. Code Regs. 14.01 (Agric.)
Michigan	Mi. Admin. Code 400.1903, 400.8101	Mi. Comp. Laws 324.8316; Mi. Admin. Code 285.637 (Agric.)
Minnesota	Mn. Rules 9502.0315	Mn. Stat. 18B.09 (Agric.)
Mississippi	Ms. Code Rules 15-11-55:1.1.1, 15-11-55:2.1.1	
Nevada		Nv. Admin. Code 555.460 (Pesticides)
New Hampshire	N.H. Code Admin. Rules He-C 4002.01	
New Jersey	N.J. Admin. Code 10:122-1.1	N.J. Admin. Code 7:30-1.2, 7:30-9.12 – 9.15, 7:30-10.3 (Envir.)
New Mexico	N.M. Code Rules 8.16.2.1	
New York	N.Y. Soc. Serv. Law 390-c, 390-g; 18 N.Y. Comp. Codes Rules & Regs. 416.1, 417.1, 418-1.1, 418-2.1	N.Y. Envtl. Conserv. Law 33-1001; 6 N.Y. Comp. Codes Rules & Regs. 325.40—41
North Carolina	10A N.C. Admin. Code 9.0100	
North Dakota	N.D. Admin. Code 75-03-09-01, 75-03-10-01	
Ohio		Oh. Rev. Code 921.06; Oh. Admin. Code 901:5-11-09 (Agric.)
Oklahoma	Ok. Admin. Code 340:110-3-1, 340:110-3-35	
Oregon	Or. Admin. Rules 414-300-0000	
Rhode Island		R.I. Gen Laws 23-25-37—38 (Health/Pesticides)
South Carolina	S.C. Code Regs. 114-500, 114-510, 115-520	
Texas	40 Tx. Admin. Code 746.3401	Tx. Occup. Code 1951.455; 4 Tx. Admin. Code 7.147-8, 7.37 (Agric.)
Vermont	Vt. Code Rules 12-3-102:1, 12-3-103:1	
Washington	Wa. Rev. Code 43.215.005; Wa. Admin. Code 170-295-0001, 170-296A-0001	Wa. Rev. Code 17.21.410—415 (Pesticides)
West Virginia	W.V. Code 49-2B-1, W.V. Code Rules 78-1-1	W.V. Code 19-16A-4; W.V. Code Rules 61-12J-1—11 (Agric.)
Wyoming	Wy. Code Rules 049-185-01	

CHAPTER 8

Lead-Based Paint

Lead is a naturally occurring heavy metal with a long history of use in human activities. Since lead's adverse effects on human health became scientifically documented in the early twentieth century, many lead sources (e.g., lead in gasoline and paint) have been eliminated or reduced. Nevertheless, lead poisoning remains a significant pediatric health problem; the Centers for Disease Control and Prevention (CDC) estimates that there are approximately half a million U.S. children aged one to five with blood lead levels higher than the level at which the CDC recommends actions be initiated (elevated blood lead levels).[106] Lead-based paint in homes and other child-occupied buildings is a continuing problem. The U.S. Department of Housing and Urban Development (HUD) has estimated that 37 million homes have lead-based paint in the building; of these, 23 million (about 22 percent of all homes) have one or more lead-based paint hazards.[107]

Once ingested or inhaled, lead accumulates in the blood, affecting many different organs and body systems. For children under the age of six, "[n]o safe level of lead exposure has been identified."[108] Even very small quantities of lead can damage the rapidly developing body of a young child and result in stunted growth, lower IQ, behavior and learning problems, anemia, and hearing problems.[109] Early lead exposure also "significantly increases the risk of hypertension, cardiovascular disease, diabetes, schizophrenia, and neurodegenerative changes later in life."[110] According to the World Health Organization, some of these effects of early lead exposure are "untreatable and irreversible."[111]

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[106] *See* Centers for Disease Control and Prevention (CDC), Lead, *at:* http://www.cdc.gov/nceh/lead/. As noted in the Introduction to the report, young black children continue to have higher blood lead levels than children from other races/ethnicities, and young children from families living below the poverty line have higher blood lead levels than those at or above the poverty line. U.S. EPA, America's Children and the Environment (3rd ed.) at 125 (2013), *available at*: http://www.epa.gov/ace/; CDC, Preventing Lead Exposure in Children (2004), *available at*: http://www.cdc.gov/nceh/lead/publications/primarypreventiondocument.pdf.

[107] U.S. Dept. of Housing and Urban Development (HUD), American Healthy Homes Survey: Lead and Arsenic Findings at 4 (2011), *at:* http://portal.hud.gov/hudportal/documents/huddoc?id=AHHS_REPORT.pdf. *See also* U.S. EPA, Learn About Lead, *at* http://www2.epa.gov/lead/learn-about-lead.

[108] CDC, Childhood Lead Poisoning and the Environment, *at:* http://ephtracking.cdc.gov/showLeadPoisoningEnv.action.

[109] *See, e.g.*, CDC, Lead, *at:* http://www.cdc.gov/nceh/lead/; U.S. EPA, Learn About Lead, *at*: http://www2.epa.gov/lead/learn-about-lead.

[110] National Institute of Environmental Health Sciences, Child Development and Environmental Toxins at 3, *at:* http://www.niehs.nih.gov/health/assets/docs_a_e/child_development_and_environmental_toxins_508.pdf (*citing* D.A. Cory-Slechta et al., "Lifetime consequences of combined maternal lead and stress," *Basic Clin. Pharmacol. Toxicol*. 102(2):218-227 (2008)).

[111] World Health Organization, Childhood Lead Poisoning (2010), *at:* http://www.who.int/ceh/publications/leadguidance.pdf.

This chapter focuses primarily on lead-based paint, the most common source of lead exposure for U.S. children.[112] (Children may also be exposed to lead through drinking water, soil, toys, and other products, and some states address these issues through their child care licensing and other laws and regulations; however, it is beyond the scope of this report to review those provisions.) With respect to lead-based paint, the most common pathway for exposure is ingestion or inhalation of fine particles of lead dust, invisible to the naked eye, which are created as old paint deteriorates or painted surfaces are disturbed, though it is also possible for children to ingest lead by eating paint chips or chewing painted surfaces.[113] Many cases of lead exposure occur because young children put things that have been in contact with lead dust – their own hands, toys, or other items – into their mouths.[114]

The Federal Policy Context. Lead poisoning is the subject of a number of federal laws and regulations that provide important context for understanding state policies addressing lead-based paint in child care facilities.

Lead-based paint can be found in millions of U.S. homes and other child-occupied buildings.

In 1978, the U.S. Consumer Product Safety Commission banned the sale of lead-based paint, with certain exceptions.[115] To address the ongoing problem of lead-based paint in pre-1978 buildings, Congress enacted the Residential Lead Based Paint Hazard Reduction Act of 1992 (known as "Title X").[116] Title X requires disclosure of lead hazard information upon transfer of residential property, as well as public education and outreach. The Act also directed the U.S. EPA to establish training, certification, and work practice standards for those conducting "lead-based paint activities" (risk assessment, inspection, and abatement). The EPA promulgated these regulations in 1996, establishing detailed requirements governing certification and work practice standards that apply when lead paint activities are conducted in pre-1978 ("target") housing and child-occupied facilities.[117] The work practice standards for lead paint activities address inspection and lead

[112] *See* CDC, Lead – Prevention Tips, *at:* http://www.cdc.gov/nceh/lead/tips.htm.
[113] Many buildings built before 1978 still have lead paint under layers of newer paint; therefore, overdue/inadequate maintenance or repairs undertaken without adequate safety precautions may also put children at risk of exposure.
[114] *See, e.g.,* CDC, National Lead Poisoning Prevention Week 2013, *at*: http://www.cdc.gov/features/leadpoisoning/.
[115] *See* 16 C.F.R. Part 1303. These regulations were authorized by 1976 amendments to the 1971 Lead-Based Paint Poisoning Prevention Act, 42 U.S.C 4821 et seq.
[116] *See* 42 U.S.C. 4851 et seq.
[117] *See* 40 C.F.R. Part 745, Subpart L, known as the Lead-based Paint Activities Rule. Under Section 745.223 of the rule, *child-occupied facility* "means a building, or portion of a building, constructed prior to 1978, visited regularly by the same child, 6 years of age or under, on at least two different days within any week (Sunday through Saturday period), provided that each day's visit lasts at least 3 hours and the combined weekly visit lasts at least 6 hours, and the combined annual visits last at least 60 hours. Child-occupied facilities may include, but are not limited to, day-care centers, preschools and kindergarten classrooms." *Target housing* "means any housing constructed prior to 1978, except housing for the elderly or persons with disabilities (unless any child who is less than 6 years of age resides or is expected to reside in such housing) or any 0-bedroom dwelling." 40 C.F.R. 745.223.

hazard screening methodologies; prohibit certain abatement practices; establish post-abatement clearance procedures; and require development of occupant protection plans. The regulations also established requirements for training providers, including curriculum requirements and instructor credentials.

In 2008, EPA promulgated the Renovation, Repair, and Painting (RRP) Rule,[118] which establishes that anyone paid to perform renovation, repair, and painting projects (including, e.g., contractors, landlords, or in-house maintenance staff) that disturb paint in pre-1978 homes or child-occupied facilities must be certified and adhere to specific work practice standards to minimize exposure to lead-based paint hazards created by the renovation, both during and after the renovation. RRP work practice standards require workers to take a range of protection measures, including: posting signs clearly defining the work area and warning occupants to remain outside of it; removing or covering all objects (e.g., furniture, rugs, window coverings) in the work area; containing the work area so no dust or debris escapes while work is being performed; and thoroughly cleaning the work area after the renovation so that no dust, debris, or residue remains.

Federal law allows states, tribes, and territories to request EPA approval to administer and enforce these two sets of federal regulations. In order to do so, states must adopt their own regulations that are "at least as protective" as the federal regulations and that provide "adequate enforcement."[119] To date, 39 states have received federal approval to administer their own Lead-based Paint Activities regulations, while 15 state have received federal approval to administer their own RRP programs.[120]

While these federal laws and regulations establish certification requirements and work practice standards, they do *not* require owners or occupants of target housing or child-occupied facilities to undertake activities to identify and eliminate lead-based paint hazards. This chapter focuses on state laws and regulations that establish affirmative requirements, or provide authority, for identifying and/or eliminating existing lead-based paint hazards[121] and for maintaining lead-safe facilities. The lead-based paint policies summarized here incorporate:

[118] *See* 40 C.F.R. Part 745, Subpart E. The RRP rule took effect in 2010.
[119] *See* 40 C.F.R. Part 745, Subpart Q.
[120] The states that do *not* administer their own Lead-based Paint Activities programs are: Alaska, Arizona, Florida, Idaho, Montana, Nevada, New Mexico, New York, South Carolina, South Dakota, and Wyoming. *See* U.S. EPA, Lead-Based Paint Activities Professionals, *at* http://www2.epa.gov/lead/lead-based-paint-activities-professionals. The states authorized to administer their own RRP programs in lieu of the federal program are: Alabama, Delaware, Georgia, Iowa, Kansas, Massachusetts, Mississippi, North Carolina, Oklahoma, Oregon, Rhode Island, Utah, Washington, and Wisconsin. *See* U.S. EPA, Renovation, Repair and Painting Program: Contractors, *at:* http://www2.epa.gov/lead/renovation-repair-and-painting-program-contractors.
[121] According to EPA and HUD regulations, a *lead hazard* is "any condition that causes exposure to lead from lead-contaminated dust, lead-contaminated soil, or lead-contaminated paint that is deteriorated or present in accessible surfaces, friction surfaces, or impact surfaces that would result in adverse human health effects." *See* 40 C.F.R. 745.223 (EPA Lead-based Paint Activities Rule); 24 C.F.R. 35.110 (HUD General Lead-Based Paint Requirements and Definitions for All Programs).

- lead-related evaluations and documentation requirements in connection with licensing;
- general facility standards;
- actions to address identified or suspected hazards;
- notification to parents/guardians;
- outreach and education; and
- prohibitions on new sources of lead-based paint.

The summary that follows does *not* review state laws and regulations governing training, certification, and work practice standards for lead-based paint activities and thus does not discuss whether or not such state measures are more stringent than the federal policies discussed above.

Types of Laws/Regulations Included. The provisions described in this chapter are found in state child care licensing laws and regulations, as well as in state lead laws and regulations. In some states, child care regulations are the primary source of lead-related requirements applicable to child care facilities. In other states, the provisions are situated in a comprehensive lead poisoning prevention law that applies to residential buildings and/or child-occupied facilities. In many cases, lead requirements applicable to child care facilities are found in a combination of child care and other laws and regulations. Following the summary of state policies, the chapter highlights notable non-regulatory activities undertaken by state agencies to reduce exposure to lead-based paint in child care facilities. The chart at the end of the chapter provides citations to the laws and regulations discussed here.

This chapter does not review housing or property maintenance codes, which may also establish requirements applicable to the owners of rental dwellings (and in some cases owner-occupied homes) in which child care facilities are located. Nor does the summary discuss the food service codes adopted by many states that may apply to some or all child care facilities. These codes, often based on the U.S. Food and Drug Administration's (FDA) model Food Code, typically include some provisions relating to lead-based paint and use of lead-bearing equipment and fixtures.[122]

The summary that follows describes provisions in laws and regulations only; it does not cover written guidance documents, inspection checklists, and other supplementary materials developed by states, which may elaborate on statutory and regulatory requirements.[123] Additionally, the

[122] All 50 states have adopted a food code based on current or prior versions of the federal model code, but states are free to add, delete, or change provisions of the model code. *See* Ass'n of Food & Drug Officials, Food Code Adoption by State, *at*: http://www.afdo.org/page-1417772. The FDA's 2013 Food Code is available at http://www.fda.gov/Food/GuidanceRegulation/RetailFoodProtection/FoodCode/.

[123] In some cases, these supplementary documents may include important interpretations of general regulatory provisions. For example, Missouri's Sanitation Inspection Guidelines elaborate on the regulatory requirement that "lead-free paint shall be used for all painted surfaces" by providing that there must be "no indication of lead hazards," and that a "facility located in a building built before 1978 must have a Basic Lead Hazard Evaluation conducted." Mo. Bureau of Child Care, Sanitation Inspection Guidelines for Licensed Group Child Care Homes, Licensed Child Care Centers and License-Exempt Child Care Facilities at 6 (2005), *available at:* http://health.mo.gov/safety/childcare/lawsregs.php.

summary only discusses provisions in the laws and regulations that address lead *explicitly*; general provisions in child care regulations that might apply indirectly to lead prevention in certain situations, such as requirements for protecting children from harmful substances or maintaining facilities in good repair, may also provide a basis for state agencies to address lead hazards or to require facilities to take action. For example, New York's child care regulations require that "the building, its property and premises, and the surrounding neighborhood and environment are free from environmental hazards;" the state requires applicants to complete forms related to environmental hazards on the premises and recommends that child care facilities be assessed for lead hazards as part of this process.[124] (For a description of these regulations, see Chapter 11 – Site/Location.)

Types of Facilities. Many states regulate center-based and home-based facilities differently with respect to lead. Unless explicitly noted, it should not be assumed that a provision described in the following summary applies to *all* types of licensed child care facilities. Consult a state's laws and regulations to determine the applicability of specific lead provisions.

Lead Evaluation and Documentation Requirements During Licensing

Several states have establish explicit requirements for conducting facility evaluations and/or submitting lead-based paint documentation as part of the child care licensing application process.

Agency Licensing Inspections. State child care regulations typically require the licensing agency to conduct a facility inspection prior to licensing and at certain intervals thereafter. In Connecticut, child care regulations explicitly require any inspection conducted by the licensing agency to include an inspection for evident sources of lead poisoning. Even in the absence of such an explicit regulation, licensing inspections provide a key opportunity for identifying potential lead hazards that need to be addressed. Some licensing agencies have developed inspection checklists that include lead-based paint items.[125]

Applicant Evaluations/Documentation. A number of states require the applicant for a child care license to take specific action to demonstrate compliance with lead-based paint standards in connection with the licensing process. This may include providing information about lead-based paint conditions, conducting some type of evaluation,[126] and/or taking actions to address hazards.

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[124] *See* N.Y. State Office of Children & Family Services, Environmental Hazard Guidance Sheet, *available at*: http://www.ocfs.state.ny.us/main/documents/docsChildCare.asp.

[125] *See, e.g.,* Ohio Dep't of Job & Family Services, Compliance Report, *available at:* http://www.odjfs.state.oh.us/forms/file.asp?id=196&type=application/pdf).

[126] It is important to note that while this chapter refers to "lead evaluations" for purposes of general discussion, federal and state laws refer to a variety of procedures for investigating, identifying, and evaluating lead hazards — e.g., "inspection" (surface-by-surface investigation to determine the presence of lead); "screening" (limited environmental screening focused on visual assessment); and "risk assessment" (on-site investigation, including lead dust and soil sampling) procedures. *See* 40 C.F.R. 745.223; 24 C.F.R. 35.110. State definitions of these terms are similar to federal definitions in most cases. The federal EPA Lead-based Paint Activities rule, 40 C.F.R. Part 745,

These requirements usually are limited to facilities or structures built before a certain year – typically 1978, but in some cases earlier years – and may include exemptions for buildings that previously were certified lead-free or lead-safe. In most of these states, the requirements are included in the state child care regulations; in some, the requirements are also spelled out in the state lead law and regulations. As noted above, federal and/or state certification and work practice standards apply to certain types of lead evaluations undertaken at a child-occupied facility.

The following are examples of states that require license applicants to submit evidence of a lead evaluation in connection with the licensing and/or license renewal process:

- Child care regulations in Rhode Island require applicants to submit evidence that physical facilities at a child care center are lead-free or lead-safe prior to licensing.[127]

- New Jersey child care regulations require the applicant/facility operator to "certify in writing that the center complies with all existing Department of Children and Families regulatory requirements for child care centers with respect to lead" (including "ensur[ing] that a lead paint inspection of all painted surfaces of the center is conducted by a Lead Inspector/Risk Assessor") at the time of an initial application, renewal application (every three years), or relocation of an existing licensed center.

- Connecticut's Lead Poisoning Prevention and Control regulations require that the premises in which child care services are provided be inspected by a lead inspector for "toxic levels of lead" before licensing or re-licensing of a day care center.

- Vermont's child care and lead regulations require that, prior to licensing and annually thereafter, the licensee must file with the licensing agency and the Department of Health an affidavit affirming that it has completed the required "essential maintenance practices," which include a visual on-site inspection of interior and exterior surfaces to identify deteriorated paint.

Subpart L, requires that *lead inspections* and *lead hazard risk assessments* in child-occupied facilities be conducted by certified inspectors and/or risk assessors; however, licensees typically may conduct visual "assessments" without special training or certification. To understand the scope of the lead evaluation required in a particular state, consult the state's laws and regulations for the precise terms used and how those terms are defined.

[127] Rhode Island has proposed revisions to its rules for home-based child care facilities that would require homes to comply with the requirement as well. The proposed regulations are available on the Department of Children, Youth and Families website at http://www.dcyf.ri.gov/docs/family_child_care_home.pdf (Family Child-Care Homes) and http://www.dcyf.ri.gov/docs/group_family_child_care_home.pdf (Group Family Child-Care Homes).

Essential Maintenance Practices in Child Care Facilities - Vermont

Vermont's comprehensive lead legislation includes the Essential Maintenance Practices Law, which applies to any child care facility or family child care home constructed prior to 1978. The law, implemented by the Department of Health, aims to prevent childhood lead poisoning in child care facilities by requiring owners of buildings where child care facilities are located to undertake certain training, inspection, and lead hazard control activities.

Essential maintenance practices (EMP), which must be performed by a person who has been trained and certified by the Department of Health, include:

- visual on-site inspection of interior and exterior surfaces to identify deteriorated paint in areas frequented by children;
- stabilizing paint or restricting access by children if more than one square foot of deteriorated paint is found on any interior or exterior surface accessible to children, using lead safe work practices to prevent the spread of dust;
- removal of visible paint chips from the ground on the property;
- assuring that window well inserts are properly installed in all windows wells and performing specialized cleaning of windows and windowsills; and
- assuring that notice is posted in a prominent location emphasizing to building occupants the importance of reporting deteriorated paint to the facility owner.

The owner of the premises of a child care facility must provide annual EMP compliance statements to the Vermont Department of Health, the owner's liability insurance carrier, the Department for Children and Families, and the tenant of the facility, if any.

The state's licensing regulations for child care centers and family child care homes incorporate these EMP requirements as well and require the licensee to provide a copy of the compliance statements to the Department of Health's Childhood Lead Poisoning Prevention program and their liability insurance carrier.

Source: 18 Vt. Stat. 1759; Vt. Code Rules 12-3-101:1 et seq., 12-3-102:1 et seq., 12-3-103:1 et seq.

A number of other states have child care regulations that require lead-based paint evaluations and/or documentation in connection with initial licensing and/or upon re-licensing, including Iowa, Maine, Maryland, Massachusetts, and Michigan.[128]

General Child Care Facility Standards for Lead-Based Paint

A majority of states have child care regulations or lead laws/regulations that establish general facility standards with respect to lead-based paint or lead-based paint hazards in child care facilities. Even where regulations do not include specific actions that the facility must take in connection with the licensing process, such general facility standards can provide a basis for licensing agencies to incorporate lead into licensing inspections and to require action to address lead hazards before a license is issued or renewed, as well as during operation of the facility.

The most common approach, taken by over 20 states, is to require that some or all parts of the child care facility be maintained free of chipping, peeling, flaking, or otherwise damaged or deteriorating paint.[129] In many states, the requirement exists in the form of a general prohibition; Nebraska's requirement that "the facility must be free of exposed lead-based paint surfaces which are flaking, peeling, or chipped" is similar to those found in many states. In Vermont, child care regulations state that children in care "shall be protected from any and all conditions, which threaten a child's health, safety and well-being," including "chips and dust from lead paint."

Child care or lead regulations in several other states require facilities to be maintained free of lead paint, "lead hazards," and/or "lead contamination." In Louisiana, for example, lead regulations require that "[a]ll day care facilities or institutions in which children or other persons commonly reside or are cared for shall be maintained free of lead contamination."

Required Actions to Address Identified or Suspected Lead Hazards

In addition to establishing general facility standards, child care regulations and/or state lead laws in many states set forth specific actions that must be taken to address suspected or identified lead hazards at a child care facility. These provisions vary considerably. Some establish direct requirements for providers to take action, while many require or authorize the state lead agency to respond to lead hazards in a child care facility. Some require *abatement* (permanent elimination of the lead hazard) of identified lead hazards, while others require *interim controls* (temporarily

[128] Maine's requirement for child care facilities to have an *annual* screening for potential lead hazards is implemented by the licensing agency through its initial and renewal inspection visits. *See* Me. Dep't of Health & Human Services, Lead-Safe Child Care, *available at*: http://www.maine.gov/dhhs/ocfs/ec/occhs/centerbased.htm.
[129] Standards limited to addressing deteriorated paint alone (flaking, peeling, or chipped paint) may not encompass all lead dust conditions included within the scope of a "lead hazard" as defined by the EPA and HUD, which includes hazards related to *intact* paint on accessible, friction, and impact surfaces. *See* 40 C.F.R. 745.223 (EPA's Lead-based Paint Activities Rule).

Investigating Lead Poisoning Cases – New Hampshire

New Hampshire's lead law requires the commissioner of the Department of Health and Human Services to investigate cases of lead poisoning in children whose blood lead level meets or exceeds 10 micrograms per deciliter. (The Department *may* also conduct investigations when there is reason to believe that a lead hazard exposure hazard exists.) The required investigations may include inspections of dwellings or child care facilities and environmental sampling. When a lead-based paint hazard is determined to exist in a child care facility, the commissioner must issue an order requiring lead hazard reduction to the owner and to the license holder, with a copy to the licensing agency. The written order must include a number of items specified in the law, including the period of time within which lead hazard reduction must be completed and the standards for re-occupancy or resumption of operations of a child care facility. The owner or license holder must provide notice of findings of lead hazard exposure to the parents or guardians of children who use the facility.

Source: N. H. Rev. Stat. 130-A (Lead Poisoning Prevention and Control).

reducing the lead hazard and implementing essential maintenance practices) to manage the lead hazard and prevent exposure.[130]

Agency Investigations and Orders. In nearly half of all states, lead laws and/or regulations either require or authorize the state lead agency to conduct an investigation to evaluate lead hazards when an actual or potential source of lead exposure is detected at a child care facility. These investigations typically are triggered by identification of a child with an elevated blood lead level (EBLL), and they usually supplement an evaluation of the child's home in order to determine the source of lead exposure. (In some states, including Hawaii, Indiana, Maine, and Oregon, the lead

[130] Under federal lead regulations, *abatement* means "any measure or set of measures designed to permanently eliminate lead-based paint hazards. Abatement includes, but is not limited to: (1) The removal of paint and dust, the permanent enclosure or encapsulation of lead-based paint, the replacement of painted surfaces or fixtures, or the removal or permanent covering of soil, when lead-based paint hazards are present in such paint, dust or soil; and (2) All preparation, cleanup, disposal, and post-abatement clearance testing activities associated with such measures." *Interim controls* means "a set of measures designed to temporarily reduce human exposure or likely exposure to lead-based paint hazards, including specialized cleaning, repairs, maintenance, painting, temporary containment, ongoing monitoring of lead-based paint hazards or potential hazards, and the establishment and operation of management and resident education programs." 40 C.F.R. 745.223.

laws or regulations provide for agency lead evaluations in broader circumstances that may include, but are not specifically limited to, reports of a lead-poisoned child.)[131]

In most of these states, when an investigation reveals a lead hazard at a child care facility, the agency is either required or authorized to issue an order directing the provider and/or building owner to take certain follow-up actions to eliminate or remediate the lead hazard. The statutes and regulations establish different requirements for what must be included in an agency order (sometimes referred to as a "lead hazard control notice" or "mitigation notice"). For example, such orders may: require specific actions and strategies that must be undertaken to make the property lead-safe and suitable for occupancy by the child with the EBLL and other children; establish the date by which remediation activities must be completed; and specify the method for verifying that the remediation activities have been satisfactorily completed.

Action by Child Care Providers. Some states set out specific actions to be taken by providers when a lead hazard is suspected or identified at any point during the facility's operation. These provisions may be found in child care regulations, the state lead law, or both.

Some of the general lead-based paint facility standards found in *child care regulations* (described above) incorporate explicit follow-up actions that a child care provider must take when lead-based paint or deteriorated paint is found. For example:

- New York's child care regulations require that "[p]eeling or damaged paint or plaster must be repaired."

- In Illinois, "[p]eeling or damaged paint or plaster shall be repaired promptly to protect children from possible hazards."

- West Virginia requires child care centers to seal or remove lead-based paint.

- Wyoming's child care regulations require: "components including walls, doors and windows that have been painted with lead-based paint shall have the paint safely removed, covered over or shall be maintained to ensure dust lead levels do not exceed" specified levels.

- Under Washington's child care regulations, the licensee must "take action to prevent child exposure" when the licensee becomes aware that any lead-based paint, plumbing containing lead, or lead in the soil are present in licensed space.

[131] As noted earlier, this summary does not include housing or property maintenance codes, which may also establish lead evaluation requirements applicable to rental dwellings (and sometimes owner-occupied homes) in which child care facilities are located. *See, e.g.,* N.J. Stat. 55:13A-1 et seq.; Md. Code, Envir. 6-801 et seq., Md. Code Regs. 26.16.02.00 et seq.

- In Maryland, the operator of a child care center must arrange to have a lead dust test conducted if deteriorated paint is noted in an area used for child care.

- In Utah, licensees must ensure that deteriorated paint is tested.

- Delaware requires licensees to maintain evidence of testing for lead-based paint hazards "when conditions warrant such testing and/or testing is required."

Several states (including Massachusetts, Nebraska, New Hampshire, Utah, and West Virginia) require licensees to contact the state or local lead agency in order to determine the appropriate measures to be taken by the facility.

As described above, some *lead laws and regulations* require child care providers (directly or indirectly) to address lead hazards as established through a state agency order. Some lead laws also include direct requirements for providers to address lead hazards, independent of orders issued by the state agency. For example, Maine's lead statute provides: "A facility found to have lead hazards shall abate or remediate the hazards to at least a lead-safe status." Under Vermont's lead law, owners of child care buildings where more than one square foot of deteriorated lead-based paint has been visually identified must promptly and safety remove or stabilize the paint. In Connecticut, the lead law requires that the owner of "any dwelling in which the paint, plaster or other material is found to contain toxic levels of lead and in which children under the age of six reside, shall abate, remediate or manage such dangerous materials." Similarly, Massachusetts' lead paint law requires owners of any premises where there is "paint, plaster or other accessible structural material contains dangerous levels of lead" and where a child under six resides, to initiate interim controls and/or abatement, in accordance with detailed provisions in the law.

Notification and Information Requirements

The federal RRP rule requires renovators to provide the facility's adult occupants *and* parents/guardians of children using the child-occupied facility with an EPA-approved lead hazard information pamphlet and specific information about the nature and locations of the renovation. Some state laws and regulations require that child care facilities provide notice of lead-related activities to parents or guardians of enrolled children.

Notice of Lead Evaluation. Some states that mandate lead evaluations explicitly require child care facilities to notify parents or guardians of the results. In Massachusetts, for example, child care regulations require the licensee to disclose the results of lead inspections to enrolled families. In several states, a child care provider must notify parents when a lead evaluation reveals a lead hazard at the facility; the notice requirement may be included in child care regulations (e.g., Maine, New Jersey) or in the state's lead laws (e.g., Louisiana, New Hampshire, South Carolina).

State law may also require the agency responsible for conducting a lead evaluation at a child care

facility to notify the parents/guardians, along with the owner and occupants, of the existence of a lead hazard. For example, Georgia's lead law requires that, "[u]pon determination that a lead poisoning hazard exists, the [health] department shall give written notice of the lead poisoning hazard to the owner of the [home or] day-care facility and to all persons residing in or attending the dwelling or facility." Illinois, Maine, and Massachusetts have similar requirements in their lead laws. Under Missouri's lead statute, the health department *may* provide written notification to the parents or guardians of children who regularly visit a child-occupied facility of the confirmed presence of a lead hazard.

Notice of Control or Abatement Action. Some states require explicitly that child care facilities notify parents upon taking actions in response to lead hazards. For example, under Louisiana's lead regulations, child care facilities must provide notification to all parents or legal guardians of each child enrolled at the facility of lead abatement activities or lead hazard reduction activities

Notice Requirement – Massachusetts

Massachusetts' child care regulations for centers and homes include notice requirements to ensure parents are aware of risks associated with lead poisoning and sources of lead exposure in the facility. *Center-based* child care programs must provide evidence of a lead paint inspection in connection with licensing, and the licensee must disclose the results of any lead inspection and any necessary remediation plan to enrolled or prospective families. *Family child care* programs are not required to submit evidence of a lead inspection; however, notice requirements for family child care programs include the following:

- The licensee must provide information to parents in writing regarding the risks and sources of lead poisoning.
- The licensee must provide all parents with a disclosure statement regarding any known source of lead in the home.
- If chipping or peeling paint or plaster is found in a home built prior to 1978 the licensee must provide written notification to the parents of all children in care of the possibility of exposure to lead paint.
- The licensee must maintain in each child's record a written acknowledgement of receipt of the information required above.
- If a family child care home is found by the Department of Public Health (DPH) to be the source of lead poisoning for any child, the licensee must notify the licensing agency and must follow DPH guidelines to eliminate further risk of lead poisoning.

Source: 606 Ma. Code Regs. 7.01 et seq.

performed at the facility or on its grounds. In Massachusetts, child care regulations require the licensee to provide information about any necessary lead remediation plan to enrolled and prospective families. New Jersey's child care regulations require that when a risk assessment indicates the presence of a lead hazard at a facility, the licensee must inform the parents of enrolled children that the hazard has been or will be abated.

Education and Outreach Requirements

A number of states require owners or operators of licensed child care facilities to conduct certain education or outreach activities relating to lead poisoning prevention.

A few states have enlisted child care facilities to help provide information about lead poisoning prevention to parents and guardians of young children. For example, Massachusetts' child care regulations require licensed facilities to provide information to parents regarding risks and sources of lead poisoning, and Florida's Lead Education and Screening law requires that child care facilities distribute information pamphlets on lead poisoning to parents/guardians of children aged six and under. In New York, where child care regulations require facilities to request lead screening certificates for enrolled children, the provider must give information on lead poisoning and prevention to parents that do not provide certificates. In Illinois, the Lead Poisoning Prevention Act requires facilities participating in the child care assistance program to send lead poisoning awareness pamphlets to parents or guardians of children annually.

Vermont's child care regulations require licensed child care facilities to post notices on the premises advising occupants of the importance of reporting deteriorated paint to the building's owner. In some states, a similar requirement applies to facilities opting to implement "interim controls" in response to lead hazards, including states that have modeled their interim control requirements after federal regulations.

Requirements for Preventing New Sources of Lead-Based Paint

A range of federal and state laws and regulations restrict the use of lead-bearing products – including paint, toys, materials, and equipment – in child care settings.

Use of Lead-Based Paint Prohibited. As noted previously, the use of lead in residential paint and certain other consumer products has been banned in the U.S. since 1978. Under current Consumer Product Safety Act regulations, paints and surface-coating materials that contain 0.009 percent or more lead are considered banned hazardous substances that may not be manufactured, distributed, or imported.[132]

[132] 16 C.F.R. 1303.

A number of states explicitly prohibit or restrict the use of lead-based paint in child care centers, dwellings, or both. At least one third of all states have child care regulations or lead laws that prohibit the use or application of lead-based paint (as defined in the law/regulation) on the walls and surfaces accessible to children in child care facilities. For example, Maine's child care regulations require that "lead paint must not be used on toys, furniture or any interior surfaces," and child care regulations in Missouri and New York contain similar provisions. Georgia's Lead Poisoning Prevention Act features a broad prohibition, banning the use of lead bearing substances: in or upon any exposed surface of a child care facility; in or upon any fixtures, objects, or items used, installed, or located in a child care facility that are accessible to or chewable by children; or within or upon a child care facility, playground, or recreational area regularly frequented by children. In Colorado, child care sanitation regulations prohibit the use of "materials with heavy metals such as lead," including lead paint, on surfaces accessible to children.

Toys and Equipment. While dust and chips from lead-based paint on walls, windows, and other structural elements are the most common sources of child lead exposure, they are not the only sources. Equipment, furniture, and toys coated with lead-based paint or having lead components can yield paint chips and dust. Additionally, young children can ingest lead by mouthing lead-bearing toys or products. Under current Consumer Product Safety Act regulations, toys, furniture, or other articles intended for use by children that bear lead paints or finishes may not be manufactured, sold, or imported. At least one third of all states have child care and/or lead regulations that explicitly limit use of lead-bearing toys and equipment in child care environments. The most common approach is to require licensed child care facilities specifically to use toys, equipment and/or furnishings that are free of lead, lead paint, or lead hazards.

Summary: State Laws and Regulations

Most states have adopted child care and/or lead laws and regulations addressing lead-based paint hazards in licensed child care facilities, but the specific requirements of these laws vary considerably from state to state. The most common regulatory measures are general facility standards prohibiting lead hazards. Many states also authorize or require state agencies to issue orders to child care facilities in response to lead hazards that have been identified, often through elevated blood lead level screening, and some states include directly in their regulations specific measures that child care facilities must take in response to lead hazards. A relatively small number of states have spelled out in their child care or lead regulations specific lead evaluation and documentation requirements in connection with the licensing process. These varied approaches are supplemented in some jurisdictions by requirements for notifying parents/guardians of lead-based paint activities.

For pre-1978 buildings, lead-based paint abatement and/or adequate maintenance of interior and exterior painted surfaces are key to preventing lead poisoning before it occurs. In addition to establishing general facility standards prohibiting lead hazards, the child care licensing process provides an opportunity to prevent lead poisoning by requiring license applicants to take

affirmative steps to document compliance with these standards at the time of licensing and renewals, and to conduct regular monitoring of facilities for lead hazards.

Non-Regulatory Initiatives

As discussed in Chapter 12, some states have established formal agency initiatives or activities to encourage child care facilities to address environmental health issues. These activities include training and education, technical and financial assistance, and voluntary recognition programs. Following are examples of how some of these initiatives aim to reduce lead exposures in child care facilities.

Recognition Programs. Voluntary recognition programs in Indiana and Pennsylvania, described in more detail in Chapter 12, incorporate practices related to lead that go beyond current laws and regulations.

The Indiana Five Star Environmental Recognition Program for Child Care Facilities uses a checklist with both mandatory and optional items addressing lead. In addition to complying with state and federal requirements, participating facilities must have a written policy on preventing lead exposure that is consistent with the program's model policy for minimizing lead exposure and must include the policy in the staff and parent handbooks or otherwise inform parents and staff about the policy. For facilities built before 1978 that have not had a lead inspection indicating no lead paint in the facility, all cleaning and maintenance staff must be made aware of any known lead paint and must receive (documented) lead poisoning prevention training approved by the program; additionally, they must use wet cleaning for reducing lead dust. The program also requires use of cold water for drinking, cooking and preparing baby formula, as well as flushing of cooking and drinking outlets each morning.[133]

To receive 5-star status, a facility built prior to 1978 must document as part of its application either that a lead inspection has occurred at the facility or a lead risk assessment was conducted within the past year with the results posted for view by parents and all identified hazards reduced or eliminated. The program also includes the following optional criteria that a facility can select toward achieving 4- or 5-star status: requesting documentation that blood lead testing has occurred and training all staff in contact with facility in lead poisoning prevention.

The Indiana Department of Environmental Management offers free lead assessments for child care providers participating in the program, and the program website includes extensive information to

[133] Ind. Dep't of Envtl. Management, Indiana Five Star Environmental Recognition Program for Child Care Facilities Application, *available at*: https://forms.in.gov/Download.aspx?id=5536. The program provides model policies, which are available at http://www.in.gov/idem/health/2350.htm.

assist applicants in meeting the program requirements, including a variety of child care staff training options.[134]

As discussed in Chapter 12, child care providers participating in Pennsylvania's Early Childhood Education Healthy & Green Initiative may pursue endorsement through the Eco-Healthy Child Care® (EHCC) program, which includes both required and optional criteria relating to lead exposure.[135] In addition to making available the EHCC lead fact sheet, the Healthy & Green Initiative has generated a Pennsylvania Reference Page on lead that includes the state's lead-related regulations, along with relevant national health and safety performance standards.[136]

Michigan's voluntary recognition program, Great Start to Quality, awards two points in the "Physical Environment" category for child care facilities that are "in a physical location that is free of environmental risks (e.g. lead, mercury, asbestos and indoor air pollutants.)"[137]

Educational and Guidance Materials. Many states have developed materials addressing lead-based paint, and a considerable number have created educational tools on the subject specifically for child care providers. Following are some examples of these efforts:

- The Oregon Health Authority offers extensive resources on lead exposure in child care facilities and schools, including information about lead health effects, potential sources of lead, lead hazards, and the federal lead renovation, repair, and painting (RRP) rule.[138]

- New York's Office of Children and Family Services has developed information for those who are considering becoming a child care provider, which includes links to a web page (Lead-Effects on Children) and a brochure titled, What Child Care Providers Need to Know About Lead.[139]

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[134] For example, the Indiana Association for Child Care Resource & Referral (IACCRR) offers a free online lead training course (with clock hours available), titled "Let's Get the Lead Out," which is available from IACCRR's Training Central program at http://www.iaccrr.org/.

[135] Providers seeking endorsement by the EHCC program meet at least 21 out of 27 optional items, including (for post-1978 facilities): "1) We maintain our facility to minimize lead hazards AND 2) We follow the Federal requirements in EPA's *Renovate Right* brochure before painting, remodeling, renovating, or making repairs that disturb paint. We have reviewed how to meet these requirements at www.cehn.org/files/leadpaint.pdf." Other EHCC items address lead in toys and kitchenware and use of walk-off mats at facilities. The EHCC checklist is available at www.cehn.org/ehcc.

[136] Pa. Office of Child Devt. and Early Learning, Pennsylvania References for Eco-Healthy Child Care: Lead, *at:* http://www.pakeys.org/uploadedContent/Docs/Healthy%20and%20Green/Lead%20PA%20Reference%20Page.pdf. Additionally, the non-governmental Early Childhood Education Linkage System (ECELS) has developed extensive background information on lead, which is available at http://www.ecels-healthychildcarepa.org/eeccp/publications/manuals-pamphlets-policies.

[137] Information on the Michigan Great Start to Quality program is available at http://greatstarttoquality.org/.

[138] Or. Health Authority, Preventing Exposure to Lead in Schools (K-12) and Child Care, *at*: http://public.health.oregon.gov/HealthyEnvironments/HealthyNeighborhoods/LeadPoisoning/ChildCareSchools/Pages/index.aspx.

[139] N.Y. State Office of Children & Family Services, Become a Provider: Health and Safety/Emergency Planning, *at*: http://www.ocfs.state.ny.us/main/childcare/becomeaprovider.asp.

- The Michigan Department of Human Services offers a two-page visual, Guide to Cleaning up Lead Paint Chips and Dust, on its resource/publication page for child care providers.[140]

- In Iowa, the Resources and Valuable Web Sites page for Healthy Child Care Iowa references the state's Bureau of Lead Poisoning Prevention, which offers resources that include an "FAQ" page about lead regulations, as well as a separate three-page document and a booklet titled, Lead Poisoning: How to Protect Iowa Families.[141]

- North Carolina's Child Care Sanitation Program, which oversees sanitation regulations for licensed child care centers, maintains a web page on children's environmental health that includes information on child care facility requirements generally, as well as materials on lead-safe toys and lead poisoning.[142]

[140] Mich. Dep't of Human Services, Child Health and Safety, *at:* http://www.michigan.gov/dhs/0,4562,7-124-5529_49572_49581---,00.html.
[141] Iowa Dep't of Public Health, Lead Poisoning Prevention, *at*: http://www.idph.state.ia.us/LPP/.
[142] N.C. Dep't of Health and Human Services, Children's Environmental Health, *at*: http://ehs.ncpublichealth.com/hhccehb/cehu/index.htm.

Statutes and Regulations Cited in Chapter 8

The summary provided in this chapter is based on a review of the following statutes and regulations. The chart does not include every state statute and regulation that addresses lead-based paint in child care facilities. The Appendix to this report includes a list of state websites for locating state statutes and regulations.

Note: Most citations below refer to the first section in the applicable statute or regulation, rather than a specific lead provision. Citation to multiple child care regulations usually indicates that there are separate lead-based paint provisions in the regulations for different types of child care facilities.

	CHILD CARE STATUTES & REGULATIONS	LEAD STATUTES & REGULATIONS
Alaska	7 Ak. Admin. Code 10.010	
Arizona		Az. Rev. Stat. 36-1671 (Public Health & Safety)
Arkansas	Ar. Code Rules 016-22-1-101, 016-22-4-101, 016-22-6-101	Ar. Code 20-27-601 (Public Health)
California		Ca. Health & Safety Code 105250
Colorado		6 Co. Code Regs. 1010-7:1-101 (Public Health & Environment)
Connecticut	Ct. Gen. Stat. 19a-87b; Ct. Agencies Regs. 19a-79-1a	Ct. Gen. Stat. 19a-111; Ct. Agencies Regs. 19a-111-1 (Public Health)
Delaware	9 De. Admin. Code 101-1.0	16 De. Code 2603 (Health & Safety)
Florida		Fl. Stat. 381.982 (Public Health); Fl. Admin. Code 64E-27.001 (Env. Health)
Georgia	Ga. Comp. Rules & Regs. 290-2-1-.01, 290-2-3-.01, 591-1-1-.01	Ga. Code 31-41-11 (Health)
Hawaii	Hi. Code Rules 17-891.1-1, 17-892.1-1, 17-895.1-1	Hi. Rev. Stat. 342P-1 (Health)
Illinois	89 Il. Admin. Code 406.1, 407.40, 408.1	410 Il. Comp. Stat. 45/1 (Health)
Indiana	470 In. Admin. Code 3-4.4-1, 3-4.7-1, 3-4.8-1	In. Code 16-41-39.4-1 (Health)

Iowa	Ia. Admin. Code 441-106.1	Ia. Admin. Code 641-68.1 (Public Health)
Kansas		Ks. Admin. Regs. 28-72-1a (Health & Environment)
Kentucky	922 Ky. Admin. Regs. 2:120	Ky. Rev. Stat. 217.801 (Foods, Drugs, Poisons) Ky. Rev. Stat. 211.900; 902 Ky. Admin. Regs. 4:090 (Health)
Louisiana		La. Rev. Stat. 40:1299.21; La. Admin. Code 51:IV.101 (Public Health)
Maine	Me. Code Rules 10-148-32, 10-148-33, 10-148-36	22 Me. Rev. Stat. 1314; Me. Code Rules 10-144-292-1 (Health & Welfare)
Maryland	Md. Code, Family 5-550, 5-570; Md. Code Regs. 13A.15.01.00, 13A.16.01.00, 13A.17.01.00, 13A.18.01.00	Md. Code, Envir. 6-301 (Lead-Based Paint), 6-801 (Reduction of Lead Risks in Housing)
Massachusetts	606 Ma. Code Regs. 7.01	Ma. Gen. Laws 111, § 189A – 199B; 105 Ma. Code Regs. 460.00 (Public Health)
Michigan	Mi. Admin. Code 400.1901, 400.5101	Mi. Comp. Laws 333.5481 (Public Health)
Minnesota	Mn. Rules 9502.0315	Mn. Stat. 144.9501 (Health)
Mississippi	Ms. Code 15-11-55:1.1.1, 15-11-55:2.1.1	
Missouri	19 Mo. Code Regs. 30-61.010, 30-62.010	Mo. Rev. Stat. 701.300 (State Standards) 19 Mo. Code Regs. 20-8.010 (Health)
Montana	Mt. Admin. Rules 37.95.701, 37.95.1101	
Nebraska	391 Ne. Admin. Code 1-001.01, 2-001.01, 3-001.01, 5-001.01	
New Hampshire	N.H. Code Admin. Rules He-C 4002.01	N.H. Rev. Stat. 130-A:1; N.H. Admin. Rules He-P 1601.01 (Public Health)
New Jersey	N.J. Admin. Code 10:122-1.1,10:126-1.1	N.J. Stat. 24:14A-1 (Food & Drugs)
New York	18 N.Y. Comp. Codes Rules & Regs. 416.1(1), 417.1(1), 418-1.1	N.Y. Pub. Health Law 1370; 10 N.Y. Comp. Codes Rules & Regs 67-1.1 (Public Health)
North Carolina	10A N.C. Admin. Code 9.0101	N.C. Gen. Stat. 130A-453.01; 15A N.C. Admin. Code 18A.3101 (Public Health)
North Dakota	N.D. Admin. Code 75-03-09-01, 75-03-10-01	
Ohio	Oh. Admin. Code 5101:2-12-01, 5101:2-13-01, 5101:2-14-01	Oh. Rev. Code 3742.01; Oh. Admin. Code 3701-30-01 (Health)

Oklahoma	Ok. Admin. Code 340:110-1-1, 340:110-3-1, 340:110-3-35, 340:110-3-80	
Oregon	Or. Admin. Rules 414-205-0000, 414-300-0000, 414-350-0000	Or. Admin. Rules 333-070-0075, 333-095-0000 (Health)
Pennsylvania	55 Pa. Code 20.1, 3280.1, 3290.1	
Rhode Island	R.I. Admin. Code 03-000-16, 03-000-018, 03-000-019	R.I. Gen. Laws 23-24.6-1; R.I. Admin. Code 23-24.6-PB (Health)
South Carolina	S.C. Code Regs. 114-500, 114-510, 114-520	S.C. Code 44-53-1310 (Health)
Texas	40 Tx. Admin. Code 746.101, 747.101	Tx. Health & Safety Code Ann. 88.001 (Health)
Utah	Ut. Admin. Code 430-50, 430-60, 430-90, 430-100	
Vermont	Vt. Code Rules 12-3-101:1, 12-3-102:1, 12-3-103:1	18 Vt. Stat. 1751 (Health)
Virginia	22 Va. Admin. Code 40-185-10, 40-111-10	
Washington	Wa. Admin. Code 170-295-0001, 170-296A-0001	
West Virginia	W.V. Code Rules 78-1-1, 78-18-1, 78-19-1	
Wisconsin	Wi. Admin. Code DCF 202.01, 250.01, 251.01	Wi. Stat. 254.11 (Envtl. Health)
Wyoming	Wy. Code Rules 049-185-07, 049-185-08, 049-185-09	

CHAPTER 9

Asbestos

Asbestos is the commercial name given to a group of fibrous minerals that occur naturally in the environment and are mined for human use. Asbestos fibers are strong, flexible, and heat resistant, and asbestos has been used in a wide range of manufactured products, including building materials and insulation.[143] Asbestos exposure has been linked to serious health problems, including lung disease, and the U.S. has banned many uses of asbestos in the past few decades.[144] However, asbestos-containing materials and products are still present in many older buildings and can be used for some purposes in new construction. Sources of asbestos in a home or child care facility may include insulation and fireproofing materials, ceiling and floor tiles, roofing, pipes, and siding.[145]

In general, asbestos-containing material is not dangerous as long as the asbestos is in good condition and left undisturbed. However, when asbestos-containing material is disturbed or damaged — for example, during building maintenance, demolition, renovation, or repair — asbestos fibers and particles are released into the air.[146] Asbestos on ceilings, walls, or other building components poses a particular hazard when it is "friable," or susceptible to crumbling under hand pressure.[147]

Asbestos exposure occurs when asbestos fibers or dust are inhaled from the air. When the fibers are breathed in, they can become trapped in the lungs; over time, the accumulation of fibers in lung tissue causes scarring and inflammation and may lead to breathing difficulties and health problems. Asbestos exposure has been linked to development of lung diseases, including cancer.[148]

Role of Federal Laws and Regulations. Asbestos is the subject of several federal laws and regulations that provide important context for understanding state policies addressing asbestos in child care facilities.

[143] *See generally* Agency for Toxic Substances & Disease Registry (ATSDR), Toxicological Profile for Asbestos (2001), *at:* http://www.atsdr.cdc.gov/toxprofiles/tp61.pdf.
[144] *See* U.S. EPA, US Federal Bans on Asbestos, *at:* http://www2.epa.gov/asbestos/us-federal-bans-asbestos#regulatory.
[145] *See, e.g.*, U.S. Consumer Product Safety Commission (CPSC), Asbestos in the Home, *at*: http://www.cpsc.gov/en/Safety-Education/Safety-Guides/Home/Asbestos-In-The-Home/.
[146] *See, e.g.,* U.S. EPA, Learn About Asbestos, *at:* http://www2.epa.gov/asbestos/learn-about-asbestos#exposed.
[147] As defined by federal law, "friable asbestos-containing material" means "any asbestos-containing material applied on ceilings, walls, structural members, piping, duct work, or any other part of a building which when dry may be crumbled, pulverized, or reduced to powder by hand pressure." 15 U.S.C. 2642.
[148] *See, e.g.,* ATSDR, Toxicological Profile for Asbestos (2001), *at*: http://www.atsdr.cdc.gov/toxprofiles/tp61.pdf.

As noted above, many asbestos-containing products and uses have been banned under federal law.[149] Asbestos is classified as a hazardous air pollutant under the Clean Air Act, and U.S. EPA regulations govern the use, management, and disposal of asbestos and asbestos-containing material. The EPA's **National Emission Standards for Hazardous Air Pollutants (NESHAP)** regulation for asbestos specifies procedures that must be followed prior to and during demolitions and renovations of all buildings, structures, and installations (*excluding* residential buildings with four or fewer dwelling units).[150] To comply with NESHAP requirements for demolitions and renovations, a building's owner or operator must: inspect the facility where the demolition or renovation operation will occur for the presence of asbestos; give notice of the intended demolition or renovation to the appropriate agency; and follow specific work practices to control asbestos emissions during the operation. [151]

The **Asbestos Hazard Emergency Response Act (AHERA)** and EPA's accompanying Asbestos-Containing Materials in Schools regulations have established regulatory requirements intended to protect school children and school employees from asbestos exposure.[152] Under AHERA, public and nonprofit private schools (collectively "local education agencies," or LEAs) are required, in part, to: have school buildings inspected for asbestos-containing material; prepare asbestos management plans; carry out response actions to prevent or reduce asbestos hazards (e.g., encasing or removing asbestos-containing material); and provide annual notices to building occupants and/or their guardians.[153]

In general, child care facilities and preschools are *not* considered "schools" and are therefore not subject to AHERA; however, AHERA defines schools to include "elementary and secondary" schools, but leaves the scope of coverage within a given state to the state's own definition of "elementary education."[154] While most states define elementary education as prekindergarten, kindergarten, or first grade and higher, some state definitions are broad enough to include certain licensed child care facilities. In Maryland, for example, state law explicitly defines elementary education to include preschool; as a result, any child care facility offering a preschool curriculum or structured learning program in Maryland must comply with AHERA requirements.[155] A small number of states may also have laws or regulations defining "elementary education" in a way that brings certain subsets

[149] The Consumer Product Safety Act and the Toxic Substances Control Act (TSCA) ban manufacture, importation, and distribution of many asbestos-containing products. Application and use of certain asbestos-containing building materials are also prohibited or restricted under the Clean Air Act and its regulations.
[150] 42 U.S.C. 7401 et seq.; 40 C.F.R. Part 61, Subpart M. "Renovation" means "altering a facility or one or more facility components in any way, including the stripping or removal of [regulated asbestos-containing material] from a facility component."*Id.*
[151] 40 C.F.R. 61.145.
[152] 15 U.S.C. 2641-2656. AHERA comprises Title II of the Toxic Substances Control Act.
[153] 40 C.F.R. Part 763, Subpart E. AHERA and its regulations also specify procedures for inspections and response actions and establish notice and recordkeeping requirements.
[154] *See* 20 U.S.C. 2854; s*ee also* U.S. EPA, Asbestos Frequently Asked Questions, *at:* http://www2.epa.gov/sites/production/files/documents/asbestosfaqs_0.pdf.
[155] *See* Md. Code, Educ. 1-101(g); *see also* Md. Code, Fam. 5-570; Md. Code Regs. 13A.16.16.01-.10; U.S. EPA Region 3, Frequently Asked Questions: Asbestos, *at*: http://www.epa.gov/reg3wcmd/faq.htm#asbestos).

of child care facilities (e.g., facilities operating in state-owned buildings or facilities that receive state or federal funding) within the scope of AHERA. A complete review of these provisions is outside the scope of this report; consult state laws and regulations to determine the potential applicability of AHERA to child care facilities in a particular state.

Federal laws and regulations also establish training and accreditation requirements for asbestos workers who perform inspections or response actions at schools *or* inside "public and commercial buildings," which are defined as any non-school building (excluding residential apartment buildings of fewer than ten dwelling units).[156] As a result, while AHERA does not affirmatively require owners of public and commercial buildings to perform asbestos inspections and/or response actions, these activities must be performed by an accredited inspector or contractor if and when they are undertaken at these locations voluntarily (or pursuant to state or local requirements).

Most states are authorized to administer and enforce some or all of these federal asbestos programs. A majority of states administers the NESHAP regulation for asbestos.[157] The AHERA asbestos in schools program is administered and enforced by EPA at the regional level, except in states that have received "waivers" from EPA to establish and implement their own programs in lieu of the federal statute and regulations.[158] Under AHERA, states have a duty to require training and accreditation for asbestos workers in schools and public and commercial buildings by adopting accreditation plans at least as stringent as EPA's Asbestos Model Accreditation Plan (MAP); accordingly, many states have adopted their own regulations establishing training, licensing, and work practice requirements that apply if and when asbestos work is performed in child care facilities.

While federal laws and regulations establish accreditation and work practice requirements, they generally do not require owners or occupants of child care facilities to undertake activities affirmatively to identify and eliminate asbestos hazards. This chapter provides an overview of state laws and regulations that establish affirmative requirements for reducing exposure to asbestos in existing child care facilities through: inspection requirements; facility maintenance standards; and requirements to address known or suspected asbestos hazards. The summary does *not* review state

[156] The Asbestos School Hazard Abatement Reauthorization Act of 1990 (ASHARA) expanded AHERA's training and accreditation requirements to apply to asbestos workers in public and commercial buildings. Under the amended AHERA regulations, "public and commercial building" means "the interior space of any building which is not a school building, except that the term does not include any residential apartment building of fewer than 10 units. The term includes, but is not limited to, industrial and office buildings, residential apartment buildings and condominiums of 10 or more dwelling units, government-owned buildings, colleges, museums, airports, hospitals, churches, preschools, stores, warehouses, and factories." 40 C.F.R. Part 763, Subpart E.

[157] Under the Clean Air Act, a state may receive partial or complete delegation of EPA's authorities and responsibilities to implement and enforce emission standards and prevention requirements, but may not set standards less stringent than those promulgated by EPA. Most states are delegated for NESHAP programs. *See* 42 U.S.C. 7412; *see generally* U.S. EPA, National Emission Standards for Hazardous Air Pollutants Compliance Monitoring, *at:* http://www2.epa.gov/compliance/national-emission-standards-hazardous-air-pollutants-compliance-monitoring.

[158] For a list of 12 states that have received waivers, see U.S. EPA, State Asbestos Contacts, *at:* http://www2.epa.gov/asbestos/state-asbestos-contacts.

laws and regulations governing training, accreditation, and work practice standards for asbestos workers, and thus does not discuss whether or not a state's asbestos program is more stringent than the federal policies discussed above.[159] Following the summary of state policies, the chapter describes notable non-regulatory initiatives implemented by states to promote asbestos hazard reduction in child care facilities.

Types of Laws/Regulations Included. This chapter summarizes provisions found in child care laws and regulations, as well as in other areas of state law that address asbestos exposure in child care facilities. In some states, provisions relevant to child care facilities are found in environment or public health laws/regulations that regulate asbestos and asbestos workers generally. In some states, the asbestos provisions contained in other laws are explicitly referenced or reiterated in the state's child care licensing regulations. The chart at the end of the chapter provides citations to the laws and regulations that form the basis for the summary that follows.

This summary does not discuss housing or property maintenance codes, which may also establish requirements applicable to the owners of rental dwellings (and in some cases owner-occupied homes) in which child care facilities are located. The chapter does not review food service codes that have been adopted by many states and may include asbestos provisions that apply to some or all child care facilities. These codes, often based on the U.S. Food and Drug Administration's model Food Code, may include some provisions relating to asbestos.[160]

Types of Facilities. Some states regulate center-based and home-based facilities differently with respect to asbestos. Unless explicitly noted, it should not be assumed that a provision described in the following summary applies to *all* types of licensed child care facilities. Consult a state's regulations to determine the applicability of specific provisions.

Asbestos Inspection and Documentation Requirements During Licensing

A small number of states have child care regulations that explicitly require license applicants to demonstrate compliance with asbestos standards in connection with the licensing process. This may involve conducting an asbestos inspection, providing information about asbestos conditions, and/or taking action to address hazards.

[159] For example, under federal law, center-based child care facilities generally qualify as public and commercial, while facilities operated in single-family homes or small apartment buildings do not; however, a few states have provisions in their child care or asbestos regulations expanding accreditation and work practice standards to cover asbestos response actions performed in home-based child care facilities – *e.g.*, New Jersey's asbestos regulation applies asbestos abatement standards to "any private building that houses a day care center, nursery or educational facility;" Illinois' child care regulations require accreditation and licensing for asbestos removal in home-based facilities with eight or more children.

[160] All 50 states have adopted a food code based on current or prior versions of the federal model Food Code, but states are free to add, delete or change provisions of the model code. *See* Association of Food & Drug Officials, Food Code Adoption by State, *at*: http://www.afdo.org/page-1417772. The FDA's model Food Code is available at http://www.fda.gov/Food/GuidanceRegulation/RetailFoodProtection/FoodCode/.

- Vermont requires that, prior to licensure of an early childhood program in an existing building, the applicant must demonstrate that an asbestos assessment has been conducted to determine if asbestos-containing material is present (and, if so, to ascertain its condition). The assessment must be performed by a certified assessor, and a copy of the report must be included with the initial application. If the assessor recommends that the facility perform response actions (e.g., repairs, enclosure, encapsulation, or removal and clean up), the applicant must also notify the Vermont Department of Health Asbestos Control Program, and a Department representative may conduct a site visit to determine the necessity of the recommendation.

- Under Virginia's regulations, applicants for a license for any child care center located in a building constructed prior to 1978 must submit a written statement that the building has been inspected for asbestos. If asbestos is detected, an operations and maintenance plan must be developed by a licensed asbestos management planner in accordance with federal regulations, and the applicant must submit a written statement that response actions to abate any risk to human health have been or will be initiated in accordance with the plan on a specific schedule. The regulations require these inspection, planning, and response activities to be carried out in accordance with AHERA's procedures for school buildings.

A small number of states have child care regulations that address asbestos during the licensing process.

- New Hampshire's regulations establish that, "when there is information or evidence indicating that the building may contain asbestos hazards," a child care facility must submit evidence that the building has been inspected by a licensed asbestos inspector and is free of asbestos hazards or submit a plan of action to reduce or eliminate any existing asbestos contamination.

- New Jersey requires certain child care centers to obtain an Indoor Environmental Health Assessment (IEHA), pursuant to state Department of Health regulations. The IEHA includes an inspection for asbestos-containing material. (For a summary of the IEHA requirements, see Chapter 11 – Site/Location.) If the Department of Health determines based on the IEHA that corrective action must be taken to minimize asbestos exposure potential, the center must follow the Department's recommendations. Applicants/facility operators are required to certify compliance with these requirements in writing at the time of initial application, renewal, or relocation (or, in the agency's discretion, any other time).

- Rhode Island's licensing regulations for child care centers require applicants/facility operators to "provide evidence that the program is asbestos free or asbestos safe" prior to licensing.

Facility Standards and Requirements for Addressing Asbestos Hazards

Around a dozen states have child care or other laws/regulations that establish some type of facility standard with respect to asbestos. In some cases, the law or regulation describes specific actions that must be taken if an actual or potential source of asbestos exposure is detected at any point during a facility's operation. As noted above, federal and state accreditation and work practice requirements also govern asbestos response actions performed inside "public and commercial buildings."

Child Care Laws and Regulations. Several states have child care regulations that establish general facility standards for asbestos. Rhode Island and Wyoming require that asbestos be intact or properly sealed in family child care facilities. In Ohio and Vermont, children in care must be protected from items and conditions that threaten their health, safety, and well-being, including asbestos. Washington's licensing standards for family child care homes require a provider to "take action to prevent child exposure" when he or she becomes aware that asbestos is present in the indoor or outdoor licensed space. In Indiana, the presence of an asbestos hazard may subject a child care facility to an emergency or temporary closure order. Child care centers in Delaware must "ensure that the Center not have any building components, equipment, furnishing, or decorations surfaced with or containing hazardous materials such as asbestos."

As noted above, many uses of asbestos are banned under federal law, and states may also have laws that restrict the use of asbestos generally. In addition, a few states have child care regulations prohibiting the use of new asbestos-containing material in child care facilities. For example, Wyoming's child care regulations prohibit the use of new construction materials containing asbestos in family child care facilities. Under New Jersey's child care regulations, asbestos-containing surface coating may not be applied to the facility's interior or exterior by spraying.

Other Laws and Regulations. In addition to child care provisions, states may have environmental or public health laws and regulations that address asbestos comprehensively and that include asbestos standards applicable to child care facilities (or to buildings in which child care facilities may be located). For example, New Hampshire and Rhode Island have established indoor non-occupational air exposure standards for asbestos. The Rhode Island Asbestos Act requires building owners to prevent exposure of any person to friable asbestos in violation of its non-occupational standard. New Hampshire's asbestos management statute requires the owner or manager of "any workplace, public building, facility, school, or rental dwelling" to prevent "unnecessary exposure of any person" to asbestos levels that exceed the state's standard. Pursuant to state asbestos regulations in Massachusetts, "[n]o person shall fail to maintain [asbestos-containing material] in a facility in good condition, and serving the intended purpose for which it was originally installed."[161]

[161] Under the Massachusetts asbestos regulation, "facility" means "any installation, structure, building establishment . . . and associated equipment."

Some states have asbestos laws and regulations requiring or authorizing the state asbestos agency to order an asbestos inspection and/or response action in response to an identified or suspected asbestos hazard. Following are examples of such provisions, which may apply to child care facilities:

- In New Hampshire, whenever the commissioner of the Department of Environmental Services "has reason to suspect the presence of [asbestos] in any public building, facility, school, or rental dwelling," the commissioner may require an inspection to be carried out. If asbestos is found to violate the non-occupational exposure standard and/or exist in a condition which could result in "significant human exposure," the commissioner is authorized to order "corrective action to abate the risk to the health of the public," including closure of access to the building.

- In Montana, the Department of Environmental Quality is authorized to "issue a cleanup order to any person … that owns any property where the asbestos-containing material is located" when the material poses an immediate or likely threat to public health or the environment; the order may require the property owner to "clean up and transport the asbestos-containing material to an authorized disposal facility, to treat the material so as to render it nonhazardous, or to take other necessary actions."

- Under the Rhode Island Asbestos Act, child care facilities are considered "high priority buildings" that must be inspected by the Department of Health in response to complaints of the existence of friable asbestos material, as well as periodically for compliance with the state's indoor non-occupational exposure standard. If a facility is found to require abatement, the department must notify the building owner or manager and require him or her to submit an abatement plan; in cases where it is determined that the presence of friable asbestos is causing a public health danger, the director of health may close public access to the building.

Other Asbestos Requirements

Renovation and Demolition Standards. Asbestos precautions are particularly important during demolition and renovation operations, since asbestos fibers may be released into the air when asbestos-containing building components and materials are disturbed or destroyed. As noted previously, federal NESHAP regulations call for a thorough asbestos inspection of the area where a demolition or renovation operation will occur, notice to the appropriate state agency prior to demolitions and certain renovations, and work practice standards to control asbestos emissions during operations. When a child care facility is located in a building that is subject to the NESHAP[162]

[162] Federal NESHAP regulations apply to all buildings and structures except residential buildings with fewer than four dwelling units. However, many states are authorized to implement the NESHAP, and states may adopt more stringent standards. For example, Massachusetts exempts only owner-occupied, single-family residences from demolition and renovation requirements. *See* 310 Ma. Code Regs. 7.15.

renovation and demolition standards, an asbestos inspection is required prior to any renovation or demolition at the facility.

States generally do not address asbestos in renovations specifically in their child care regulations. Colorado's sanitation regulations for child care facilities require that, before the start of any renovation or demolition, a facility constructed prior to 1988 must be inspected by a certified asbestos inspector to determine if abatement is required (or submit a statement signed by the project architect or engineer that no asbestos-containing material was used as a building material in the building); if asbestos is found, it must be managed in accordance with Colorado's renovation and demolition standards. (For a summary of state child care provisions governing renovation and repairs generally, see Chapter 10 – Other Chemical Exposures.)

Notice to Building Occupants. As noted above, state and federal asbestos laws and regulations require notice to building occupants in some circumstances. State laws and regulations establishing work practice requirements for asbestos abatement, renovation, and demolition (not reviewed here) may also require notice to building occupants.

State child care regulations generally do not explicitly address notice to building occupants regarding asbestos presence, inspections, or response actions. Virginia, where asbestos requirements in state child care regulations are modeled closely after AHERA's asbestos in schools requirements, is an example of a state that has established notice requirements specific to child care facilities; regulations require that child care centers post a notice "regarding the presence and location of asbestos containing materials and advising that the asbestos inspection report and management plan are available for review."

A few states have public health laws establishing asbestos notice requirements that apply to buildings in which child care facilities may be located. For example, the Rhode Island Asbestos Act requires posting of a warning sign on any building accessible to the public where there is friable asbestos in violation of the state's indoor non-occupational standard for asbestos. (See text box.) In California, the owner of any building constructed prior to 1979 who is aware that the building has asbestos-containing construction materials must provide notice to all employees of the owner working within the building (unless the owner has elected to prepare an asbestos management plan and must comply with separate notice requirements).

Addressing Asbestos Exposures - Rhode Island

Rhode Island has taken a comprehensive approach to asbestos regulation in public buildings, including child day care facilities. Child care regulations require applicants and facility operators to provide evidence that the program is asbestos free or asbestos safe prior to licensing/relicensing of child care centers, and facility standards for child care homes require that asbestos insulation be intact or properly sealed. Many child care facilities must also comply with the Rhode Island Asbestos Act, which aims "to protect the public health and public interest by prohibiting, limiting, and regulating the use of and to require the abatement of asbestos and asbestiform materials that are a danger to the public health." The Act and its regulations establish the following measures for asbestos management in buildings other than private residences:

- The Act establishes an indoor non-occupational air exposure standard for asbestos in public and private buildings (0.01 fibers per cubic centimeter for fibers longer than five microns), and states that "no owner shall allow any person to be exposed to friable asbestos materials when such exposure is a violation" of the standard;

- The Department of Health is authorized to inspect "any building, except private residences, in which a person may become exposed to friable asbestos or asbestiform material." State inspectors must inspect "high priority group buildings" (including day care centers and nurseries, except when located in private residences occupied by ten children or less) on an equal basis with complaint-based inspections;

- For high priority buildings requiring abatement after inspection, the owner or manager of the building has 120 days to submit an asbestos abatement plan containing elements specified in the Act;

- A warning sign must be posted at entrances of any building accessible to the public where there is friable asbestos in violation of state standards (or where there is an abatement process or demolition/repair of asbestos material taking place);

- The director of health may close public access to any building or portion of a building in which the director has found to contain friable asbestos in any condition or amount that there exists a public health danger.

The Act also establishes licensing requirements for asbestos professionals and requires submission of asbestos abatement plans for renovations/demolitions in institutional, commercial, public, or large residential buildings.

Source: R.I. Code Rules 03 000 016, et seq., 03 000 18, et seq., 03 000 19, et seq. (Child Care); R.I. Gen. Laws 23-24.5-2, et seq., R.I. Code Rules 31-1-27:A.1, et seq. (R.I. Asbestos Act).

Summary: State Laws and Regulations

At least one third of all states have taken steps to reduce asbestos exposure in licensed child care facilities by establishing explicit asbestos requirements in their laws and regulations. The most common regulatory measures are general facility standards prohibiting asbestos hazards. Some of these states include specific measures that child care providers and/or state asbestos agencies must take in response to asbestos hazards identified at child care facilities, and a few states supplement federal notice provisions by including requirements for notifying parents and guardians of asbestos hazards or response actions. In addition to these measures, states can consider requiring an asbestos inspection and/or documentation in connection with the licensing process, an approach taken by a few states to date.

Non-Regulatory Initiatives

As discussed in Chapter 12, some states have established formal agency initiatives or activities to encourage child care facilities to address environmental health issues. These activities include training and education, technical and financial assistance, and voluntary recognition programs. Following are examples of how some of these initiatives aim to reduce asbestos exposures in child care facilities.

Recognition Programs. Indiana and Michigan are examples of states with voluntary recognition programs that require participating child care facilities to address asbestos hazards. Indiana's Five Star Environmental Recognition Program for Child Care Facilities, discussed in more detail in Chapter 12, incorporates minimum practices related to asbestos that go beyond current state laws and regulations. In order to achieve 3-star status (the basic endorsement), a provider must certify that the facility is "in full compliance with applicable state and federal rules and regulations [including] following state and federal requirements during renovation such as hiring licensed inspectors." One of the criteria that must be met for participating facilities to obtain a higher (4- or 5-star) status under the program states: "We have a written asbestos policy to describe procedures for handling building materials when it is unknown whether asbestos may be present, to document where known asbestos-containing materials exists and how it may be handled, and to ensure no new asbestos-containing materials are used in the building. (For a sample policy, see the guidelines at www.idem.in.gov/childcare.)"[163]

Michigan's voluntary recognition program, Great Start to Quality, has established standards that offer two points in the "Physical Environment" category for child care facilities that are "in a physical location that is free of environmental risks (e.g., lead, mercury, asbestos and indoor air pollutants.)"[164]

[163] A copy of the program application, including the criteria, can be accessed online at https://forms.in.gov.
[164] Information on the Michigan Great Start to Quality program is available at http://greatstarttoquality.org/.

Educational and Guidance Materials. Some states have published guidelines or checklists for use by providers and/or parents in evaluating environmental health conditions, including asbestos hazards, at child care facilities. For example, the Indiana Department of Environmental Management (IDEM) has created a self-assessment to help child care providers identify potential environmental health risks in child care facilities. Questions addressing the presence and comprehensive management of asbestos at the facility help indicate whether the risk of asbestos exposure is high, medium, or low.[165] IDEM also has published a one-page handout, Demolition and Renovation at Child Care Facilities, which summarizes concerns about asbestos and lead exposure during construction and renovations.[166] The New York State Office of Children and Family Services has published a Think About Child Care Checklist to assist parents in choosing high quality child care. The checklist encourages parents to ask whether a child care setting has been checked for lead, radon, and asbestos.[167]

[165] The assessment is available on the Department of Environmental Management website at http://www.in.gov/idem/health/files/5star_environmental_self_assessment.pdf.
[166] A copy of the handout is available on the Indiana state website at http://www.in.gov/fssa/files/DemolitionRenovation.pdf.
[167] The checklist is available on the N.Y. State Office of Children and Family Services website at http://www.ocfs.state.ny.us/main/publications/Pub1115A.pdf.

Statutes and Regulations Cited in Chapter 9

The summary provided in this chapter is based on a review of the following statutes and regulations. The chart may not include every state statute and regulation that addresses asbestos in child care facilities. The Appendix to this report includes a list of state websites for locating state statutes and regulations.

Note: Most citations below refer to the first section in the applicable statute or regulation, rather than a specific asbestos provision. Citation to multiple child care regulations usually indicates that there are separate asbestos provisions in the regulations for different types of child care facilities.

	CHILD CARE STATUTES & REGULATIONS	OTHER STATUTES & REGULATIONS
California		Ca. Health & Safety Code 25915 (Health/Safety)
Colorado		6 Co. Code Regs. 1010-7:1-101 (Child Care Sanitation)
Delaware	9 De. Admin. Code 101-1.0	
Illinois	89 Il. Admin. Code 407.40	
Indiana	470 In. Admin. Code 3-4.8-1	
Kansas	Ks. Admin. Regs. 28-4-420	
Massachusetts		310 Ma. Code Regs 7.15 (Env. Protection)
Montana		Mt. Code 75-2-501 (Env. Protection)
New Hampshire	N.H. Code Admin. Rules He-C 4002.01	N.H. Rev. Stat. 141-E:1; N.H. Code Admin. R. Env-A 1801.01 (Public Health)
New Jersey	N.J. Admin. Code 10:122-1.1	
Ohio	Oh. Admin. Code 5101:2-12-01, 5101:2-13-01, 5101:2-14-01	
Rhode Island	R.I. Code Rules 03 000 016, 03 000 18, 03 000 19	R.I. Gen. Laws 23-24.5-1; R.I. Code Rules 31-1-27:A.1 (Health and Safety)
Vermont	Vt. Code Rules 12-3-101:1 , 12-3-102:1, 12-3-103:1	
Virginia	Va. Code 63.2-1811; 22 Va. Admin. Code 40-185-10	
Washington	Wa. Admin. Code 170-296A-0001	
Wyoming	Wy. Code Rules 049-185-06, 049-185-07	

CHAPTER 10

Other Chemical Exposures:
Cleaning, Renovation, and Consumer Products

According to the U.S. EPA's Chemical Substance Inventory, there are tens of thousands of chemicals in U.S. commerce.[168] These chemicals are used in a vast array of common consumer products. The Centers for Disease Control and Prevention's National Human Exposure Report has demonstrated the presence of many chemicals in the large majority of the general U.S. population.[169]

As noted in the Introduction to this report, children are particularly susceptible to potentially harmful chemical exposures.[170] The pace of scientific research addressing children's developmental "windows of vulnerability," and identifying associations between individual toxic chemicals and disease or dysfunction in children, has accelerated in recent years.[171] The National Institutes of Health notes: "New science is showing that the effects of exposure to chemicals at low doses, and in combination, can have an impact on human growth and development."[172] For example, chemicals known as endocrine disruptors, which may be found in products such as detergents, foam cushions in furniture, and toys, "can alter the critical hormonal balances required for proper health and development."[173]

Federal Chemical Regulation. The principal federal law governing chemicals management in the U.S. is the Toxic Substances Control Act of 1976 (TSCA), implemented by EPA. The law established a number of mechanisms for managing chemical risks, including screening new chemicals, testing

[168] Over 84,000 chemicals have been added to the Inventory since it was first published in 1979. U.S. EPA, TSCA Chemical Substances Inventory – Basic Information, *at*: http://www.epa.gov/oppt/existingchemicals/pubs/tscainventory/basic.html#what.
[169] Centers for Disease Control and Prevention (CDC), National Report on Human Exposure to Environmental Chemicals, *available at*: http://www.cdc.gov/exposurereport/.
[170] U.S. EPA, America's Children and the Environment, 3rd ed. at 8 (2013), *available at:* http://www.epa.gov/envirohealth/children/pdfs/ACE3_2013.pdf.
[171] *See* Philip J. Landrigan & Lynn R. Goldman, "Children's Vulnerability to Toxic Chemicals: a Challenge and Opportunity to Strengthen Health and Environmental Policy," 30(5) *Health. Aff. (Millwood)* 842–850 (2011) (noting that: "Evidence is strong and continuing to accumulate that toxic chemicals are important causes of disease and dysfunction in children"), *available at*: http://content.healthaffairs.org/content/30/5/842.long. *See also* U.S. EPA, America's Children and the Environment, 3rd ed. at 8 (2013)(describing research on several chemical substances indicating an association or potential association between exposure and children's health, along with biomonitoring data for those chemicals).
[172] Nat'l Institute of Environmental Health Sciences (NIEHS), Child Development and Environmental Toxins (2011), *at:* http://www.niehs.nih.gov/health/assets/docs_a_e/child_development_and_environmental_toxins_508.pdf.
[173] *Id.* (*citation omitted);* see generally World Health Organization/United Nations Environment Programme, *The State of the Science of Endocrine Disrupting Chemicals – 2012, available at:* http://www.who.int/ceh/publications/endocrine/en/.

existing chemicals, and restricting activities involving substances that present "unreasonable" health or environmental risks. TSCA's practical limitations are widely acknowledged.[174] Recent efforts to strengthen federal chemicals management include the introduction of TSCA reform legislation in the U.S. Congress and EPA's issuance of "chemical action plans" that target risk management efforts on several chemicals of concern.[175] Congress also has enacted laws addressing specific chemicals – e.g., banning certain phthalates in children's articles and establishing formaldehyde standards for engineered wood products.[176]

Within this federal regulatory context, many states have enacted policies aimed at reducing chemical exposures. These include laws restricting the use of specific chemicals in products, requiring the use of "green cleaning" and "green building" products and practices in schools and public buildings, and establishing broader frameworks for managing chemical risks by requiring the identification and prioritization of chemicals of concern.[177]

***Types of Laws/Regulations Included*.** Earlier chapters of the report discuss certain indoor chemical exposures that are subject to regulation in a considerable number of states — tobacco smoke, lead, pesticides, and asbestos. This chapter identifies and describes provisions in state child care laws and regulations that address other potential chemical exposures. The provisions summarized below relate primarily to:

- Cleaning practices;
- Renovation and repair activities; and
- Use of certain types of consumer products.

Storage of chemicals or toxic materials, a subject addressed in most state child care licensing regulations, is not covered here.[178]

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[174] The U.S. Government Accountability Office (GAO) has noted that: "EPA has historically faced challenges implementing many of the provisions of TSCA, in particular (1) obtaining adequate information on chemical toxicity and exposure through testing provisions; (2) banning or limiting chemicals; and (3) disclosing chemical data and managing company assertions of confidentiality." U.S. GAO, Chemical Regulation: Observations on the Toxic Substances Control Act and EPA Implementation (2013), *at*: http://www.gao.gov/assets/660/655202.pdf. The Environmental Council of the States (ECOS) and the American Academy of Pediatrics (AAP) are among the organizations that have adopted policy statements calling for reform of TSCA. ECOS, Reforming the Toxic Substances Control Act (Res. No. 10-8, Aug. 2010), *at:* http://www.ecos.org/files/4195_file_Resolution_10_8_TSCA_reform.DOC; AAP Council on Envtl. Health, "Policy Statement—Chemical-Management Policy: Prioritizing Children's Health," *PEDIATRICS,* Vol. 127, No. 5 (May 2011), p. 983-990, published online Apr. 25, 2011; DOI: 10.1542/peds.2011-0523 (stating that TSCA "does not take into account the special vulnerabilities of children in attempting to protect the population from chemical hazards").

[175] U.S. EPA, Enhancing EPA's Chemical Management Program, *at*: http://www.epa.gov/opptintr/existingchemicals/pubs/enhanchems.html#action.

[176] *See* 15 U.S.C.A. 2057c and 15 U.S.C.A. 2697. EPA's proposed rules under the new Formaldehyde Standards for Composite Wood Products law are available at http://www.epa.gov/opptintr/chemtest/formaldehyde/.

[177] For summaries of state policies on chemicals regulation, green cleaning, and green building in schools see Envtl. Law Institute, Policy Briefs, *at*: http://www.eli.org/buildings/policy-briefs.

[178] Other specific chemical exposures not identified in child care laws and regulations and not discussed here may nonetheless be potentially relevant to child care facilities. For example, PCBs (polychlorinated biphenyls) in certain

The summary presented here includes only provisions found in state *child care* laws and regulations, though other state laws not specific to child care facilities may directly or indirectly affect chemical exposures in the child care environment. For example, a number of states have adopted laws restricting the manufacture and/or sale within the state of toys, children's articles, and other products containing specific chemicals, such as formaldehyde, mercury, phthalates, bisphenol A, and heavy metals. In addition, state food codes and occupational safety and health (OSHA) regulations may apply to certain child care facilities and may include provisions governing the use of chemicals. Though some of these areas of state authority are noted briefly in the summary that follows, it is beyond the scope of the report to summarize these laws and regulations across the United States.

The provisions discussed in this chapter may apply to all or only some types of licensed child care facilities. Unless explicitly stated, it should not be assumed that a regulation applies to all types of facilities. The chart at the end of the chapter provides citations to the laws and regulations summarized here.

Cleaning Products and Practices

Cleaning, sanitizing, and disinfecting remove dirt and contaminants from child care environments and help reduce the spread of infectious diseases.[179] However, chemicals in some cleaning products may be harmful to children and child care staff, as well as to the environment.[180] Over the past several years, there have been notable efforts to strengthen policies and practices to promote "green cleaning" – the use of cleaning products and practices that minimize exposure to potentially hazardous chemicals. Several states have enacted green cleaning requirements for schools through laws that require or recommend the use of products that have been certified by a recognized, third-party organization.[181] In addition, extensive guidance on green cleaning has been developed specifically for the child care environment.[182]

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lighting fixtures or caulk may present a hazard in some circumstances. *See generally* U.S. EPA, Polychlorinated Biphenyls (PCBs), *at*: http://www.epa.gov/epawaste/hazard/tsd/pcbs/index.htm.

[179] According to CDC, *cleaners* and detergents work by washing the surface to physically lift dirt and germs (bacteria, viruses, fungi) off surfaces so they can be rinsed away with water. By contrast, *disinfectants* are chemical products that destroy or inactivate germs, but have no effect on dirt, soil, or dust, while *sanitizers* are used to reduce germs from surfaces but not totally get rid of them. *See* CDC, Environmental Cleaning & Disinfecting for MRSA, *at*: http://www.cdc.gov/mrsa/community/enviroment/. *See also* U.S. EPA, Antimicrobial Pesticide Products, *at*: http://www.epa.gov/pesticides/factsheets/antimic.htm.

[180] *See* U.S. EPA, Greening Your Purchase of Cleaning Products: A Guide for Federal Purchasers, *at*: http://www.epa.gov/epp/pubs/cleaning.htm; Lawrence Berkeley Nat'l Laboratory, VOCs in Cleaning/Sanitizing Products and Health, *at*: http://www.iaqscience.lbl.gov/voc-cleaning.html.

[181] Third-party product labeling programs referenced in state policies include Green Seal (http://www.greenseal.org/) and EcoLogo (http://industries.ul.com/environment/certificationvalidation-marks/ecologo-product-certification/). ELI provides a summary of current state laws on green cleaning in schools at http://www.eli.org/buildings/green-cleaning-schools.

[182] UCSF Institute for Health & Aging, UC Berkeley Center for Envtl. Research & Children's Health, Informed Green Solutions, and Cal. Dep't of Pesticide Regulation, Green Cleaning, Sanitizing, and Disinfecting: A Toolkit for Early Care and Education (2013), *available at*: http://cerch.org/research-programs/child-care/greencleaningtoolkit/. The Toolkit provides detailed and practical information on safe and effective cleaning products and practices.

Child care licensing laws and regulations typically establish minimum requirements for cleaning, sanitizing, and/or disinfecting specified items and areas. While these policies generally do not address the use of "green" or "sustainable" cleaning products, some states have adopted regulatory requirements for reducing exposure to chemicals in cleaning products.

Cleaning When Children are Not Present. A considerable number of states have regulations that direct child care providers to carry out certain cleaning activities only when children are not present in the room or the facility. In a few states the requirement applies only to center-based child care, while in others it applies to multiple types of licensed child care facilities. The prohibition on cleaning while children are present typically is limited in some fashion – e.g., limited to "major" cleaning (Colorado, Illinois, Indiana), "extensive cleaning" (New York), "cleaning that may present a hazard" (Alaska), or cleaning activities that are not part of the "daily routine" (Florida, Maryland). West Virginia's restriction on cleaning activities, which is found in the state's health code, applies to "routine" cleaning of rooms while occupied by children. Oklahoma requires more generally that toxic chemicals (including pesticides) be applied when children are not present. Ohio directs providers to clean and dry carpets only when children will not be present.

Many state child care regulations prohibit cleaning the facility while children are present.

How Cleaning Products are Used. Several states (including Alaska, Colorado, Idaho, New York, North Dakota, Pennsylvania, Rhode Island, and Wyoming) require generally that cleaning materials be used in such a way as to not contaminate play surfaces, food, or food preparation areas or otherwise constitute a hazard to the children. A similar provision is found in the U.S. Food and Drug Administration's (FDA) model Food Code, and state food codes may include such a requirement.[183] In Rhode Island, regulations governing child care centers require the use of cleaning products and procedures consistent with the third-party guidance document, *Caring for Our Children*.[184]

Minnesota's child care center regulations take a different approach to limiting exposure to chemical residues. Centers must develop a risk reduction plan, establish procedures to minimize identified

[183] All 50 states have adopted a food code based on current or prior versions of the federal model code, but states are free to add, delete or change provisions of the model code. *See* Association of Food & Drug Officials, Food Code Adoption by State, *at*: http://www.afdo.org/page-1417772. The FDA's 2013 Food Code is available at http://www.fda.gov/Food/GuidanceRegulation/RetailFoodProtection/FoodCode/.

[184] The current version of *Caring for Our Children* (3rd edition), which establishes national performance standards and guidelines on a wide range of health and safety issues, includes a number of standards relating to cleaning, including: appropriate products and schedules for cleaning, sanitizing and disinfecting; ventilation during cleaning; cleaning away from areas where children are present; and elimination of chemical air fresheners. The document is available online through the National Resource Center for Health and Safety in Child Care and Early Education at http://cfoc.nrckids.org/. Officials with the Rhode Island Department of Children, Youth and Families note that its licensing regulations do not specify a particular edition of *Caring for our Children* and that the current version would apply. Proposed revisions to the Rhode Island rules governing family and group child care homes would add such a requirement for those facilities as well. The 2014 proposed rules are available at http://sos.ri.gov/ProposedRules/index.php?KEYWORD=&AGENCY=133&SORT=date&ORDER=desc&DOSEARCH=1&page=result_search&ADVANCED.

risks, train staff on the procedures, and annually review the procedures. The regulations specifically require the center to address the risk from contact with residue from harmful cleaning products.

North Carolina's child care sanitation regulations include provisions relating specifically to chemicals used to clean carpets. The regulations, which require that wall to wall carpets be cleaned using extraction methods at least once every six months, state that: "Cleaning materials including surfactants, solvents and water shall be removed from the carpet before the space is reoccupied. When hot water extraction is used, carpet shall be completely dry within 12 hours of cleaning." The regulations also include detailed requirements if vacuuming is done while children are present.

Use of Products to Sanitize and Disinfect Surfaces. Most state child care regulations include requirements for sanitizing or disinfecting one or more types of surfaces regularly. Many, but not all, states specify the type of product to be used. Often these regulations allow providers to use a self-made household bleach solution or a stated alternative (described as, e.g., a "commercial" disinfecting solution, an EPA-registered disinfectant, or a product approved by a state or local agency).

The bleach concentration of many commercial bleach products increased recently, creating some concern over whether the use of existing guidance would result in improper dilution of bleach products.[185] Indeed, most state regulations that establish bleach as an acceptable disinfecting or sanitizing method specify a dilution ratio (e.g., one-quarter cup bleach to one gallon of water for disinfection). Massachusetts' regulations, which require use of either a bleach solution or an EPA-registered product, take a somewhat different approach; the regulations require licensees to prepare the solution in accordance with guidelines established by the licensing agency.[186] Some states have developed educational materials on preparing bleach solutions, in light of the new concentrations.[187] At least one state (Delaware) has proposed revisions to its child care licensing regulations that would remove the generic bleach and water dilution ratio currently in place.[188]

[185] The new bleach solution available in many stores is now 8.25% sodium hypochlorite solution, considerably higher than 5.25-6% used in solutions previously available. *See* Nat'l. Resource Center for Health & Safety in Early Childhood Education, Important Information about New Bleach Concentration, *at*: http://cfoc.nrckids.org/Bleach/Bleach.cfm.

[186] The licensing agency has issued a Policy Statement requiring child care facilities using a self-made bleach solution to use a bleach product containing 5.25% or 6.00% hypochlorite and to follow the Department of Public Health's guidelines for mixing and using the bleach solution, as outlined in the Policy Statement. *See* Mass. Dep't of Early Education & Care, Policy Statement: Sanitizing and Disinfecting, *at*: http://www.eec.state.ma.us/docs1/regs_policies/group_schoolage_policies/sanitize_disinfect.pdf.

[187] *See, e.g*., Colo. Dep't of Public Health & the Env't, Using Bleach in Child Care, *at:* https://www.colorado.gov/pacific/sites/default/files/DEHS_ChildCare_Guidance_BleachInChildCare.pdf; Or. Health Authority, Bleach Solutions, *at:* http://public.health.oregon.gov/HealthyPeopleFamilies/Babies/HealthChildcare/Pages/bleach.aspx.

[188] Delaware's proposed revision to its child care center licensing rules includes the following provision: "Because of the variety of products and strengths available, providing a generic bleach and water dilution ratio for sanitizing and disinfecting is no longer possible. An EPA-registered product or other commercially prepared product for sanitizing and disinfecting shall be used following the manufacturer's instructions including any dilution and contact time. These products and their instructions for use shall be available for review at any OCCL visit." *See* State of Delaware Proposed Regulations: December 2014 (Dep't of Services for Children, Youth & Their Families), *at*: http://regulations.delaware.gov/register/december2014/index.shtml.

A small number of states have regulatory provisions that address exposure to disinfecting and sanitizing products.[189] For example, Minnesota requires that facilities disinfect diapering surfaces using either bleach or other disinfectant that meets a number of criteria, including a requirement that the product is free of triclosan or derivatives of triclosan.[190] Other regulations address how the disinfectant and sanitizing products are used. For example, Vermont's licensing regulations state: "Care shall be taken that children and adults do not inhale the disinfectant during spraying." Indiana's licensing regulations require child care centers to have written personnel policies that address environmental exposures, specifically including exposure to disinfecting solutions.

Renovation and Repair of Occupied Facilities

Construction activities in occupied child care facilities may give rise to chemical exposures, along with other exposures and safety concerns. A number of state child care regulations address the potential health hazards from construction activities that take place while children are in care. These requirements typically apply to renovation, alteration, remodeling, and/or repair activities. The provisions below discuss exposure to environmental hazards generally, while other provisions of state child care regulations (and federal law) may address exposure to specific substances, such as lead or asbestos. (See Chapters 8 and 9.)

Presence of Children During Construction. Several states have regulations that address the physical presence of children in areas of the facility where work is taking place. Maryland bans child care centers and large family child care homes from undertaking any type of building maintenance, repair, or renovation while a child is in care on the premises if the activity could present a "significant risk to child safety or health." Other states, including Georgia, Indiana, Minnesota, South Carolina, and West Virginia have adopted child care regulations that require areas undergoing construction activities to be inaccessible to children and/or prohibit the presence of children in areas that are undergoing such activities. In Indiana, caregivers in child care centers are prohibited from caring for children in areas that are being remodeled or repaired. Indiana's regulations also list "building renovation occurring in a room or area occupied by children" as an "unsafe condition" that requires providers to take immediate action to provide for the safety and well-being of children and that may lead to emergency or temporary closure.

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[189] In 2012, the Association of Occupational and Environmental Clinics (AOEC) declared bleach to be an asthmagen, which means it can cause asthma, in addition to triggering an asthma attack in someone who already has asthma. *See* AOEC, Exposure Code Lookup, *at*: http://www.aoecdata.org/ExpCodeLookup.aspx. For a discussion of the health and environmental risks of surface sanitizers and disinfectants and information on alternatives, see San Francisco Dep't of Env't & Responsible Purchasing Network, Safer Products for Disinfecting and Sanitizing Surfaces (2012), *available at*: http://www.sfapproved.org/just-released-comprehensive-report-safer-disinfectant-products.

[190] In 2014, Minnesota enacted legislation prohibiting the sale of "any cleaning product that contains triclosan and is used by consumers for sanitizing or hand and body cleansing." *See* 2014 Mn. Sen. File 2192. Triclosan is a chlorinated aromatic compound used as a synthetic broad-spectrum antimicrobial agent and added to many consumer products to reduce or prevent bacterial contamination. Recent studies on the thyroid and estrogen effects of triclosan have led federal agencies that regulate triclosan (U.S. EPA and U.S. FDA) to undertake reviews to determine whether regulatory changes are warranted. *See* U.S. EPA, Triclosan Facts, *at*: http://www.epa.gov/oppsrrd1/REDs/factsheets/triclosan_fs.htm; U.S. FDA, Triclosan: What Consumers Should Know, *at:* http://www.fda.gov/forconsumers/consumerupdates/ucm205999.htm.

How Construction Activities are Carried Out. Several states have adopted child care facility regulations that address explicitly potential health hazards from construction activities. For example, Louisiana, New Hampshire, and Oklahoma require construction, remodeling, and alteration during operating hours to be carried out in a manner that prevents exposure to hazardous or unsafe conditions, including fumes and dust. Colorado requires that construction, remodeling, and alteration of child care facilities be done "in a manner that does not create a health hazard," while Connecticut requires that all construction, remodeling, renovation, repair, or alteration of child day care centers and group day care homes be carried out in a manner that prevents "hazards or unsafe physical or environmental conditions during periods of operation."

Prior Notice of Construction Activities. In addition to mandating approval of construction activities from building or fire code agencies, some state child care regulations require facilities to provide prior notice of construction activities to the child care licensing agency. Such requirements do not directly restrict construction during periods of occupancy, but they provide an opportunity for licensing agencies to ensure that providers address potential exposures to children and staff. Examples of states with notice requirements for construction and renovations include Alabama, Arizona, California, Kentucky, Louisiana, Maine, Michigan, South Carolina, and Wisconsin.[191] Arizona's regulations extend the notice requirement to home repairs as well. The regulations do not typically include explicit requirements for notifying parents of planned construction activity.

Restrictions on Certain Types of Products/Equipment

In addition to addressing exposure to cleaning products and products used during building renovation/repair, around half of all states have child care regulations that address the presence of toxic or hazardous constituents in products or equipment used in licensed facilities. The following discussion includes provisions that address exposure to "toxic substances" or require items to be "non-toxic," though it does not summarize the more general regulatory requirements found in most states to prevent and/or eliminate "hazards."

Many state child care regulations restrict toxic or hazardous constituents in products and equipment.

Toys/Equipment/Furniture. Nearly half of all states have child care regulations requiring generally that equipment or materials used in child care facilities be free of, or not coated with, "toxic" or "poisonous" materials or substances. In a few states, this requirement refers specifically to the paint or coating used on facility equipment. (For information on regulations addressing lead-based paint specifically, see Chapter 8.) These regulations typically include references to toys and play materials, furniture, and/or other materials and equipment. For example, North Dakota requires that "equipment, toys, and supplies"

[191] Though this chapter reviews only licensing laws and regulations, it is useful to note that New Jersey's Right-to-Know law specifically requires child care centers to post on a bulletin board notice of any construction (or other activity) involving the use of hazardous substances, along with information about the substances being used, and to notify parents/guardians of the availability of hazardous substance fact sheets. N.J. Stat. 34:5A-10.

be nontoxic, while New Jersey requires nontoxic "play equipment, materials, and furniture." Some restrictions apply only to child care centers, while others apply to center- and home-based facilities.

***Air Fresheners and Other Chemical Diffusers*.** Air fresheners are used widely indoors. In addition to providing a desired smell, these products may release chemicals that impact indoor air quality, and they may mask an odor (e.g., mold) that indicates a potential problem requiring attention.[192] A small number of states have child care regulations that restrict the use of air fresheners and similar products. Ohio prohibits the use of spray aerosols in child care centers when children are in attendance, while Colorado bans "chemical air fresheners that contain toxic substances" in child care centers. Vermont regulations include a broader provision: "Devices that diffuse airborne chemicals that are harmful to humans, such as anti-pest strips, ozone generators, plug-in air fresheners and aerosol sprays, are prohibited."[193]

***Hand Sanitizers*.** The CDC recommends washing hands with soap and water as the best way to reduce the number of microbes on them in most situations. According to the agency, "[i]f soap and water are not available, an alcohol-based hand sanitizer can quickly reduce the number of microbes on hands in some situations, but sanitizers do not eliminate all types of germs," and sanitizers are less effective when hands are visibly soiled or greasy.[194] Several states have child care regulations establishing that hand sanitizers are not an acceptable alternative to regular hand washing.[195]

A small number of states have child care regulations that include additional restrictions on the use of hand sanitizers. For example, Colorado's family child care home regulations prohibit the use of alcohol-based hand sanitizers for children under three years old, while regulations for home-based care in Kansas and New York allow their use only for children two years and older. Washington's family home child care regulations allow the use of hand sanitizers on children over two years old after proper hand washing or when hand-washing facilities are not available, but only if written permission is provided by the parent/guardian. Ohio's regulations for child care centers permit adults to use hand sanitizers after wiping children's noses, when a staff member is outside or alone in a room and needed for the staff/child ratio, and when running water is not readily available.

***Art Supplies*.** Federal law requires that art materials with the potential to cause adverse chronic health effects use the precautionary labeling framework of the American Society for Testing and Materials (ASTM) D-4236 Standard.[196] The Consumer Product Safety commission (CPSC), which

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[192] *See* Conn. Dep't of Public Health, Fact Sheet: Air Fresheners – What you Need to Know (2013), *at*: http://www.ct.gov/dph/lib/dph/environmental_health/eoha/pdf/air_freshener_fs.pdf.
[193] According to officials with the state licensing agency, outreach and education to providers was important when this provision first took effect in 2001, but implementation of the requirement otherwise has been straightforward.
[194] CDC, When and How to Wash Your Hands, *at*: http://www.cdc.gov/handwashing/when-how-handwashing.html. *See also* Conn. Dep't of Public Health, Fact Sheet: Hand Sanitizers – Advice for Using Gels, Foams and Wipes (2012), *at*: http://www.ct.gov/dph/lib/dph/environmental_health/eoha/pdf/hand_sanitizer_factsheet.pdf.
[195] The FDA's model Food Code allows use of hand sanitizers only after proper hand washing, and state food codes may contain a similar provision. *See* U.S. FDA, Food Code at 2-301.16 (2013), *available at*: http://www.fda.gov/Food/GuidanceRegulation/RetailFoodProtection/FoodCode/.
[196] *See* Federal Hazardous Substance Act, as amended by the Labeling of Hazardous Art Materials Act, 15 U.S.C. 1277; ASTM Standard D4236 - 94(2011), Standard Practice for Labeling Art Materials for Chronic Health Hazards,

implements the federal law, recommends that parents and guardians "purchase only those products labeled with the statement 'Conforms to ASTM D-4236' ... and that do not have any cautionary warnings on the label."[197] The CPSC and other governmental and non-governmental organizations offer information about health risks associated with art materials and guidance on selecting appropriate and safe art supplies.[198]

Several states have child care regulations that address potential exposures from toxic substances in art materials. Most of these states (e.g., Alaska, Connecticut, Pennsylvania, South Carolina, Vermont, and Washington) require generally that facilities use only "nontoxic" art and/or science materials. Colorado health/sanitation regulations for child care facilities srequire art supplies to be made of nontoxic material and to be used in a way "so as not to constitute a hazard." Child care centers in Indiana must have written personnel policies and provide staff orientation that address environmental exposures, including art materials and formaldehyde.

***Mercury Thermometers*.** A number of states have laws of general application that prohibit or restrict the sale and distribution of mercury thermometers and other mercury-added measuring devices in the state. Additionally, a few states have child care regulations that ban the *use* of mercury thermometers in child care facilities. In Ohio, mercury thermometers are not permitted in child care centers or in larger family day care homes; in smaller family day care homes, mercury thermometers may not be used or stored where children have access to them. West Virginia's licensing regulations prohibit child care centers from using mercury thermometers to take a child's temperature and require that centers have first aid kits that include mercury-free thermometers. Washington's regulations for licensing family home child care also require providers to have a first aid kit that includes a mercury-free thermometer. While not directly addressing mercury in thermometers, Mississippi's licensing regulations for child care facilities include provisions on ventilation that require room thermometers "that do not present a hazard to children" to be placed on interior walls in every activity area at children's height.

Children's Products. In recent years, a number of states have enacted laws prohibiting the manufacture, sale, and/or distribution of children's bottles, cups, and/or other reusable food and beverage containers that contain bisphenol A (BPA), a chemical used widely to manufacture polycarbonate plastics and epoxy resins. In recent years, many manufacturers have stopped selling new baby bottles and sippy cups with BPA in the U.S., and the FDA discontinued its approval of BPA

available at: http://www.astm.org/Standards/D4236.htm. The federal law requires a statement on the label of a product with a chronic hazard potential that the product is inappropriate for use by children and permits CPSC to enjoin the purchase of such an art material for use in grades pre-K through 6.

[197] U.S. CPSC, Art and Craft Safety Guide at 3, *at*: http://www.cpsc.gov/PageFiles/112284/5015.pdf.

[198] *Id.*; Cal. Office of Envtl. Health Hazard Assessment, Art and Craft Materials in Schools: Guidelines for Purchasing and Safe Use (2014), *at*: http://oehha.ca.gov/education/art/Guidelines.pdf; Conn. Dep't of Public Health, Arts and Crafts Safety for Schools, *at*: http://www.ct.gov/dph/cwp/view.asp?a=3140&Q=487682&PM=1.
The Art and Creative Materials Institute (ACMI), an association of art materials manufacturers, has established a voluntary certification and labeling program for "non-toxic" art materials developed by an association of material manufacturers (see http://www.acminet.org/).

use in those items in 2012.[199] In addition, the U.S. Congress and a number of states have banned certain phthalates (chemical plasticizers) above specified concentrations in children's toys and other products.[200] While child care regulations typically do not address use of these chemicals, the state of Washington prohibits the use of infant bottles containing BPA or phthalates, and child care rules in Rhode Island and Wyoming prohibit the use of infant bottles containing BPA.[201]

General Provisions Addressing Toxic Substances and Chemical Exposures

Exposure to Toxic Substances. In addition to provisions governing specific types of products and practices described above, some state child care regulations restrict the presence of or exposure to toxic substances and materials generally. Colorado's sanitation regulations are somewhat detailed, prohibiting the use of carcinogenic materials, toxic organic solvents, materials that produce toxic dusts, and materials with heavy metals such as lead, mercury, or cadmium. The regulations provide that "nontoxic, water-based materials should be used whenever possible." Following are examples of more general provisions in other states:

- New Hampshire requires that the child care environment be maintained free of fumes from toxic or harmful chemicals or materials;

- Connecticut regulations governing child day care centers and group day care homes prohibit toxic materials in areas accessible to children;

- Florida and Louisiana regulations governing certain types of licensed facilities require that all areas accessible to children be free from toxic substances;

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[199] 77 Fed. Reg. 41899 (July 17, 2012), *available at*: https://www.federalregister.gov/articles/2012/07/17/2012-17366/indirect-food-additives-polymers; *see also* U.S. FDA, Bisphenol A (BPA): Use in Food Contact Application, *at*: http://www.fda.gov/newsevents/publichealthfocus/ucm064437.htm. EPA states that "BPA is a reproductive, developmental, and systemic toxicant in animal studies and is weakly estrogenic…." *See* U.S. EPA, Bisphenol A (BPA) Action Plan Summary, *at*: http://www.epa.gov/oppt/existingchemicals/pubs/actionplans/bpa.html. According to CDC: "Human health effects from BPA at low environmental exposures are unknown. BPA has been shown to affect the reproductive systems of laboratory animals. More research is needed to understand the human health effects of exposure to BPA." *See* CDC, Fact Sheet: Bisphenol A (PBA), *at*: http://www.cdc.gov/biomonitoring/BisphenolA_FactSheet.html. Estrogenic chemicals may also leach from plastic products used to replace BPA-containing plastics. *See* George D. Bittner et. al., "Estrogenic chemicals often leach from BPA-free plastic products that are replacements for BPA-containing polycarbonate products," *Envtl. Health* 2014, 13:41, *available at*: http://www.ehjournal.net/content/13/1/41.

[200] According to the U.S. EPA: "diverse effects on the development of the reproductive system in male laboratory animals are the most sensitive health .outcomes from phthalate exposure. Several studies have shown associations between phthalate exposures and human health, although no causal link has been established. Recent scientific attention has focused on whether the cumulative effect of several phthalates may multiply the reproductive effects in the organism exposed." *See* U.S. EPA, Phthalates Action Plan Summary, *at:* http://www.epa.gov/oppt/existingchemicals/pubs/actionplans/phthalates.html.

[201] Rhode Island rules governing child care centers currently require either BPA free plastic or glass bottles; 2014 proposed revisions to the rules governing family and group child care homes would add such a provision for those facilities as well. The proposed rules are available at http://sos.ri.gov/ProposedRules/index.php?KEYWORD=&AGENCY=133&SORT=date&ORDER=desc&DOSEARCH=1&page=result_search&ADVANCED.

- Utah requires the outdoor play are to be free of toxic substances; and

- Vermont regulations state that "children must be protected from toxic substances."

As noted earlier, some state child care regulations require cleaning products to be used so as not to create contamination or a hazard. These regulations typically also apply to the use of "poisonous or toxic materials" generally. A similar provision is found in the FDA's model Food Code, as well as some state food codes.[202]

Toxics in Soils. Some states include prohibitions on toxic chemicals in soils on the facility premises. West Virginia's licensing regulations require a child care center to ensure that: "When there is reason to believe that exposure to the soil in the outdoor activity area might harm the child, [the center] has on file evidence that the soil does not contain hazardous levels of any toxic chemical or substances." In New Hampshire, outdoor areas must be free of hazards, including "soil contaminated with toxic chemicals or substances," while in Colorado, sand and soils in play areas must not contain "hazardous levels of any toxic chemical or substances."

Standards for Indoor Environmental Contaminants. As discussed in Chapter 11, New Jersey law and regulations require applicants for a child care center license to obtain an indoor environmental assessment in certain situations. Whether an assessment is required depends on the facility's prior use and/or its location near a potentially contaminated site. The assessment covers asbestos, lead, and radon, as well as pesticides, organic compounds, formaldehyde, metals, inorganic compounds, and other contaminants of environmental concern. Facilities must comply with standards for radon, asbestos, and lead specified in the regulations, as well as with site-specific maximum contaminant levels developed by the New Jersey Department of Health using a formula specified in the regulations to calculate cancer and non-cancer risk.

Summary: State Laws and Regulations

Many states have adopted child care regulations that address directly the use of and exposure to chemicals in licensed facilities. These policies vary considerably, though many seek to reduce exposure to chemicals in cleaning products through prohibitions on cleaning in children's presence and requirements for using cleaning products in a way that will not contaminate surfaces accessible to children. Building renovation and repairs are subject to similar provisions in some states.

A number of states have adopted child care regulations that restrict the use of certain types of products. The most common of these provisions is a general prohibition on toys and other equipment containing toxic components or finishes, and a few states require nontoxic art supplies. Several states have restrictions on the use of hand sanitizers on young children, while a small number of states prohibit products such as mercury thermometers, air fresheners, and baby bottles

[202] *See* U.S. FDA, Food Code at 7-202.12 (2013), *available at*: http://www.fda.gov/Food/GuidanceRegulation/RetailFoodProtection/FoodCode/.

containing BPA or phthalates. Vermont is notable for a long-standing prohibition on all devices that diffuse airborne chemicals.

Opportunities for strengthening state policies include requiring that chemicals are used outside of children's presence, prohibiting the use of products that diffuse airborne chemicals, and restricting the use of specific types of products that contain potentially harmful substances where safer alternatives are available. Existing and new regulatory provisions such as these can benefit from education, outreach, and other non-regulatory activities by state agencies to assist providers in identifying and implementing appropriate precautionary measures.

Non-Regulatory Initiatives

Recognition Programs. The Indiana and Pennsylvania voluntary recognition programs described in Chapter 12 include a number of elements that address chemicals exposures. Indiana's Five Star Environmental Recognition Program for Child Care Facilities has developed a program checklist that includes several items on the use of cleaning products. To obtain 3-star status (the basic level of recognition) a facility must use cleaning supplies and chemicals as recommended by the manufacturer, maintain a list of chemicals, and eliminate the use and storage of unnecessary cleaning products. To receive 5-star status, a facility must meet the following requirement: "We use quaternary ammonia or chlorine bleach only when and where it is required or recommended by state and local authorities. We use no more than necessary. We use a test strip to ensure our solution is neither too strong nor too weak." Optional criteria that may be selected to obtain 4- or 5-star status include adopting a written "green cleaning" policy that meets program criteria and refraining from use of antibacterial products for hand washing. The program addresses other potential sources of chemical exposures by prohibiting participating facilities from using mercury thermometers, as well as air fresheners, room deodorizers, and aerosol disinfectants.[203]

Pennsylvania's Early Childhood Education Healthy & Green Initiative encourages participating programs to minimize use of potentially harmful cleaning products, air fresheners, and mercury-containing thermometers and thermostats. Program criteria also address plastics in toys and baby bottles, and chemicals in furniture and carpets.[204] The program has developed reference pages on

[203] Ind. Dep't of Envtl. Mgmt., Indiana Five Star Environmental Recognition Program for Child Care Facilities Application, *available at*: https://forms.in.gov/Download.aspx?id=5536.

[204] These items are included in the criteria of the Eco-Healthy Child Care (EHCC) Program®, which have been incorporated by the Pennsylvania Initiative. Some of the criteria related to chemical exposures are: 1) "We use unscented, biodegradable, non-toxic cleaning products and least-toxic disinfecting and sanitizing products. When disinfectants and sanitizers are required, they are used only for their intended purpose and in strict accordance with all label instructions"; 2) "We use chlorine bleach only when and where it is required or recommended by state and local authorities. We use it prudently and never use more than necessary"; 3) We do not use aerosol sprays of any kind"; and 4) "We use only no-VOC or low-VOC (Volatile Organic Compounds) household paints and do not paint when children are present." The EHCC checklist is available at http://cehn.org/files/Checklist_English%201406.pdf.

these topics, which provide background information, relevant state regulations, and agency recommendations on best practices.[205]

In addition, Michigan's voluntary recognition program, Great Start to Quality, has established standards that offer two points in the "Physical Environment" category for child care facilities that are "in a physical location that is free of environmental risks (e.g., lead, mercury, asbestos, and indoor air pollutants.)"[206]

Educational and Guidance Materials. State agencies have developed guidance documents and other educational materials that offer information and recommendations on reducing children's exposure to chemicals in child care facilities. Iowa and Wisconsin have developed materials on warming baby bottles that recommend using glass or BPA-free bottles.[207] Some states have developed materials addressing cleaning products and practices. For example, the Connecticut Office of Early Childhood maintains a technical assistance web page with links to state-created materials that include green cleaning information – e.g., a two-page fact sheet titled, Tips for Cleaning Child Care Facilities the Safe and Healthy Way, and the state's manual on Managing Asthma in Connecticut Child Care Facilities. The web page also includes a link to Green Cleaning, Sanitizing, and Disinfecting: A Toolkit for Early Care and Education, described earlier in this chapter.[208] State extension programs, such as Penn State University and Texas A&M, also provide training for child care providers that address green cleaning, among other environmental topics.[209]

[205] Pa. Office of Child Devt. and Early Learning, Pennsylvania References for Eco-Healthy Child Care, *available at*: http://www.pakeys.org/pages/get.aspx?page=Environmental_Health#reference. *See also* Early Childhood Education Linkage System (ECELS), Manuals/Pamphlets/Policies, *at* http://www.ecels-healthychildcarepa.org/eeccp/publications/manuals-pamphlets-policies.
[206] Information about the Michigan Great Start to Quality program is available at http://greatstarttoquality.org.
[207] Iowa Dep't of Public Health, Warming Infant Bottles, *available at*: http://www.idph.state.ia.us/hcci/products.asp; Wisc. Dep't of Children & Families, Licensing Rules for Group Child Care Centers w/ Commentary (J Resource List), *available at*: http://www.idph.state.ia.us/hcci/products.asp.
[208] Conn. Dep't of Public Health, Information for Child Care Providers/Operators (Technical Assistance), *at:* http://www.ct.gov/oec/cwp/view.asp?a=4542&q=545170.
[209] Penn State Extension, Healthy Air + Healthy Spaces = Healthy Children, *available at*: http://extension.psu.edu/pests/ipm/childcare/training-materials-for-childcare-professionals/copy_of_healthy-air-healthy-spaces-healthy-children; Texas A&M AgriLife Extension, Child Care Courses by Topic Area, *available at*: http://extensiononline.tamu.edu/courses/child_care.php.

Statutes and Regulations Cited in Chapter 10

The summary provided in this chapter is based on a review of the following statutes and regulations. The chart does not include every state statute and regulation that addresses chemical exposures in child care facilities. The Appendix to this report includes a list of state websites for locating state statutes and regulations.

Note: Most citations below refer to the first section in the applicable statute or regulation, rather than a specific chemical exposure provision. Citation to multiple child care regulations usually indicates that a state has chemical exposure provisions addressing more than one type of child care facility.

	CHILD CARE STATUTES &REGULATIONS
Alabama	Al. Admin. Code 660-5-26-.01
Alaska	7 Ak. Admin. Code 10.010
Arizona	Az. Admin. Code 6-5-5201
California	22 Ca. Admin. Code 101151, 102351.1
Colorado	12 Co. Code Regs. 2509-8:7.701.1, 2509-8:7.707.4 6 Co. Code Regs. 1010-7:1-101 (Health/Sanitation)
Connecticut	Ct. Agencies Regs. 19a-79-1a, 19a-87b-1
Florida	Fl. Admin. Code 65C-20.008, 65C-22.001
Georgia	Ga. Comp. Rules & Regs. 290-2-1-.01, 591-1-1-.01
Hawaii	Hi. Code Rules 17-892.1-1, 17-895-1
Idaho	Id. Admin. Code 16.06.02.000
Illinois	89 Il. Admin. Code 407.40
Indiana	470 In. Admin. Code 3-4.7-1, 3-4.8-1
Kansas	Ks. Admin. Regs. 28-4-113, 28-4-420

Kentucky	922 Ky. Admin. Regs. 2:090
Louisiana	67 La. Admin. Code XXI.7301 (Health)
Maine	Me. Code Rules 10-148-32, 10-148-33
Maryland	Md. Code Regs. 13A.15.01.01, 13A.16.01.01, 13A.17.01.01, 13A.18.01.01
Massachusetts	606 Ma. Code Regs. 7.01
Michigan	Mi. Admin. Code 400.8510
Minnesota	Mn. Stat. 245A.01; Mn. Rules 9502.0315
Mississippi	Ms. Code 15-11-55:1.1.1
Montana	Mt. Admin. Rules 37.95.101
Nevada	Nv. Admin. Code 432A.010
New Hampshire	N.H. Code Admin. Rules He-C 4002.01
New Jersey	N.J. Admin. Code 10:122–1.1
New Mexico	N.M. Code Rules 8.16.2.1
New York	18 N.Y. Comp. Codes Rules & Regs. 416.1(1), 417.1(1)., 418-1.1, 418-2.1
North Carolina	10A N.C. Admin. Code 9.0102; 15A N.C. Admin Code 18A.2801 (Health)
North Dakota	N.D. Admin. Code 75-03-08, 75-03-09, 75-03-10
Ohio	Oh. Admin. Code 5101:2-12-01, 5101:2-13-01, 5101:2-14-01
Oklahoma	Ok. Admin. Code 340:110-3-1, 340-110-3-35
Oregon	Or. Admin. Rules 414-205-0000, 414-300-0000, 414-350-0000

Pennsylvania	55 Pa. Code 3270.1, 3280.1, 3290.1
Rhode Island	R.I. Admin. Code 03 000 016, 03 000 018, 03 000 019
South Carolina	S.C. Code Regs. 114-500, 114-510, 114-520
South Dakota	S.D. Admin. Rules 67:42:10:00
Texas	40 Tx. Admin. Code 746.101
Utah	Ut. Admin. Code 430-50, 430-90
Vermont	Vt. Code Rules 12-3-101:1, 12-3-102:1, 12-3-103:1
Virginia	22 Va. Admin. Code 40-111-10
Washington	Wa. Admin. Code 170-295-0001, 170-296A-0001
West Virginia	W.V. Code Rules 78-1-1, 78-18-1, 78-19-1; W.V. Code Rules 64-21-1 (Health)
Wisconsin	Wi. Admin. Code DCF 202.01, 250.01, 251.01
Wyoming	Wy. Code Rules 049-185-07, 049-185-08, 049-185-09

CHAPTER 11

Facility Site/Location

The selection and approval of a child care facility site or location is an opportunity to identify existing or potential environmental exposures. These exposures may result from contamination caused by a *prior use* at or near the child care site that continues to affect the facility. Exposures may also result from a *current, nearby activity* that is a source of continuing air, water, or soil pollution, noise, odors, or other environmental health concerns. Environmental site assessments, often conducted in connection with the purchase or leasing of commercial facilities, are a key tool for identifying potential environmental issues. The results of the assessment may affect the decision whether to purchase or lease a site, as well as what type of additional investigation and cleanup activities may be required in order to address environmental contamination.[210]

This chapter summarizes provisions in several state child care[211] laws and regulations that establish requirements related to potential environmental impacts[212] at the site or location of licensed child care facilities. These measures range from detailed provisions for assessing facilities before they are licensed to general criteria for facility location. The chart at the end of the chapter provides citations to the state authorities summarized here.

This chapter does not cover local ordinances regulating zoning, siting, and other approvals that may affect whether a facility is located on a site that poses environmental concerns. In addition, other state or local laws may address environmental exposures at child care facilities indirectly by establishing restrictions on the siting of *other* facilities near child care centers. Such laws and regulations, not covered here, restrict the siting of different types of polluting activities – e.g., hazardous or solid waste facilities, agricultural operations – by imposing minimum setback distances from child care facilities or by requiring consideration in the siting process of whether there are nearby child care facilities.

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[210] *See generally* American Society for Testing and Materials (ASTM) E1527 - 13 - Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Process, *available at*: http://www.astm.org/Standards/E1527.htm. For detailed information on evaluating environmental factors in the siting of school facilities, see U.S. EPA, School Siting Guidelines, *available at*: http://www.epa.gov/schools/guidelinestools/siting/.

[211] In addition to child care licensing regulations, the discussion includes related health laws/regulations governing sanitation in child care facilities for three states (Colorado, New Jersey, and West Virginia).

[212] While this report does not cover requirements related to drinking water, it is important to note that state child care licensing regulations may require facilities not served by a public water supply to submit water quality testing results when applying for a license. Such requirements may help identify contamination from historical or nearby sources.

Requirements for Identifying Environmental Hazards During Licensing

New Jersey's Approach. Following the discovery of mercury contamination at a child care facility located on the site of a former thermometer factory, the state of New Jersey put in place a variety of legislative and regulatory reforms aimed at identifying and addressing environmental contamination at a facility before it is licensed for child care use.

Child Care Licensing Regulations. Under New Jersey's child care regulations, at the time of initial application for a license, license renewal, or facility relocation, a child care center must submit to the Office of Licensing an approval from the state Department of Environmental Protection (DEP), indicating that no further environmental remediation is needed for the site on which the center is located. In general, this requires that the facility undergo a Preliminary Assessment conducted in accordance with the DEP's technical requirements.[213] The DEP's Hazardous Discharge Site Remediation Fund grant program may reimburse child care facility owners up to $1500 for completing the required Preliminary Assessment.[214]

The child care licensing regulations also provide that at the time of initial or renewal licensing or relocation, the child care center must certify in writing whether the building ever housed one of the following use categories: factory/industrial, high hazard, storage, dry cleaner, nail salon, gas station, or funeral home. If the prior use falls into these categories, the applicant must certify in writing that the facility has complied with the requirements of the state's *Madden* legislation, including completion and Department of Health review of an Indoor Environmental Health Assessment (see below). Child care center applicants must submit a Safe Building Interior Certification or other approval issued by the Department of Health that indicates that no further remediation is needed for the *interior* of the building. New Jersey's licensing regulations further establish that child care centers co-located in a building that contains a dry cleaner or nail salon will not receive a license or renewal unless they obtain "indoor air sampling that demonstrates that there is no impact to the child care center."

Environmental contamination may result from prior uses at or near a child care site, or from current, nearby polluting activities.

Madden Legislation/Regulations. In 2007, following the mercury contamination incident, the state enacted a law requiring child care facilities to obtain an indoor environmental certification from the Department of Health in certain circumstances. Under the law, the certification must be obtained before a facility that is to be used as a child care center may receive a permit for construction, conversion, alteration, or repair *if* the building: was previously used for industrial, storage or high hazard purposes; was previously used as a nail salon, dry cleaner, or gas station; or is located on a

[213] *See* N.J. Dep't of Envtl. Protection (DEP), Environmental Guidance for All Child Care Facilities, *at*: http://www.state.nj.us/dep/dccrequest/newcenters.html.
[214] *Id*.

contaminated site, suspected contaminated site, or industrial site subject to the provisions of the state's Industrial Site Recovery Act. The law directs the state Department of Health to develop regulations establishing procedures for conducting the indoor environmental evaluations and maximum contaminant levels that must be met by covered facilities.

Department of Health regulations establish the process for obtaining the required Safe Building Interior Certification. In order to obtain the certification, the child care center must arrange for an Indoor Environmental Health Assessment (IEHA) to be conducted by an indoor environmental consultant licensed pursuant to the regulations and submitted to the Department of Health for review, including an agency site visit. The IEHA must include a site inquiry, a determination of any potential sources of interior vapor intrusion, and a determination of whether adjacent and proximate businesses are known or suspected to contain contaminants that may impact the indoor environment of the child care facility.

The core component of the IEHA is an assessment of the building's indoor environment that must address: asbestos-containing materials; lead; organic compounds; formaldehyde; metals; inorganic compounds; pesticides; radon; and other contaminants of environmental concern. Facilities must comply with standards for radon, asbestos, and lead specified in the regulations, as well as with site-specific maximum contaminant levels developed by the Department of Health using a formula specified in the regulations to calculate cancer and non-cancer risk.

When an applicant for a child care center license contacts the Department to obtain the approval required by the child care licensing regulations, the Department determines whether a Safe Building Interior Certification/IEHA is required by reviewing DEP information about the site and identifying whether the facility: (1) has a prior or current use that falls in one of the use categories specified in the Madden law; (2) is on a contaminated site or on property where contamination is suspected; (3) is in a building constructed prior to 1979 (lead and asbestos concerns); (4) is co-located in a building with a dry cleaner and/or nail salon; or (5) is referred by another agency or official due to concerns based on current or prior use.[215] According to agency officials, if none of these conditions apply, the Department will so notify the applicant and the Department of Children and Families.

New York's Approach. Like New Jersey, New York requires the provision of information about environmental hazards as part of the licensing and renewal process. However, New York does not have statutory or regulatory provisions requiring that license applicants obtain reviews by other state agencies; rather, the state's approach relies more heavily on the applicant to determine whether environmental hazards necessitate the involvement of other agencies.

New York's regulations governing child daycare centers mandate that applicants submit information during the licensing process regarding potential environmental hazards. Applicants

[215] *See* N.J. DEP, Indoor Environmental Health Assessment in Child Care Centers, *at*: http://www.state.nj.us/health/iep/ccc_ieha_submission.shtml.

must submit a written certification to the Office of Children and Family Services (OCFS) that: "[T]he building, its property and premises, and the surrounding neighborhood and environment are free from environmental hazards. Such hazards include but are not limited to dry cleaners, gas stations, nuclear laboratories or power plants, property designated as a Federal superfund clean-up site, and any property with known contaminated ground or water supplies." The regulations require inspection or testing by the appropriate government authorities if "the historical or current use of the building, its property and premises, or the surrounding neighborhood indicates that an environmental hazard may be present." The written certification form submitted with the licensing application must include documentation of any inspection/testing carried out, along with a statement from the inspecting authority that "the building, its property and premises, and the surrounding neighborhood meet applicable standards for sanitation and safety."

The Office of Children and Family Services has developed a simple written certification form (Environmental Hazards Statement) for indicating, to the best of the provider's knowledge, whether any environmental hazards exist on the site or surrounding areas. If a provider states that a potential environmental hazard may exist, before OCFS issuance of a day care license or registration the provider must complete an Environmental Hazard Information Form that includes: general information about the hazard, a list of government agencies the provider has contacted regarding the hazards, and a statement of whether any agency recommended that an environmental professional conduct an environmental hazard assessment.

The OCFS has developed a short guidance document to assist providers in identifying potential hazards so that they can answer questions on the certification form accurately.[216] The document lists common sources of environmental contamination that may require further evaluation, such as gas stations, dry cleaners, and manufacturing or power plants. The OCFS guidance also includes radon as an environmental hazard requiring further evaluation. According to the guidance document, if the facility is located in a Zone 1 (high radon potential) area, as listed in the guidance, the applicant must have the home or building tested and must "resolve any identified problems" before licensing of the facility. According to licensing officials, radon test results must be submitted as part of the licensing process. The OCFS guidance also includes lead as a potential hazard and "recommends that all child care program sites constructed in whole or in part before 1978 (1960 in New York City) be assessed for lead hazards."

State licensing officials note that the fire and safety inspectors who inspect all programs prior to licensure check the information submitted by applicants and can use the state's Geographical Information System (GIS) to pinpoint a site's proximity to Superfund sites, brownfields, and other known hazards. The inspectors also may find potential environmental hazards not identified by an applicant.

[216] N.Y. State Office of Children & Family Services (OCFS), Environmental Hazards Guidance Sheet, *available at*: http://www.ocfs.state.ny.us/main/documents/docsChildCare.asp.

General Environmental Criteria for the Facility Site/Location

General Site/Location Criteria. Several other states have adopted child care regulations incorporating general site/location criteria that could be used to address proximity to environmental hazards. These provisions are similar in scope, but they vary in their precise wording. Unlike the New York approach described above, the following regulations do not include an explicit requirement for applicants to submit written certification or documentation of any necessary inspections/testing. (For an overview of child care regulations that restrict the presence of or exposure to toxic substances and materials generally, see Chapter 10 – Other Chemical Exposures.)

- The state of Washington requires child care centers to be located on an "environmentally safe site" in a neighborhood that is free of conditions that would be detrimental to the children's welfare.

- West Virginia's sanitation regulations for child care centers require that facilities "be located in a relatively noise and pollution free environment."

- Missouri prohibits group child care homes and child care centers from being located next to a high hazard area or occupancy, which is defined to include an area or building that "manufactures, processes, generates or stores materials that constitute a high fire, explosion, or health hazard."

- North Carolina's regulations require child care facilities to be located "in an area which is free from conditions which are considered hazardous to the physical and moral welfare of the children in care."

- Oklahoma child care centers must be located "in an area which offers minimum hazards to the health, safety, and welfare of the children."

- Virginia regulations prohibit child care centers from being located "where conditions exist that would be hazardous to the health and safety of children."

- North Dakota's regulations require that child care centers and group child care facility buildings and grounds are located "to protect the health and safety of children."

- Indiana regulations provide that child care centers may not "operate in an area where conditions exist that could be injurious to the welfare of children."

Minnesota takes a somewhat different approach to addressing general site/location hazards. Under the state's child care licensing statute, child care centers are required generally to develop a risk

reduction plan, establish procedures to minimize identified risks, train staff on the procedures, and annually review the procedures. The risk reduction plan must be based in part on "an assessment of

the risks presented by the environment for each facility and for each site, including an evaluation of the following factors: the type of grounds and terrain surrounding the building and the proximity to hazards, busy roads, and publicly accessed businesses."

Location Near Specific Hazards or Conditions. A small number of child care regulations restrict siting or location with respect to *specific* activities or conditions. As noted above, New Jersey requires indoor environmental information before a child care facility may co-locate with a dry cleaner or nail salons.[217] The state's child care regulations also address co-location more generally, providing that the Office of Licensing must determine that a multi-use site "does not pose a serious risk to the health, safety, or well-being of the children" prior to approving the co-location, and that the Office may require the childcare center to meet any requirements "deemed necessary to protect the children from serious risk of harm stemming from the co-location."

Arizona child care regulations require that applicants for childcare facility licensing/certification submit the names and addresses of the owners and lessees located within a quarter mile of agricultural land. The regulations prohibit licensing/certification if the facility is located within a quarter mile of certain regulated agricultural land unless the owner of the agricultural land agrees to comply with pesticide buffer zone requirements contained in state law. The agreement must be in writing and must be recorded in the office of the county recorder as a restrictive covenant running with the title to the land.

Mississippi requires the outdoor playground area of a child care facility to be "not less than 30 feet .... from electrical transformers, high-voltage power lines, electrical substations, railroad tracks, or sources of toxic fumes or gases."[218] Hawaii requires child care facilities to be "located in a reasonably quiet area or employ suitable noise control devices to limit noise exterior to the child care operation."

Finally, some state child care regulations address the issue of contaminated soils on the child care premises. As noted in Chapter 10 (Other Chemical Exposures), West Virginia requires that: "When there is reason to believe that exposure to the soil in the outdoor activity area might harm the child, [the child care center] has on file evidence that the soil does not contain hazardous levels of any toxic chemical or substances." In New Hampshire, outdoor areas must be free of "soil contaminated

[217] Maine law and regulations restrict the location of dry cleaners, prohibiting new or relocated perchloroethylene ("perc") dry cleaning systems from being installed in a facility that is co-located with a residence, daycare center, school, preschool, or other facility designed to be occupied by children. Beginning in 2021, existing dry cleaners in Maine that are co-located with such facilities must completely eliminate perc use and remove all perc dry cleaning equipment from the building. *See* Me. Dep't of Envtl. Protection, Dry Cleaner Regulations, *at:* http://www.maine.gov/dep/air/toxics/drycleaners.html.

[218] This regulation also requires the playground to be free of hazards, a provision found in many child care regulations. For a compilation of child care regulations addressing playground safety and other related issues, see http://www.publichealthlawcenter.org/resources/healthy-child-care.

with toxic chemicals or substances," while in Colorado, soils in play areas must not contain "hazardous levels of any toxic chemical or substances."

Summary: State Laws and Regulations

The state of New Jersey has detailed regulatory requirements relating to environmental conditions at the site/location of child care facilities. Most child care centers in New Jersey must obtain an environmental assessment of the site in connection with the licensing process; an *indoor* environmental assessment may also be required depending on the facility's prior use and/or current location. Child daycare center regulations in the state of New York require applicants to submit written self-certification that the surrounding neighborhood and environment are free from environmental hazards; if potential hazards exist, applicants must consult with appropriate state agencies and obtain any needed inspections or testing. Several other states have general statutory or regulatory provisions prohibiting health or environmental hazards in the area of a child care facility. States can build on these models by integrating into the licensing process explicit requirements for identifying and addressing environmental hazards from current or former uses of the site or nearby facilities. State agencies can also assist providers in identifying and addressing potential site hazards through formal, non-regulatory initiatives.

Non-Regulatory Initiatives

At least two states – Connecticut and Pennsylvania – have established significant non-regulatory initiatives that offer models for state programs to identify current or proposed child care facility sites that may be impacted by environmental hazards.

The Connecticut Department of Public Health's Screening Assessment for Environmental Risk (SAFER) Program works with the state child care licensing agency and other state and local agencies to collect information to determine whether a child care center or group day care home may be affected by hazardous chemicals. The program has developed a protocol that sets out a variety of procedures for the agencies to collect information:

- The program compares two *state databases* – the database of licensed child care facilities and the Department of Environmental Protection database of hazardous waste sites – to identify existing child care facilities located on or near sites with environmental contamination.

- During *regularly scheduled child care inspections*, state and local health inspectors use SAFER's Environmental Issues Referral Form to help them identify property and building characteristics, including those of adjacent businesses, that could signal the presence of chemical contamination at the child care facility.

- A property history questionnaire developed by the SAFER program has been incorporated into the *child care license application* in order to obtain information from an applicant about

the history of the building and land. The questionnaire encourages applicants to consult with the local health department and others about past uses. The program also encourages planning, zoning, and permitting staff to be aware of and work with the SAFER project. [219]

The SAFER program conducts follow-up on any site identified through the protocol or otherwise referred by the child care licensing program. The program may issue recommendations for additional action, including sampling or remediation, and coordinates with relevant state and local agencies, the property owner, and the child care operator.[220]

As part of Pennsylvania's Healthy & Green Initiative, described in Chapter 12, the Departments of Welfare and Health are working together on a Healthy and Green Child Care Siting Initiative. The initiative, modeled after Connecticut's SAFER program, focuses on new child care centers, although existing centers may also request help. The Department of Health's Health Assessment Program cross-checks the location of a proposed child care facility with state databases of potentially hazardous sites (including Superfund and brownfield properties, dry cleaners, print shops, landfills, and storage tanks) and state-designated Environmental Justice areas, so the state can prioritize educational activities related to site hazards.

States have created notable non-regulatory programs for identifying and addressing environmental site hazards.

In addition to this review of state databases, the program has developed a property history survey for applicants for new child care centers (home-based providers are not included in the program). Potential sources of concern include factories, power plants, major highways, and local area sources (e.g., auto-body shops, dry cleaners, gas stations). The program offers guidance to providers and, in cases where environmental hazards are identified, the program may provide additional follow-up action – e.g., site and record review, site visit, recommendations for environmental sampling or mitigation, preparation of a public health consultation, or health education and outreach to providers and parents. The program has also created a "tip sheet" for licensing officials to use during inspections.[221]

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[219] *See* Conn. Dep't of Public Health, Protocol to Identify and Address Licensed Child Day Cares On or Near Locations with Chemical Contamination, *available at*: http://www.ct.gov/dph/cwp/view.asp?a=3140&Q=456216&PM=1. *See also* Conn. Dep't of Public Health, Environmental Issues Referral Form for Inspections and Property History Questionnaire for New Child Day Care Applicants, *available at*: http://www.ct.gov/dph/cwp/view.asp?a=3140&Q=456216&PM=1.

[220] *See generally* Conn. Dep't of Public Health, Child Day Care SAFER Program, *at*: www.ct.gov/dph/safer; *see also* Tarah S. Somers, Margaret L. Harvey, and Sharee M. Rusnak, "Making Child Care Centers SAFER: A Non-Regulatory Approach to Improving Child Care Center Siting," *Public Health Reports* 2011 Supplement 1, Vol. 126, p. 34-40, *at*: http://www.ncbi.nlm.nih.gov/pmc/articles/PMC3072901/. Between 2007 and 2010, 14 referrals were made by the program, two of which involved follow-up that included sampling and/or remediation.

[221] *See generally* Pa. Dep't of Health, Siting Guidelines for Licensed Child Care Centers (2014) (on file with ELI); "The Children Are Where?" (webinar moderated by ATSDR) (Dec. 2013), *available at*: http://www.ct.gov/dph/cwp/view.asp?a=3140&Q=456216&PM=1.

Statutes and Regulations Cited in Chapter 11

The summary provided in this chapter is based on a review of the following statutes and regulations. The chart does not necessarily include every state statute and regulation that addresses environmental hazards relating to the site/location of child care facilities. The Appendix to this report includes a list of state websites for locating state statutes and regulations.

Note: Most citations below refer to the first section in the applicable statute or regulation, rather than a specific site/location provision. Citation to multiple child care regulations usually indicates that a state has site/location provisions addressing more than one type of child care facility.

CHILD CARE STATUTES & REGULATIONS

Arizona	Az. Rev. Stat. 36-882, 36-897; Az. Admin. Code 9-5-101
Colorado	6 Co. Code Regs. 1010-7:1-101 (Health/Sanitation)
Hawaii	Hi. Code Rules 17-892.1-1
Indiana	470 In. Admin. Code 3-4.7-1
Minnesota	Mn. Stat. 245A.03
Mississippi	Ms. Code Rules 15-11-55:1.1.1, 15-11-55:2.1.1
Missouri	19 Mo. Code Regs. 30-62.010
New Hampshire	N.H. Code Admin. Rules He-C 4002.01
New Jersey	N.J. Admin. Code 10:122-1.1 N.J. Stat. 52:27D-130.4--5; N.J. Admin. Code 8:50-1.1 (Health)
New York	18 N.Y. Comp. Codes Rules & Regs. 416.1(1), 417.1(1), 418-1.1, 418-2.1
North Carolina	N.C. Gen. Stat. 110-91
North Dakota	N.D. Admin. Code 75-03-09, 75-03-10
Oklahoma	Ok. Admin. Code 340:110-3-1
Virginia	Va. Admin. Code 40-185-280
Washington	Wa. Admin. Code 170-295-0001, 170-296A-0001
West Virginia	W.V. Code Rules 64-21-1 (Health)

CHAPTER 12

State Non-Regulatory Activities:

Education, Assistance, and Incentives to Advance Best Practices

In addition to minimum regulatory standards and requirements discussed in the preceding chapters, a number of states have established voluntary initiatives to advance best practices and improve environmental health conditions at child care facilities. This chapter highlights notable non-regulatory initiatives addressing environmental health in child care facilities, including: recognition programs; education and outreach; and technical and financial assistance for child care providers. While the chapter discusses only state government programs, there are also many important efforts led by universities, non-profit organizations, and others to provide education, training, and assistance to child care providers. Following the discussion of state programs, the chapter highlights state laws and regulations that may facilitate the development of voluntary initiatives by state agencies.

Recognition Programs

Recognition programs reward child care providers who voluntarily adopt practices that exceed existing regulatory standards. Such programs often are developed as part of a state's child care Quality Rating and Improvement System (QRIS), a "systemic approach" used by many states "to assess, improve, and communicate the level of quality in early and school-age care and education programs."[222] State QRIS programs award quality ratings to child care programs that meet the QRIS criteria, which use licensing standards as the foundation for establishing higher standards of quality. In addition to addressing issues such as staff qualifications, curriculum, family engagement, and program evaluation, QRIS program standards may include criteria for the facility environment.[223] In some states, child care providers who achieve a certain level within the QRIS program may not only benefit from a marketing advantage, but may also become eligible for higher rates of reimbursement under state child care subsidy programs.

Recognition programs can advance indoor environmental quality by incorporating facility practices not required by licensing regulations, or by addressing key facility practices in a more

[222] U.S. Dep't of Health and Human Services (DHHS), Quality Rating & Improvement Systems Resource Guide, *at*: https://occqrisguide.icfwebservices.com/index.cfm?do=qrisabout#1. As of 2010, about half of all states had a QRIS. Nat'l Assoc. for the Education of Young Children (NAEYC), Quality Rating and Improvement Systems (QRIS) Toolkit (2010), *available at:* http://www.naeyc.org/files/naeyc/file/policy/state/QRSToolkit2010.pdf. In Fiscal Year 2012, 60,000 child care centers and homes participated in a QRIS or other quality improvement initiative. U.S. DHHS, First Look: CCDF Quality Data FY 2012 (2013), *available at:* https://www.acf.hhs.gov/sites/default/files/occ/quality_first_look_ag_7_25_13_final_508.pdf.

[223] NAEYC, QRIS Toolkit (2010), *available at:* http://www.naeyc.org/files/naeyc/file/policy/state/QRSToolkit2010.pdf.

comprehensive manner than the licensing requirements. Following are descriptions of two recognition programs – one integrated with the state's QRIS and one developed by the state environmental agency – that are notable for incorporating a wide range of environmental health criteria.

Pennsylvania. With the support of the Heinz Endowments, the Pennsylvania Office of Child Development and Early Learning launched the Keys to Quality Early Childhood Education Healthy & Green Initiative to promote environmental health in early learning programs.[224] This multi-faceted initiative includes formal recognition of child care providers through Keystone STARS, the state's voluntary QRIS program for child care and Head Start programs. According to agency officials, in September 2014, 64.3 percent of the child care centers, 38.4 percent of the Group Child Care Homes, and 20.5 percent of the Family Child Care Home providers participated in the Keystone STARS program.

Through the Healthy & Green Initiative, providers who participate in Keystone STARS now have the option of incorporating a variety of environmental health best practices into their continuous quality improvement plan and to receive recognition for such efforts. When a provider develops its annual QRIS plan, it can choose to pursue endorsement by the Eco-Healthy Child Care® (EHCC) program, a science-based endorsement, training, and technical assistance program run by the national non-profit Children's Environmental Health Network. The core of the EHCC program is a 30-question endorsement checklist and related fact sheets that cover a range of environmental health topics.[225] According to agency officials, the Healthy & Green Initiative has met and exceeded two important goals in its first three years: EHCC endorsement of at least 45 additional child care facilities in the state and attendance at EHCC professional development sessions by the owners/directors of five to ten percent of the facilities participating in Keystone STARS.

Quality Rating Improvement Systems can encourage voluntary adoption of environmental health best practices.

In addition to the recognition program, the Healthy & Green Initiative supports the Keystone STARS QRIS by offering professional development and creating information resources for providers. These activities, and the related mini-grant program, are discussed below.

Indiana. The Indiana Department of Environmental Management (IDEM) has created various children's environmental health programs aimed at reducing exposure, educating families, and involving children. One of IDEM's hallmark programs is the Five Star Environmental Recognition

[224] Information about the Healthy & Green Initiative is available at http://www.pakeys.org/pages/get.aspx?page=Healthy_Green.

[225] To become endorsed, a child care provider must meet 24 of 30 items, including three mandatory items. The provider must agree to an on-site assessment (if the facility is randomly selected) and must obtain the signature of a non-employee certifying that the checklist practices are followed. The two-year endorsement includes a certificate and poster, regular e-mail updates, and listing on the EHCC Website. Both the checklist and 16 fact sheets are available for free on the EHCC website at www.cehn.org/ehcc.

Program for Child Care Facilities, through which IDEM awards stars to facilities that voluntarily exceed licensing requirements for environmental health and safety.[226] Applicants can choose the number of stars they apply for (three, four, or five stars) and must then meet the program criteria for that "star level." Each level includes mandatory and/or optional elements in the following areas: air quality; carbon monoxide alarms; radon; smoking/tobacco; lead; mercury; pesticides/pest control; cleaning/green cleaning; polychlorinated biphenyls (PCBs); flame retardants; sun exposure; asbestos; disaster planning; energy efficiency; and pet allergens.[227] The program has created a self-assessment tool that new applicants must use and that participating facilities may use to determine whether hazards are present. IDEM conducts a site visit in connection with all applications to ensure that facilities meet the criteria of the selected star level.

Participating facilities receive formal recognition on the IDEM website, as well as free materials, hands-on technical assistance, and training opportunities. The program also makes available to participants a free lead risk assessment by a licensed assessor. The program is open to licensed or registered child care providers who are in compliance with all applicable state laws and regulations, and recognition is valid for a three-year period.

Education and Outreach for Child Care Professionals

Many states have developed materials to educate child care professionals about environmental health topics and to promote facility best practices generally. While some of these materials focus on one or two specific environmental issues, the activities described below are notable for offering support on a broad range of environmental health topics. The first two examples, from California and Pennsylvania, illustrate initiatives through the child care licensing agency. The other two examples, from Connecticut and Minnesota, describe activities undertaken by the state asthma program. Many states address asthma in the child care setting, and these programs can be an important vehicle for providing information and materials on how to reduce exposure to indoor contaminants that are asthma triggers.

California. The California Department of Social Services' Child Care Licensing Program has undertaken several outreach and education activities that support child care providers in addressing a range of environmental health topics. The licensing agency has used its communication networks to educate child care providers about best practices on environmental health, whether or not those practices are mandated in the state's licensing standards.

The program publishes regular updates to "[keep] the child care community informed about licensing programs and services" and has used the updates as an opportunity to educate providers about environmental health issues. Articles have included "Maintaining a Healthy Child Care Facility" (discussing the seven principles of healthy housing), "Pest Management and the Healthy

[226] Ind. Dep't of Envtl. Mgmt., Five Star Environmental Recognition for Child Care Facilities, *at:* http://www.in.gov/idem/health/2336.htm
[227] *See* Ind. Dep't of Envtl. Mgmt, Five Star Environmental Recognition for Child Care Facilities, *at:* www.in.gov/idem/health/2336.htm.

Schools Act," and "Air Pollution and Contaminants at Child Care Facilities."[228] The agency also has published a guide to safe food handling practices that includes tips on using Integrated Pest Management (IPM) and decreasing children's exposure to pesticides.[229]

Pennsylvania. Pennsylvania's Healthy & Green Initiative makes available a variety of educational materials and opportunities to child care providers, including the following:

- Keystone STARS professional development instructors offer three-hour trainings on environmental health topics in the child care setting using EHCC materials and curriculum. (One of the prerequisites for applying for the mini-grant program described later in this chapter is attendance at this training.)

- The Pennsylvania Office of Child Development and Early Learning (OCDEL) has developed a Pennsylvania Reference Page for each of the 16 EHCC environmental health categories. Each reference page provides the relevant child care licensing regulations and related national performance standards from *Caring for Our Children, 3rd Edition*.[230]

- Also as part of this Initiative, the Early Childhood Education Linkage System (ECELS) developed model environmental health policies addressing all 30 items on the EHCC checklist. (ECELS-Healthy Child Care Pennsylvania is operated by the Pennsylvania Chapter of the American Academy of Pediatrics; as a subcontractor to the Initiative, they provide statewide support in the form of professional development and technical assistance on health and safety issues.) The Environmental Health Checklist Model Policy Crosswalk is a set of model environmental health policies "cross-walked" with the EHCC checklist items, matching each topic with the corresponding fact sheets, Pennsylvania Reference Pages, and standards from *Caring for Our Children*, *3rd Edition*.[231]

Connecticut. The Connecticut Department of Public Health Asthma Program has developed a 56-page manual, *Managing Asthma in Connecticut Child Care Facilities,* which includes guidance and resources on a variety of asthma triggers – environmental tobacco smoke; air pollution and car exhaust; perfumes; cleaning products; paint/wood staining products; art supplies; aerosol sprays;

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[228] *See* Cal. Dep't of Social Services, Child Care Updates, *at:* http://ccld.ca.gov/PG447.htm.
[229] *See* Cal. Dep't of Social Services, Child Care Center Self Assessment Guide: Safe Food Handling and Preparation Licensing Requirements and Best Practices (2001), *available at*: http://www.ccld.ca.gov/res/pdf/cccfoodfinal.pdf.
[230] *See* Pa. Office of Child Development & Early Learning, Eco-Healthy Child Care© and PA Reference Pages, at: https://www.pakeys.org/pages/get.aspx?page=Environmental_Health; *see also* American Academy of Pediatrics, American Public Health Ass'n, Nat'l Resource Center for Health & Safety in Child Care & Early Education (NRC), National Health and Safety Performance Standards; Guidelines for Early Care and Education Programs (Caring for Our Children), 3rd Edition (2011), *available at*: http://cfoc.nrckids.org/.
[231] *See* Pa. Chapter of the American Academy of Pediatrics, Model Child Care Health Policies, 5th Edition (2013), *available at*: http://www.ecels-healthychildcarepa.org/publications/manuals-pamphlets-policies/item/248-model-child-care-health-policies. The Pennsylvania Chapter of the American Academy of Pediatrics adapted the text of these policies from the corresponding text in Model Child Care Health Policies, 5th Edition, 2013. For more information, see the ECELS program web page, http://www.ecels-healthychildcarepa.org/.

wood burning stoves or fireplaces; new carpet or furniture with odors; pest control; cleaning products; mold; and pets. The manual directs readers to relevant state regulations and incorporates a number of helpful forms, brochures, and flyers, including:

- An Asthma-friendly Child Care: A Checklist for Parents and Providers;
- Asthma Triggers in the Child Care Environment;
- Green Cleaning Recipes;
- Breathe Easy While Cleaning; and
- Family Day-care: Special Concerns.

The manual is available on the program's asthma in daycare website, which also references materials from other agencies and organizations, including training opportunities for child care professionals. [232]

Minnesota. Minnesota also addresses environmental health in child care facilities through the lens of asthma management. The Department of Health has developed the resource, Best Practices to Prevent Environmental Asthma Triggers in Child Care Facilities, to help child care providers identify and prevent environmental asthma triggers. The guidance was developed for child care centers, but most of it applies to home child care as well and can be used to improve indoor air quality generally.[233] The best practices resource consists of the following components:

- The Model Environmental Asthma Trigger Prevention Plan for making immediate improvements with task-oriented policies and procedures;
- Building Evaluation Procedure for Asthma Triggers, a comprehensive and detailed assessment checklist to identify and address asthma triggers and underlying building problems; and
- Other resources for learning more about asthma, the indoor environment, and health and safety in child care.

Technical and Financial Assistance for Child Care Providers

Technical and financial assistance can be vital to assisting child care providers in making specific environmental improvements in their facilities. Pennsylvania and Minnesota are examples of states that recently have provided this type of direct assistance for reducing environmental exposures in child care facilities.

***Pennsylvania*.** In addition to the outreach and education activities described above, Pennsylvania's Healthy & Green Initiative established a mini-grant program to assist child care providers in achieving higher quality environmental health standards. The program was open to regulated child

[232] *See* Conn. Dep't of Public Health, Managing Asthma in Connecticut Child Care Facilities: A Resource Guide (rev. 2011), *available at*: http://www.ct.gov/dph/cwp/view.asp?a=3137&q=399850.
[233] *See* Minn. Dep't of Health, Model Asthma Plan in Child Care: Best Practices to Prevent Environmental Asthma Triggers in Child Care, *at*: http://www.health.state.mn.us/divs/eh/indoorair/childcare/.

care programs (centers and group or family homes) participating in the Keystone STARS quality improvement program. To be eligible for a grant of up to $5,000, applicants were required to attend two professional development sessions (including an EHCC training), conduct radon testing of their facility, and complete the EHCC checklist as a facility self-assessment. The state offered a technical assistance webinar on how to apply for a mini-grant.[234]

Of the 125 applicants for the first round of funding in 2013, the highest-scored proposals received technical assistance, and 39 applicants ultimately received a total of $180,000 to complete their projects. About three quarters of the grant recipients were center-based programs. Funding was used for a variety of activities including radon testing and mitigation; purchase of items such as HEPA-Vacuum Cleaners, dehumidifiers, walk-off mats, healthier toys, and BPA-free bottles and cups; replacement of carpeting and furniture with healthier alternatives; development of no-idling policies and signs; and training for staff on environmentally-healthy practices.[235] Program officials note the importance of requiring radon testing as a prerequisite for funding under the mini-grant program; while some providers believed that their properties had been tested, testing under the program revealed that a number of facilities had elevated radon levels.

According to officials, the state anticipates awarding approximately $285,000 in mini-grants over the next two years.

Minnesota. The Minnesota Department of Health's Indoor Air Unit has developed a Healthy Homes for Family Child Care project under a grant from U.S. EPA, Region 5. The project seeks to promote an integrated approach to reducing exposure to potential hazards in homes that also function as child care settings. Following its initial focus on in-home family child care providers, the project's audience will expand to all residences.[236]

The project encompasses a range of healthy homes issues, including mold, lead, pests, injury prevention (including trip and fall hazards), poisoning prevention, and environmental tobacco smoke, with an emphasis on radon. According to officials, the project was launched with aggressive outreach to in-home child care providers to encourage them to complete an online self-assessment of their home. After completing this assessment, providers receive a detailed report on their facility and, depending on their answers to the self-assessment questions, they receive a customized action plan, along with a radon test kit. Officials note that as of October 2014, approximately 653 child care providers had completed the assessment and 509 had submitted radon test results. Child care providers were motivated to take these steps because those who did so by April 30, 2014 would be potentially eligible for radon mitigation of their facility. Following the initial phase of the project focusing on in-home family child care providers, the self-assessment checklist will remain available to all on the agency website, and those who complete it will receive a customized action plan.

[234] *See* Pa. Office of Child Development & Early Learning, Mini-Grants Program, *at*: http://www.pakeys.org/pages/get.aspx?page=mini_grants_program.
[235] *See* Penn. Healthy & Green Initiative, PA Healthy & Green Mini-Grant Summary (on file with ELI).
[236] *See* Minn. Dep't of Health, Healthy Homes for Family Child Care, *at:* http://www.health.state.mn.us/divs/eh/homes/forpartners/homechildcare.html.

In addition to the state agency programs discussed above, Texas A&M's AgriLife Extension program offers a variety of online, for-credit courses for child care providers on a number of environmental health topics. Topics include: indoor air quality; asbestos; asthma; biological pollutants; disinfection/sanitation/green cleaning; lead; radon; and sun exposure.[237] Several other states have approved some of these courses for professional development credit for child care providers in their state.

The Role of State Policy in Advancing Non-Regulatory Initiatives

State laws and regulations often provide general authority for state agencies to develop education and technical assistance activities in furtherance of their mission. While specific statutory or regulatory provisions are not always necessary in order to undertake education, training, or financial/technical assistance activities, the following are examples of the types of policies that can support activities to advance indoor environmental best practices in child care facilities. Rather than provide citations to these policies at the end of the chapter, as in preceding chapters, citations are included throughout the discussion.

Recognition Programs. Many states have laws establishing a child care Quality Rating and Improvement System. The broad mandate for quality advancement establishes an opportunity to promote environmental health best practices. For example, Nebraska's Step Up to Quality Child Care Act directs state agencies to establish a QRIS and sets out certain mandatory program elements, including the general category of "facility safety and management." States can also incorporate environmental health criteria into the QRIS standards via regulation. In Oklahoma, for example, quality rating and improvement regulations establish criteria for the Department of Human Services' Reaching for the Stars program; to receive a "one star plus" rating, child care centers and homes must complete annual "[h]ealth and safety checklists for both indoor and outdoor spaces."[238] In West Virginia, regulations establish tiered criteria to be used in a Child Care QRIS, including a requirement for one of the tiers that child care centers must have "a written policy concerning exposure to air pollution, lead, asbestos, and other contaminants" in order to achieve 3-star status or higher.[239]

Training/Professional Development. Most state child care laws and regulations require licensees and their employees to complete some form of orientation, training, and/or ongoing professional development as a condition for licensing. These training/professional development requirements usually include a mandatory health and safety component, though only a small number of states specify environmental health-related topics. In Illinois, child care regulations require that all staff be trained in implementation of a child care center's risk management plan, specifically addressing:

[238] Ok. Admin. Code 340:110-1-8.10.
[239] W.V. Code Rules 78-22 (Appendix A: Child Care Center Quality Standards). Pursuant to the regulations, the Department of Health and Human Resources is not required to implement the QRIS system unless funds are appropriated by the legislature for that purpose. W.V. Code Rules 78-22-2.

design and maintenance of the building and any vehicles used in day care; maintenance and storage of food service and maintenance equipment, chemicals, and supplies, including an integrated pest management plan; selection, maintenance, and supervision of education materials, toys, pets, and playground equipment; food service sanitation; and cleanliness of the building and grounds. Colorado and Wyoming are examples of states that require pre-licensing or ongoing professional development that includes information on a "healthy" and "safe" environment.[240]

In most cases, training activities must be accredited or approved by the licensing agency. In a few states, child care (or other) laws and regulations require a state agency to provide the training/professional development to child care providers. In some cases, such provisions incorporate indoor environmental practices specifically. For example, the California Department of Social Services is required to provide a pre-licensing orientation about the pesticide use provisions of the Healthy Schools Act of 2000 and about integrated pest management practices.[241] Even where requirements for states to provide training refer generally to health and safety, such provisions could be used to address environmental hazards. Montana's child care licensing statutes requires "local public health authorities [to] arrange to provide training to day-care center providers and employees regarding health hazards."[242] In Maine, statutory duties of the Office of Child Care and Head Start include coordinating development of a training system for child care providers and "promot[ing] cooperative relationships between public health organizations and child care programs."[243]

Other Education and Training. State laws may authorize or require child care licensing or other state agencies to provide training or develop guidance or educational materials related to potential environmental hazards in child care facilities. Maine's child care statute requires the Department of Health and Human Services to supply home day care providers with information on topics including "health and safety" and "physical premises safety." In Maryland, the Healthy Children's Health and Protection Advisory Council is charged with creating and promoting education programs, in partnership with health and environmental professionals, for parents and caregivers of children that include information on the potential health effects of environmental hazards and practical suggestions on how to reduce children's exposure to environmental hazards.[244]

A number of states authorize or require the creation of educational materials related specifically to pesticide use. For example, the Illinois Structural Pest Control Act authorizes the Department of Public Health to prepare a training program for day care center pest control specialists and to offer IPM training to day care centers. In California, the Department of Pesticide Regulation is charged

[240] 89 Il. Admin. Code 407.70 et seq.; 12 Co. Code Regs. 2509-8:7.707.2 et seq.; Wy. Code Rules 049-185-07 et seq., 049-185-08 et seq., 049-185-09. et seq.
[241] Ca. Health & Safety Code 1596.70 et seq.
[242] Mt. Code 52-2-701 et seq. Upon successful completion of the training the local public health authorities issue certificates to the providers and employees. In lieu of training, local public health authorities may elect to inspect facilities and issue certificates of approval to child-care center providers.
[243] 22 Me. Rev. Stat. 3740.
[244] 22 Me. Rev. Stat. 8301 et seq.; Md. Code, Health 13-1506.

with "[c]reating or modifying existing educational and informational materials on integrated pest management for the child day care setting" and "[m]aking the materials available to child day care facilities and establishing a process for systematically updating them" under the Healthy Schools Act.[245] New York's pesticide law requires the Departments of Environmental Conservation, Education, and Health jointly to develop guidance on pesticide alternatives to facilitate compliance with the state's child care law prohibiting application of pesticides at day care facilities.[246]

Technical Assistance. A number of states require or authorize the child care licensing agency to provide technical assistance or consultation to help applicants and/or licensees meet facility standards. For example, the North Dakota Department of Human Services is required to offer "technical assistance and support to individuals who want to establish a new [child care] program or expand existing capacity to include information on… facility design and furnishings." In Kentucky, the statute establishing the Healthy Start in Child Care Program requires the Cabinet for Health and Family Services to "train and educate child-care providers in health and safety" and "offer technical assistance to child care providers to upgrade quality in early child-care and education facilities."[247]

Requirements for state agencies to assist providers in navigating the licensing process can also be used to provide information about facility requirements and indoor environmental quality best practices. Massachusetts' child care licensing law directs the Department of Early Education and Care to assist applicants in meeting licensing standards as well as "other applicable state and local requirements relative to fire, safety, and zoning codes." In Ohio, the Director of Job and Family Services is responsible for providing consultation and technical assistance to day-care centers and day-care homes "to improve programs and facilities providing child care including, but not limited to, assistance in meeting [licensing standards]. North Carolina requires a representative from the Division of Child Development and Early Education Services to make an announced visit to child care homes upon receipt of a licensing application, in order to offer technical assistance and provide information about local resources. Other states, such as Oklahoma, offer technical assistance and/or consultations to assist licensed child care facilities in response to licensing violations or findings of non-compliance with regulatory standards.[248]

State child care licensing manuals can help communicate best practices for meeting general facility standards.

Many states publish manuals that set forth the licensing regulations and provide background and guidance related to the individual regulatory requirements that facilities must meet. These manuals

[245] Ca. Food & Agric. Code 13183.
[246] 225 Il. Comp. Stat. 235/10.2; Ca. Agric. Code 13183; N.Y. Envtl. Conserv. Law 33-0301 et seq.; N.Y. Soc. Serv. Law 390-G.
[247] Ky. Rev. Stat. 199.8945.
[248] Ma. Gen. Laws 15D, §8; Oh. Rev. Code 5104.06; 10-A N.C. Admin. Code 9.1700 et seq.; Ok. Admin. Code 340:110-1-1 et seq.

can be important tools for elaborating on specific practices for meeting general facility standards. Rhode Island authorizes the administrator of the child care licensing agency to: prepare and publish manuals and guides explaining the regulations to facilitate compliance; prepare reports and studies to advance the purpose of the child care laws and regulations; and provide consultation and technical assistance, as requested, to assist licensees in maintaining compliance.[249] Other states rely on more general regulatory authority to develop manuals explaining licensing requirements. For example, Michigan's child care licensing statute requires the Department of Human Services to "provide consultation to organizations covered by [the Child Care Organizations Act] to assist them in meeting the requirements of this act and the rules promulgated under this act. The department shall offer assistance, training, and education, within fiscal limitations, upon request, in developing methods for the improvement of service;" under this mandate, the department's Bureau of Children and Adult Licensing provides detailed Technical Assistance and Consultation Manuals for child care centers and family and group child care homes.[250]

Financial Assistance and Funding Opportunities. A number of states have enacted legislation or adopted regulations authorizing financial assistance or incentives that could be used to address potential environmental hazards in child care facilities. In addition to state laws and regulations that provide funding for specific issues covered in this report – for example, to help defray the cost of required lead-based paint abatement – some state legislatures have authorized direct grants to child care providers that may be used for facility improvement and/or achieving compliance with licensing regulations.

- In Maryland, for example, direct grants may be awarded as reimbursement for expenses incurred by a family child care home to comply with state and local regulations, including but not limited to: "[m]eeting local zoning, health and safety, or fire requirements applicable to family day care;" "[l]ead paint or asbestos abatement, testing, or control," and "[s]mall household repairs or alterations necessary to allow child care activities to take place or to ensure the safety of children in care."[251]

- New Jersey established a program to provide grants to child care centers from the Hazardous Discharge Site Remediation Fund for the costs of performing a preliminary environmental assessment in connection with the licensing process.[252]

- Minnesota authorizes child care services grants for "creating new licensed child care facilities and expanding existing facilities, including, but not limited to, supplies, equipment, facility renovation and remodeling."[253]

[249] R.I. Gen. Laws 42-72.1-3.
[250] Mi. Comp. Laws 722-114. The state's Technical Assistance and Consultation Manuals are available at http://www.michigan.gov/dhs/0,4562,7-124-5529_49572_49580---,00.html.
[251] Md. Code, Fam. Law 5-559.2; Md. Code Regs. 13A.14.07.03.
[252] N.J. Stat. 52:27D-130.7.
[253] Mn. Stat. 119B.19.

- New York State has established a "quality child care and protection fund" from which the commissioner of the Office of Children and Family Services is authorized to provide grants to child day care providers for "health and safety purposes" and for training of child day care provider staff.[254]

- In Connecticut, the state is authorized to provide financial assistance for equipment, program materials, and renovation and remodeling of physical facilities for non-profit child day care centers for children disadvantaged by reasons of economic, social, or environmental conditions.[255]

- California's Child Care and Development Services Act establishes a program to provide small grants to family day care homes "for minor capital outlay purchases for the repair and renovation of homes for the purpose of insuring compliance with state and local health and safety standards" and revolving loans with no interest to other child care facilities "to renovate and repair child care facilities to meet state and local health and safety standards."[256]

Some states have statutory provisions establishing financial assistance to support training and/or professional development activities, which could be used to advance training on issues relating to the facility's environmental conditions. For example, in Indiana, a special fund has been established "for the purpose of training and facilitating compliance with the enforcement" of child care regulations, while in Wyoming, the Department of Family Services is authorized to provide continuing education grants to child care facilities to assist the owners or staff in obtaining continuing education training.[257] Additionally, special treasury funds established in some states to advance the state child care program (often supported by fees and penalties collected by the licensing agency) might be sources of funding for facility-related improvements. In Hawaii, the child care licensing fund may be used for any purpose "deemed necessary by the department to ensure the health and safety of children."[258]

[254] N.Y. State Fin. Law § 97-www.
[255] Ct. Gen. Stat. 8-210.
[256] Ca. Educ. Code 8275 et seq.
[257] In. Code 12-17.2-2-3; Wy. Stat. 14-4-201 et seq.
[258] Hi. Rev. Stat. 346-159.

CHAPTER 13

Conclusion

Advances in scientific research have sharpened our understanding of how environmental exposures in the early years of life can affect children's health and development immediately and over time. Attention to indoor environmental quality in child care facilities can advance a core goal of early care and education: to give millions of children across the U.S. the healthy start in life they need to thrive and reach their full potential in school and beyond. Well-established facility practices can help prevent and address the indoor environmental exposures discussed in this report, and states have begun to lay the policy foundation for institutionalizing these best practices in licensed child care. Yet, as the preceding chapters have illustrated, there is considerable room for strengthening state laws and regulations. A combination of regulatory tools and non-regulatory initiatives can help ensure effective implementation of these new policies in all communities.

The State of State Policy: Indoor Environmental Quality at Child Care Facilities

This report provides a broad review of how state policy currently addresses a variety of environmental health issues in the child care context. The picture that emerges is one of progress in protecting children, along with significant gaps to fill.

On issues such as environmental tobacco smoke and lead-based paint, most states have taken steps to incorporate certain requirements and standards into their laws and regulations governing child care facilities. On other issues, state policy is in an earlier stage of development. Yet in each area covered in this report, most states can benefit from strengthening their policies. Only a few states address all of the environmental issues covered in the report, and no state addresses all of the issues comprehensively.

Nonetheless, existing state policy offers examples for other jurisdictions to consider in strengthening their child care, public health, and other laws and regulations to address key environmental exposures.

Environmental Tobacco Smoke. The serious health risks from exposure to secondhand smoke are well understood, and research has begun to characterize the risks from exposure to "thirdhand smoke" – the residual contamination from smoking that persists indoors even after cigarettes have been extinguished. All states prohibit or restrict smoking at child care facilities in some way, though only a small number currently prohibit smoking at all times for all types of licensed child care facilities. Existing models for strengthening state policy to reduce exposure to environmental tobacco smoke include prohibiting smoking during child care hours for all types of facilities and reducing thirdhand smoke exposures by extending the prohibition to smoking at all times in the facility and in cars used to transport children.

Radon. Radon, a naturally occurring, radioactive gas found in soil and rock, can enter buildings through cracks and other openings in the foundation. Indoor radon exposure is the second leading cause of lung cancer in the U.S. Several states have laws or regulations that address indoor radon exposure explicitly in the child care context. Many additional states have areas of high and moderate radon potential and can benefit from radon risk reduction policies. Existing models for strengthening state policy to address radon risks include requiring radon testing and mitigation in connection with the child care licensing process.

Carbon Monoxide Alarms. Exposure to elevated levels of carbon monoxide (CO), an odorless and colorless gas found in combustion fumes, can cause sudden illness and death. A majority of states now have CO alarm requirements for child care facilities in their fire or safety codes and/or in their child care regulations, although many of these requirements only apply to home-based facilities. Existing models for strengthening state policy to help prevent CO poisoning include requiring CO alarms in all types of licensed child care facilities that have potential sources of carbon monoxide exposure.

Mold/Dampness. Exposure to indoor mold and dampness is associated with a wide range of health effects, particularly respiratory symptoms and illnesses. Almost half of all states have a provision in their child care licensing regulations addressing mold/dampness or related conditions, though these provisions vary considerably. Existing models for strengthening state policy include establishing general facility standards related to mold and dampness; states can build on these standards by requiring providers to follow best practices for eliminating mold contamination and fixing the underlying moisture problem.

Ventilation/Temperature. Building ventilation is important not only for occupant comfort, but also for maintaining healthy indoor air quality by diluting and removing pollutants that are released indoors. Many states establish a general requirement that child care facilities have adequate or proper ventilation, and nearly all states establish minimum and maximum temperature standards. In addition to these measures, existing models for strengthening state policy include incorporating requirements for maintaining ventilation equipment and requiring ventilation in certain areas (e.g., bathrooms, kitchens) or during specified activities (e.g., art projects, cleaning) that may result in contaminant exposures. States can build on these existing models by requiring facilities to provide outdoor air during operating hours in accordance with state building codes and standards applicable to the facility.

Pesticides. The potential health effects from exposure to pesticides vary depending on the type of pesticide used, and may include skin and eye irritation, endocrine and nervous system damage, and cancer. A majority of states have adopted some type of regulatory requirement concerning exposure to pesticides in child care facilities, though only a handful of states require child care centers to develop integrated pest management (IPM) plans. In addition to requiring the use of IPM and directing providers to use pesticides only as a last resort, existing models for strengthening state policy include prohibiting the use of pesticides while children are present and requiring notice to parents/guardians prior to the application of pesticides.

Lead-Based Paint. Children's exposure to lead-based paint can result in a variety of serious health consequences, including stunted growth, lower IQ, and behavior and learning problems. A majority of states address lead-based paint hazards in child care facilities; most establish general facility standards, many provide authority for agency inspections of child care facilities where there are known or suspected hazards, and some have incorporated affirmative requirements for inspections or documentation in connection with licensing. Existing models for strengthening state policy to prevent lead poisoning include establishing clear facility standards and requiring providers to follow best practices in identifying and addressing lead hazards prior to licensing and during operation.

Asbestos. Asbestos exposure has been linked to serious health problems, including lung disease. At least one third of all states address asbestos in the child care setting. The most common approach is to establish general child care facility standards prohibiting asbestos hazards, though some states have adopted more comprehensive provisions, including inspections for and actions to address asbestos hazards, as well as notice to parents/guardians and staff. Existing models for strengthening state policy include establishing explicit requirements for following best practices for identifying and addressing potential asbestos hazards prior to licensing and during operation of the child care facility.

Other Chemical Exposures. Some states have incorporated into their child care licensing laws and regulations a variety of measures aimed at reducing children's exposure to certain potentially harmful substances. Many states restrict how or when chemicals are used – e.g., prohibiting cleaning, repairs, or construction activities while children are present, or requiring generally that chemicals are used in a way that will not constitute a hazard. While many states have general prohibitions on toxic materials or finishes in toys and equipment, few prohibit specific types of products (e.g., air fresheners or aerosols) or require the use of healthier products (e.g., art supplies or cleaning products). Existing models for strengthening state policy include requiring that chemicals are used outside of children's presence, prohibiting the use of products that diffuse airborne chemicals, and restricting the use of specific types of products that contain potentially harmful substances where safer alternatives are available.

Site/Location. Child care facilities may be affected by environmental contamination caused by a prior use of the facility site, or by a prior or current use of a nearby site. New Jersey has established detailed requirements for investigating and addressing potential environmental hazards connected with the site/location of child care centers, which may include an indoor environmental assessment. New York requires child daycare center license applicants to certify that the surrounding neighborhood and environment are free from environmental hazards, and several other states have general provisions prohibiting health or environmental hazards in the area of a child care facility. Existing models for strengthening state policy include integrating into the licensing process explicit requirements for identifying and addressing environmental hazards on the facility site or nearby sites that may impact a child care facility.

In addition to addressing the individual contaminants and practices discussed in this report, states can establish broader indoor environmental quality management practices. Some states already have provisions in their child care laws and regulations that could potentially be used to address a range of environmental exposures. For example, Connecticut requires some licensed facilities to establish a maintenance program to address health and safety hazards. Minnesota's licensing law requires child care centers to develop a risk management plan that identifies risks to children served by the center (including risks from the physical facility and the environment generally), establish procedures to minimize identified risks, train staff on the procedures, and annually review the procedures. In Vermont, child care regulations include a statement that early childhood programs "should check every day for health and safety hazards, taking immediate action whenever necessary; the regulations further direct providers to "take a preventive approach to health and safety, emphasizing positive practices that minimize the need for intervention, treatment, or corrective action by outside agencies."

Strategic Considerations for Future Policy and Program Development

Most states already have general authority under their child care licensing statutes to incorporate best practices for facility health and safety into their licensing regulations. Many states also have separate environmental health regulations applicable to child care facilities that are implemented through public health agency inspections and that could be strengthened to address indoor environmental quality conditions. In addition, most states have laws and regulations governing specific indoor environmental issues (e.g., environmental tobacco smoke, pesticides, lead-based paint, and carbon monoxide alarms) that can be strengthened to reduce exposures in child care facilities.

Short of adopting new or revised laws or regulations, states can make more focused use of general facility standards already included in most child care licensing regulations (e.g., requirements for facilities to be safe, sanitary, healthy, and/or free from hazards) to ensure that licensed facilities address environmental hazards. Some licensing agencies already have begun to use such general standards to incorporate more specific environmental health provisions into technical guidance manuals, inspections checklists, and other agency policy documents. And, as described in Chapter 12 and throughout this report, states have begun to develop significant non-regulatory initiatives to assist child care providers in identifying, preventing, and addressing environmental hazards.

Among the practical challenges to be addressed in strengthening environmental standards for child care facilities are the costs involved and the technical capacity needed for child care providers to meet the new requirements and for states to implement the policies.

Financial Capacity. Taking action to address certain issues discussed in this report (e.g., environmental tobacco smoke or CO alarms) imposes fairly minimal costs, while other issues may involve more significant expenditures for identifying and fixing problems (e.g., lead or asbestos). It is critical, however, that policymakers also consider the costs to children and families of *not* addressing environmental hazards with known impacts on health and learning. Public policy has a

vital role to play in ensuring that improved facility conditions benefit *all* children, not only those who attend facilities that already have the technical and financial resources to reduce asthma triggers and other environmental exposures.

State policies can incorporate mechanisms for assisting providers who serve lower-income communities and lack the funds to identify and address environmental hazards. As described in Chapter 12, some states have laws authorizing grants to child care providers to make facility improvements or to comply with state regulatory requirements. Many states have other types of funding programs (e.g., site cleanup, lead-based paint abatement, or general housing rehabilitation/repair) that might be used or expanded to support child care facility improvements. At least one state is using its quality rating improvement system to link financial incentives and environmental health best practices, and another has implemented a pilot project to provide radon mitigation services for child care facilities.

State and local agencies face budget challenges of their own in implementing environmental health requirements if those requirements necessitate additional staffing capacity and/or training. State (and local) agencies need resources for oversight activities such as facility inspections, management of reporting requirements, compliance assistance efforts, and enforcement actions. Given the number of agencies that play a role in overseeing child care facility requirements, states may be able to leverage scarce resources by strengthening coordination among state and local agencies that have inspection and oversight responsibilities. Coordination among licensing, environmental health, and other state programs can help leverage technical support on issues ranging from lead based paint to radon and mold.

Technical Capacity. Child care providers must comply with a wide range of requirements in order to obtain and maintain a license. Depending on the specific issue, new indoor environmental requirements may add a layer of complexity to operating the program. Addressing some issues will involve a one-time action or a policy on the part of the provider (e.g., environmental tobacco smoke or radon), while other issues will require ongoing attention (e.g., pesticides, mold/dampness, or ventilation) and may require new knowledge on the part of providers.

There are a variety of ways that states can facilitate compliance with regulatory requirements and advance best practices related to indoor environmental quality. One approach already taken by some states is to develop manuals that compile regulatory requirements and provide further interpretive guidance and background. Licensing agencies might also consider developing materials that focus specifically on indoor environmental quality, collecting in one place all relevant regulatory requirements, along with agency explanations, best practices, and references to outside resources. Many agencies have developed educational materials describing specific types of environmental health requirements, such as integrated pest management.

The training and professional development requirements found in most state child care regulations offer additional opportunities for changing facility practices. By incorporating an indoor environmental quality component in these educational requirements (e.g., as part of the broader

health and safety category typically required), states can raise awareness of how existing regulations address environmental hazards and educate providers on best practices for reducing risks to children and staff. As described throughout this report, many state agencies have developed educational materials to encourage and assist providers in addressing topics not yet covered by regulations, such as "green cleaning" or vehicle idling.

Future policy research can promote healthy child care environments by identifying effective models for leveraging the financial and technical resources needed to implement best practices for preventing and addressing environmental hazards.

APPENDIX

Where to Find State Statutes and Regulations Online

Child care licensing statutes and regulations can usually be found on the website of the state child care licensing agency. Child care licensing and other state statutes and regulations discussed in this report can also be found on the following state websites.

ALABAMA
Statutes: http://alisondb.legislature.state.al.us/acas/codeofalabama/1975/coatoc.htm
Regulations: http://www.alabamaadministrativecode.state.al.us/alabama.html

ALASKA
Statutes: http://www.legis.state.ak.us/basis/folio.asp
Regulations: http://www.legis.state.ak.us/basis/aac.asp#23TitleTable

ARIZONA
Statutes: http://www.azleg.gov/ArizonaRevisedStatutes.asp
Regulations: http://www.azsos.gov/public_services/table_of_contents.htm

ARKANSAS
Statutes: http://www.lexisnexis.com/hottopics/arcode/
Regulations: http://www.sos.arkansas.gov/rulesRegs/Pages/default.aspx

CALIFORNIA
Statutes: http://leginfo.legislature.ca.gov/faces/codes.xhtml
Regulations: http://www.oal.ca.gov/ccr.htm

COLORADO
Statutes: http://www.lexisnexis.com/hottopics/colorado/
Regulations: http://www.sos.state.co.us/CCR/Welcome.do

CONNECTICUT
Statutes: http://www.cga.ct.gov/2013/pub/titles.htm
Regulations: http://www.sots.ct.gov/sots/cwp/view.asp?a=4431&q=520270

DELAWARE
Statutes: http://delcode.delaware.gov
Regulations: http://regulations.delaware.gov/AdminCode/

FLORIDA
Statutes: http://www.leg.state.fl.us/statutes/
Regulations: https://www.flrules.org/

GEORGIA
Statutes: http://www.lexisnexis.com/hottopics/gacode/
Regulations: http://rules.sos.state.ga.us/cgi-bin/page.cgi

HAWAII
Statutes: http://www.capitol.hawaii.gov/
Regulations: http://ltgov.hawaii.gov/the-office/administrative-rules/

IDAHO
Statutes: http://legislature.idaho.gov/idstat/TOC/IDStatutesTOC.htm
Regulations: http://adminrules.idaho.gov/rules/current/

ILLINOIS
Statutes: http://www.ilga.gov/legislation/ilcs/ilcs.asp
Regulations: http://www.ilga.gov/commission/jcar/admincode/titles.html

INDIANA
Statutes: https://iga.in.gov/legislative/laws/2014/ic/
Regulations: http://www.in.gov/legislative/iac/

IOWA
Statutes: https://www.legis.iowa.gov/law
Regulations: https://www.legis.iowa.gov/law/administrativeRules/agencies

KANSAS
Statutes: http://kslegislature.org/li_2014/b2013_14/statute/
Regulations: http://www.kssos.org/pubs/pubs_kar.aspx

KENTUCKY
Statutes: http://www.lrc.ky.gov/statutes/
Regulations: http://www.lrc.state.ky.us/kar/frntpage.htm

LOUISIANA
Statutes: http://www.legis.la.gov/legis/LawSearch.aspx
Regulations: http://www.doa.louisiana.gov/osr/lac/books.htm

MAINE
Statutes: http://legislature.maine.gov/statutes/
Regulations: http://www.maine.gov/sos/cec/rules/

MARYLAND
Statutes: http://mgaleg.maryland.gov/webmga/frmStatutes.aspx?pid=statpage&tab=subject5
Regulations: http://www.dsd.state.md.us/comar/

MASSACHUSETTS
Statutes: https://malegislature.gov/laws/generallaws
Regulations: http://www.mass.gov/courts/case-legal-res/law-lib/laws-by-source/cmr/

MICHIGAN
Statutes: http://www.legislature.mi.gov/
Regulations: http://www.michigan.gov/lara/0,4601,7-154-35738_5698---,00.html

MINNESOTA
Statutes: https://www.revisor.mn.gov/statutes/
Regulations: https://www.revisor.mn.gov/rules/

MISSISSIPPI
Statutes: http://www.lexisnexis.com/hottopics/mscode/
Regulations: http://www.sos.ms.gov/Admincodesearch/

MISSOURI
Statutes: http://www.moga.mo.gov/mostatutes/statutesAna.html
Regulations: http://www.sos.mo.gov/adrules/csr/csr.asp

MONTANA
Statutes: http://leg.mt.gov/bills/mca_toc/index.htm
Regulations: http://www.mtrules.org

NEBRASKA
Statutes: http://nebraskalegislature.gov/laws/laws.php
Regulations: http://www.sos.ne.gov/rules-and-regs/

NEVADA
Statutes: https://www.leg.state.nv.us/law1.cfm
Regulations: https://www.leg.state.nv.us/law1.cfm

NEW HAMPSHIRE
Statutes: http://www.gencourt.state.nh.us/rsa/html/nhtoc.htm
Regulations: http://www.gencourt.state.nh.us/rules/about_rules/about_rules.htm

NEW JERSEY
Statutes: http://www.njleg.state.nj.us
Regulations: http://www.state.nj.us/oal/rules.html

NEW MEXICO
Statutes: http://www.nmonesource.com/nmnxtadmin/nmpublic.aspx
Regulations: http://164.64.110.239/nmac/

NEW YORK
Statutes: http://public.leginfo.state.ny.us/menugetf.cgi?COMMONQUERY=LAWS
Regulations: http://www.dos.ny.gov/info/nycrr.html

NORTH CAROLINA
Statutes: http://www.ncleg.net/gascripts/statutes/statutes.asp
Regulations: http://reports.oah.state.nc.us/ncac.asp

NORTH DAKOTA
Statutes: http://www.legis.nd.gov/general-information/north-dakota-century-code
Regulations: http://www.legis.nd.gov/agency-rules/north-dakota-administrative-code

OHIO
Statutes: http://codes.ohio.gov
Regulations: http://codes.ohio.gov

OKLAHOMA
Statutes: http://www.oklegislature.gov/osstatuestitle.html
Regulations: http://www.oar.state.ok.us/

OREGON
Statutes: https://www.oregonlegislature.gov/bills_laws/Pages/ORS.aspx
Regulations: http://arcweb.sos.state.or.us/pages/rules/access/numerically.html

PENNSYLVANIA
Statutes: http://www.legis.state.pa.us/cfdocs/legis/LI/Public/cons_index.cfm
Regulations: http://www.pacode.com/index.html

RHODE ISLAND
Statutes: http://webserver.rilin.state.ri.us/Statutes/
Regulations: http://sos.ri.gov/rules/

SOUTH CAROLINA
Statutes: http://www.scstatehouse.gov/code/statmast.php
Regulations: http://www.scstatehouse.gov/coderegs/statmast.php

SOUTH DAKOTA
Statutes: http://legis.sd.gov/statutes/
Regulations: http://legis.sd.gov/Rules/RulesList.aspx

TENNESSEE
Statutes: http://www.lexisnexis.com/hottopics/tncode/
Regulations: http://www.tn.gov/sos/rules/

TEXAS
Statutes: http://www.statutes.legis.state.tx.us
Regulations*:* http://www.sos.state.tx.us/tac/

UTAH
Statutes: http://le.utah.gov/Documents/code_const.htm
Regulations: http://www.rules.utah.gov

VERMONT
Statutes: http://legislature.vermont.gov/statutes/
Regulations: http://www.lexisnexis.com/hottopics/codeofvtrules/

VIRGINIA
Statutes: https://leg1.state.va.us/000/src.htm
Regulations: http://leg1.state.va.us/cgi-bin/legp504.exe?000+men+SRR

WASHINGTON
Statutes: http://apps.leg.wa.gov/rcw/
Regulations: http://apps.leg.wa.gov/wac/

WEST VIRGINIA
Statutes: http://www.legis.state.wv.us/wvcode/code.cfm
Regulations: http://apps.sos.wv.gov/adlaw/csr/

WISCONSIN
Statutes: http://legis.wisconsin.gov/rsb/stats.html
Regulations: http://legis.wisconsin.gov/rsb/code.htm

WYOMING
Statutes: http://legisweb.state.wy.us/titles/statutes.htm
Regulations: http://soswy.state.wy.us/rules/