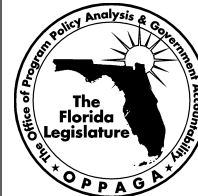




Office of Program Policy Analysis And Government Accountability



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Follow-Up Report on Florida's Indoor Air Quality Programs

Abstract

Since our previous report, state agencies generally have continued to control health risks caused by indoor air pollutants in workplace environments. However, concern has been raised about radon in homes, schools and certain care facilities.

Purpose

In accordance with state law, this follow-up report informs the Legislature of actions taken by the Department of Health in response to our 1997 report.^{1,2} This report presents our assessment of the extent to which the state agencies have addressed the findings and recommendations included in our 1997 report.

Background

Comparative risk studies uniformly rank indoor air quality among the top environmental risks to public health.³ Indoor air contaminants can cause short-and long-term health problems such as cancer, lung diseases, and other respiratory problems. Infants, young children, and the elderly are especially vulnerable to some of these contaminants. In addition, most people spend about 90% of their time indoors and are therefore potentially exposed to more indoor air contaminants than ambient (outdoor) air pollution.

The health risks associated with poor indoor air quality in the workplace are managed by attempting to eliminate or limit exposure to known contaminants. When scientific testing reveals and can quantify risks,

federal or state governments may establish standards for human exposure. For example, when testing found a relationship between asbestos and cancer, federal and state governments reduced risk from exposure by promulgating standards and instituting programs for asbestos removal where exposure and risk is highest. Many unregulated contaminants pose some risks to public health.

Prior Findings

In our initial report, we found that while Florida has developed regulations to reduce health risks caused by exposure to second-hand tobacco smoke, radon, and asbestos, other lesser known indoor air contaminants such as biological agents and volatile organic compounds may also create public health risks. Long-term or repeated exposure to these pollutants in high concentration can lead to severe respiratory and other health problems. The state generally uses technical assistance and guidance to reduce risk as opposed to instituting new regulations.

The state's primary vehicle for addressing indoor air problems is the Indoor Air Program of the Department of Health in affiliation with county health units. This program responds to public indoor air complaints, provides employers with guidance for correcting indoor air problems, and provides information and education on indoor air issues. In addition to the Department of Health, six other state agencies address indoor air quality issues.⁴ We concluded that these agencies had little or no duplication of services and that they collaborated on their efforts.

¹ Section 11.445 (7)(f), F.S.

² Review of Florida Indoor Air Quality Programs, [Report No. 96-32](#), January 9, 1997.

³ The U.S. Department of Environmental Protection and the Florida Center for Public Management conducted these studies.

⁴ The Department of Management Services resolves indoor air quality problems in state buildings; the Department of Community Affairs develops state buildings codes and standards; the Department of Labor and Employment Security investigates workplace-related indoor air quality problems; the Department of Education improves indoor air quality of schools; the Department of Corrections identifies and investigates indoor air problems in correctional institutions; and the Department of Business and Professional Regulation identifies and investigates indoor air problems in state license facilities.

While state actions were managing risks, state liability was increasing and thus we recommend that this situation should be monitored. In 1994, the Legislature required the Department of Management Services to study indoor air quality. In the report, the department cited the increasing number of lawsuits, injuries, and financial settlements resulting from poor indoor air as a reason for concern. Further, the Department of Labor and Employment Security, which oversee workers' compensation claims, estimated that between 1990 and 1994 the annual number of claims indicative of lung or respiratory problems increased from 2 to 65.

Despite the increase of claims, total financial payments related to these claims were relatively low. Between 1990 and 1994, the state paid about \$1.5 million on claims indicative of lung or respiratory problems. This figure represents about 0.03% of the \$4.5 billion paid in total state compensation for the same period.

Extensive testing and modification would not be cost effective given the relative low risk of indoor air quality problems in state buildings. Estimates by the Indoor Air Quality Committee, formed by the Legislature, determined that an initial one-time testing of indoor air quality in all state buildings would exceed \$50 million with annual testing being \$3.2 million. In addition, the committee estimated that annual remediation costs would exceed \$12.1 million.

Current Status

Since our previous report, state agencies generally have continued to control health risks posed by indoor air pollution in workplace settings. However, of the various types of indoor air pollutants previously addressed, the Department of Health reports that elevated radon levels are being reported in recently built homes and that it continues to exist in some schools and specified care facilities. Radon was not specifically analyzed in our previous report because existing data on radon were not available at that time. As one of the indoor air contaminants, radon increases the risk of lung cancer when inhaled long-term.

Prevention and problem-solving efforts have continued. As we recommended, state agencies continue to use cost-effective indoor air prevention and problem-solving measures. The Department of Labor and Employment Security reported making 229 site visits related to indoor air quality between July 1, 1996, and January 1, 1998. Generated by employee complaints or employer requests, the site visits lead to recommendations that abate indoor air quality problems.

The department also continues to use technical assistance and educational sessions to reduce indoor air

problems. Private and public entities are offered regional symposiums, EPA Indoor Air Guides, and publications to help assess indoor air quality and address indoor air issues. Finally, the department reports that it has maintained its indoor air quality task force to assist in indoor air quality improvements.

Claims suggesting poor indoor air remain relatively low. As we recommended, the Department of Labor and Employment Security continues to monitor workers' compensation information related to poor indoor air quality.⁵ In 1995, the department recorded 59 claims indicative of lung or respiratory problems, costing about \$760,000. In 1996, it recorded 68 claims, costing about \$600,000.⁶ (See Exhibit 1.) Based on the relatively low number of claims indicative of lung or respiratory problems, we conclude that additional regulations to control public health risk associated with indoor air quality are unnecessary at this time.

Exhibit 1
Claims For Injuries Indicative of Lung or Respiratory Problems Between 1990-96

Calender Year	Cost of Claims (Per Year)	Number of Claims (Per Year)	Average Cost Per Claim
1990	\$ 236,800	2	\$ 118,400
1991	187,800	4	46,950
1992	391,300	25	15,652
1993	243,000	41	5,927
1994	404,490	65	6,223
1995	761,870	59	12,913
1996	606,137	68	8,913
Total	\$2,831,397	264	\$214,978

Source: Department of Labor and Employment Security

Homes have been found with elevated radon concentrations. Since our previous report, the Department of Health has provided initial data about radon. It reports that housing units built over the last five years have been found with elevated radon levels. The department reviewed radon measurement data on 2,437 residential housing units built beginning January 1993 through December 1997 and found that 337 or 13.7% had radon concentration at or above levels where the U.S. Environmental Protection Agency

⁵ The Department of Labor and Employment Security's Division of Worker's Compensation does not have a specific category for illness or injury related to indoor air. The information presented in the table is based on the division's review of claims completed for three nature-of-injury codes; respiratory disorders, all other occupational disorders, all other occupational diseases, and all other cumulative injuries.

⁶ The most recent year for which data is available was 1996.

(EPA) recommends taking corrective action. The department attributes elevated radon levels to recent building codes and construction practices being inadequate and to local governments failing to adopt radon-resistant construction standards established by 1995 legislation to address this problem.

Mitigation actions are being taken to reduce radon levels in housing units. The department states that mitigation companies have reported performing corrective action on approximately 2,311 buildings including the homes constructed between January 1993 and December 1997. Certified mitigation contractors are required to report corrective action to reduce radon to the department. The department certifies persons to measure for radon and performs mitigation actions for buildings. Presently, there is no legislation to test or mitigate radon levels in residential housing units, so many homeowners and some builders do so voluntarily.

Although the department reports that elevated radon concentrations are being found, we conclude that health risks are generally being addressed within housing units. While the department recorded 337 homes built between January 1993 and December 1997 with elevated radon levels, voluntary testing and mitigation actions have been performed on approximately 2,311 buildings of all ages over the same period.

Schools and care facilities continue to operate with elevated radon levels. The department also reports that some schools and care facilities continue to have radon concentration at levels that need corrective action. It states that test samples indicate that some schools, state-supported 24-hour care facilities, and daycare centers have not reduced known elevated radon concentration. Its primary concern is that many of these buildings have operated for years with elevated radon concentration without completing mitigation projects. Long-term exposure to radon has been connected to respiratory problems.

The number of schools and specified care facilities with elevated radon levels is not known. The department reports that although most schools and care facilities submitted radon measurements as required, the precise number of these buildings with elevated radon levels is unknown because test results have not been recorded completely. It attributes the problems to funding and staff reductions. Florida statutes require schools and specified care facilities to report test results to the department at five-year intervals, beginning in 1990. If it receives a grant from the EPA, the department believes that staff will be available in Fiscal Year 1999-2000.

The precise number of schools and care facilities taking corrective action is also unknown. The department states that at this time it cannot identify the precise number of schools and specified care facilities underway with radon mitigation actions because staff reductions have prevented mitigation data from being completely recorded, schools performing their own mitigation are not required to report their actions, and reporting of radon by certified radon mitigation companies was not a legislative requirement until 1998.

Conclusions and Recommendations

Now that data regarding radon levels is becoming available, we recommend that the Department of Health complete data entry and analysis of radon measurements and mitigation information. Based on interviews with legislative committee members and legislator staff, we find that lawmakers need clear and convincing findings on health risks created by elevated radon levels.⁷ We conclude that the department's information would assist the legislature in understanding risks posed by radon in schools and specified care facilities and provide understanding of current efforts to reduce health threats.

We also conclude that schools and care facilities performing their own mitigation should be required to report to the Department of Health. This data is necessary to more accurately identify the number of sites reducing radon concentration, and when exceedances have occurred, it will ensure that these facilities are monitored for corrective action. In general, after mitigation has been completed, we recommend that information on corrective action be submitted along with measurement results.

⁷ During the 1998 session, Senate Bill 2154 included language to amend requirements for mandatory radon testing in schools and certain health care buildings. However, the bill did not pass out of the Committee on Education.

Agency Response

Three agencies responded to this follow-up report and summaries of those letters are included below. Complete copies of the letters are on file at OPPAGA and are available upon request.

Department of Education

- The Department of Education agrees with OPPAGA's conclusions and recommendations which recommend that schools performing their own mitigation should be required to report to the Department of Health. The department believes that this would facilitate tracking from the initial radon reports to the mitigation and follow-up testing. The department is also recommending changes that would allow schools to discontinue retesting for radon after two rounds of testing showing either no evidence or an insignificant level of radon.

Department of Health

- The Department of Health agrees with our findings that, from a sample of 2,437 residential housing units built between January 1993 and December 1997, almost 14% had elevated radon and that this problem was the result of current building codes and practices being inadequate. The department also believes that, during the same period, there were a large number of other new residential units built with elevated levels of radon as well. Furthermore, it believes that although our report clearly details the indoor air quality related costs for workers' compensation claims, it does not acknowledge the other costs in the government and private sector associated with poor indoor air

quality. These other costs relate to litigation, relocation, employee moral, productivity, absenteeism, and health insurance and the department concedes some of those costs are difficult to quantify.

Department of Labor and Employment Security

- The Department of Labor and Employment Security reports that it continues to provide safety and health assessment services and technical assistance in response to employee complaints regarding indoor air quality hazards. It also continues to respond to requests for consultative services from employers. Further, the department reports that it continues to review workers' compensation data to determine whether indoor air quality services are meeting customers' needs. The department emphasized that caution should be used in interpreting its workers' compensation claims data as it relates to indoor air quality. In general, the department's claims data file does not have a specific category for illnesses or injury directly related to indoor air. The department instead uses specific respiratory illness categories that may or may not be affected by indoor air quality.

Nevertheless, the department reports that indoor air quality problems are essentially the same as first indicated in OPPAGA's report issued on January 9, 1997, and that no changes in recommendations are necessary at this time.

OPPAGA provides objective, independent, professional analyses of state policies and services to assist the Florida Legislature in decision making, to ensure government accountability, and to recommend the best use of public resources. Copies of this report may be obtained by telephone (850/488-0021 or 800/531-2477), by FAX (850/487-3804), in person (Claude Pepper Building, Room 312, 111 W. Madison St.), or by mail (OPPAGA Report Production, P.O. Box 1735, Tallahassee, FL 32302).

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