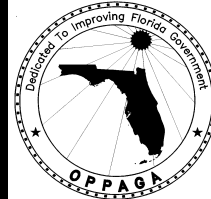




Office of Program Policy Analysis And Government Accountability



John W. Turcotte, Director

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Review of Florida's Indoor Air Quality Programs

Report Abstract

- Although indoor air problems pose public health risks, present state action appears to adequately address the largest known risks.
- The effects of other common indoor air pollutants cannot be accurately estimated due to the difficulties in identifying the specific causes of building-related illness.
- Florida's current programs for addressing indoor air pollution are a cost-effective response to these public health concerns. However, should the risks associated with indoor air contaminants increase, legislative actions may be necessary.

Purpose of Review

The Joint Legislative Auditing Committee directed OPPAGA to review Florida's Air Quality Management Programs. In this review, we evaluated Florida's management of risks associated with indoor air quality. Specifically, we addressed the following questions:

- Is the state effectively controlling the risks associated with indoor air quality?
- Are additional laws or regulations needed?

For our assessment of Florida's Outdoor Air Quality Programs see Report No. 96-33.

Background

Comparative risk studies uniformly rank indoor air quality among the top environmental risks to public health.¹ 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. Additionally, 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 are managed by attempting to eliminate or limit exposure to known contaminants. When scientific testing demonstrates and can quantify risks, federal and 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.

¹ These studies were conducted by the Environmental Protection Agency and the Florida Center for Public Management.

Findings

While the state has established regulations to manage the most serious indoor air risks, other unregulated pollutants may also pose health risks.

Current regulation reduces risks associated with indoor air contaminants. The scientific community generally recognizes three of the biggest risks to public health resulting from poor indoor air are from tobacco smoke, radon, and asbestos. The U.S. Environmental Protection Agency (EPA) estimates 3,000 annual lung cancer deaths are caused by exposure to second-hand tobacco smoke. In addition, the EPA estimates between 7,000 and 30,000 annual lung cancer deaths from radon exposure. An estimated 1.3 million workers in construction and general industry are exposed to asbestos. In 1994, there were over 17,000 lung cancer deaths attributed to inhalation of carcinogens, such as asbestos, in the workplace.

Federal regulations exist to reduce the risks associated with second-hand tobacco smoke, radon, and asbestos, three high-risk pollutants. Title 41 of the Code of Federal Regulations regulates smoking in public spaces. The federal government also regulates most aspects of asbestos production and use. For example, the Occupational Safety and Health Administration has established standards for worker safety, and the EPA has established procedures to control asbestos emissions. Additionally, the Indoor Radon Abatement Act regulates exposure to radon by establishing a mechanism for testing homes, schools, and federal buildings for radon.

Florida has also developed regulations to reduce health risks caused by exposure to second-hand tobacco smoke, radon, and asbestos. Chapter 386, Part II, F.S., the Florida Clean Indoor Air Act, bans smoking in public buildings, which creates public places free of tobacco smoke. Additional legislation, s. 404.056, F.S., protects the public health by reducing human exposure to radon, a harmful environmental radiation. This legislation establishes a coordinating council on radon protection, initiates a public information program, institutes mandatory testing in schools and day care facilities, and requires notification on real estate documents. Third, s. 255.552, F.S., establishes the Asbestos Management Program to safely manage all asbestos-containing material in state owned buildings.² **While other unregulated contaminants pose some risks, those risks cannot be accurately estimated.**

² See Office of Program Policy Analysis and Government Accountability Report No. 94-49, Review of the Asbestos Management Program Administered by the Department of Labor and Employment Security, issued May 24, 1995.

Other common indoor air contaminants such as biological agents and volatile organic compounds also create public health risks. Biological agents are bacteria, fungus, mold, and mildew that usually result from improperly maintained air conditioners and air ducts. Volatile organic compounds (VOCs) are compounds containing carbon and hydrogen resulting from various cleaning solvents, paints, pesticides, and aerosol sprays. Long-term or repeat exposure to these pollutants in high concentrations can lead to severe respiratory and other health problems.

Accurately estimating risks from these lesser known contaminants is complicated by the interaction of multiple elements. Indoor air pollution produced by contaminants such as biological organisms, building materials, cleaning agents, and pesticides are less understood than currently regulated contaminants. These elements may act in combination with other factors such as inadequate temperature or humidity control, to worsen air quality problems. Thus, identifying the cause of indoor air contaminants associated with poor indoor air is very difficult. Consequently, while these contaminants may pose some risks, the state cannot accurately estimate those public health risks.

Given the inability to accurately estimate health risks, state actions have focused on providing technical assistance and guidance rather than instituting new regulation.

The state addresses the lesser-known indoor air contaminants and the risks they pose through several programs. The state's primary vehicle for addressing indoor air problems is the Indoor Air Toxics Program of the Department of Health (formerly the Department of Health and Rehabilitative Services). 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. The program received a general revenue appropriation of \$360,000 in fiscal year 1994-95 and \$336,000 in fiscal year 1995-96. These funds are distributed to county health departments in the form of matching grants. Program officials believe they are generally able to respond to calls for assistance on indoor air problems.

In addition, six other state agencies implement indoor air-related activities. (See Exhibit 1.) These activities range from establishing specifications for building designs intended to reduce the possibility of indoor air contaminants causing health problems, to inspecting and testing sites with suspected air quality contamination. In addition these agencies provide

public outreach activities such as producing guidance documents, and providing education and technical assistance. Several agencies offer indoor air consulting and advisement to the general public, employers and building owners and operators. Additionally, agencies have recently created and updated procedures and policies to more adequately address indoor air issues. These agencies have little or no duplication of service or program jurisdiction and collaborate their efforts.

Exhibit 1
Several State Agencies Implement
Indoor Air Related Activities

| Agency (Department of) | Agency Role Related to Indoor Air Quality |
|---|---|
| <i>Health</i> | Administer the Florida Clean Indoor Act |
| <i>Management Services</i> | Resolve indoor air quality problems in state buildings |
| <i>Community Affairs</i> | Develop state building codes and standards |
| <i>Labor and Employment Security</i> | Investigate workplace-related indoor air quality problems |
| <i>Education</i> | Improve indoor air quality of schools |
| <i>Corrections</i> | Identify and investigate indoor air problems in correctional institutions |
| <i>Business and Professional Regulation</i> | Identify and investigate indoor air problems in state-licensed facilities |

Source: Developed by the Florida Legislature, Office of Program Policy Analysis and Government Accountability.

Current state measures are consistent with Environmental Protection Agency policy. Presently, the EPA is committed to fully explore the potential for voluntary actions and preventive approaches to control indoor air quality before using additional mandatory programs. EPA policy indicates research and nonregulatory approaches can offer effective strategies for reducing exposure to indoor air pollutants and that mandatory guidelines are premature until the successes of voluntary programs have been evaluated. Current state measures are not relying on additional regulation but attempt to prevent indoor air quality problems through education, voluntary actions, and technical assistance.

Although current state efforts are managing risks, state liability is increasing and should be monitored to insure total workers' compensation claims remain relatively low.

While state actions appear appropriate indoor air quality concerns remain and should be monitored.

In 1994, the Legislature required the Department of Management Services, in conjunction with other state agencies, to study indoor air quality and report to them in January 1995. In its report, the Department identified an increasing number of lawsuits, injuries, and financial settlements resulting from poor indoor air as a cause for concern. The Florida Department of Labor and Employment Security is responsible for overseeing workers' compensation claims. Its best estimate is that between 1990 and 1994 the annual number of settled claims related to indoor air pollution increased from 2 to 65.³ (See Exhibit 2.)

Exhibit 2
The Estimated Number of Workers' Compensation
Claims Related to Indoor Air Quality
Increased Annually Between 1990 and 1994¹

| 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 |
| Average | \$292,678 | 27 | \$ 10,682 |

¹1994 is the most recent year for which data are available.

Source: Developed by the Florida Legislature, Office of Program Policy Analysis and Government Accountability from Department of Labor and Employment Security data.

³ The Department of Labor and Employment Security's Division of Workers' 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 indoor air quality claims completed for three nature-of-injury codes; respiratory disorders, all other occupational diseases, and all other cumulative injuries.

While indoor air problems have increased workers' compensation claims, total financial payments related to these claims are still low. Payments for claims related to indoor air between 1990 and 1994 are approximately \$1.5 million (an average of approximately \$300,000 per year) representing approximately 0.03% of the total compensation payments. (See Exhibit 2.) Between 1990 and 1994, the state spent approximately \$4.5 billion in total workers' compensation payments or benefits.

Given the relatively low risk of indoor air quality problems in state-owned buildings, extensive testing and modifications would not be cost-effective. It is extremely costly to identify and correct for the risks associated with indoor air contamination. Estimates by the Indoor Air Quality Committee for an initial one-time testing of indoor air quality in all state buildings would exceed \$50 million. Furthermore, the estimated cost for annual testing, after the initial testing, would exceed \$3.2 million and estimated annual remediation costs would exceed \$12.1 million. The Indoor Air Quality Committee, formed at the request of the Legislature, assists the Department of Management Services in determining the extent of indoor air quality problems in state-owned buildings. The Committee is comprised of environmental specialists, architects, engineers, and others with indoor air expertise from state agencies and other entities.

Conclusions and Recommendations

State actions have reduced the risks associated with indoor air contaminants. Identifying and correcting indoor air quality problems for currently unregulated contaminants is both difficult and extremely expensive. Current conditions related to indoor air problems do not appear to warrant additional regulation or costly testing and remediation of state buildings.

We recommend continued use of current indoor air prevention and problem-solving measures being

implemented by state agencies. State agencies should continue to monitor indoor air quality problems to ensure that state efforts continue to effectively protect public health. In addition, the Department of Labor and Employment Security should closely monitor workers' compensation claims related to poor indoor air quality.

Agency Response

The Florida Department of Health expressed concerns that it may be premature to conclude that present actions adequately address the largest known health risks from indoor air problems. The Department does agree that continued use of existing prevention and problem solving measures is effective, but indicated that additional financial support is needed to fund additional local county health department responses, increase training, and create a statewide indoor air quality service delivery mechanism.

The Florida Department of Labor and Employment Security, in response to this report, agrees with the findings and recommendations. The Department, however, cautions that the current claims data is only a "best guess" for claims related to indoor air quality and should not be used to define total claims or costs.

This project was conducted in accordance with applicable evaluation standards. Copies of this report may be obtained by telephone (904/488-1023 or 800/531-2477), by FAX (904/487-3804), in person (Claude Pepper Building, Room 312, 111 W. Madison St.), or by mail (OPPAGA Report Production, P.O. Box 1735, Tallahassee, FL 32302).

Web site: <http://www.state.fl.us/oppaga/>

Project Supervised by: Julie Ferris (487-4256)

Project Conducted by: Bob Dahlstrom (487-9271)
Lyndon Rodgers (487-3805)