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Maintaining Safe Indoor Air Quality in State Occupied Buildings

Indoor Air Quality Facts and Figures

- People spend an estimated 90% of their time indoors.
- Environmental Protection Agency (EPA) studies have shown that the level of airborne pollutants may be 25-100 times higher indoors than outdoors.
- Occupational Safety and Health Administration (OSHA) estimates that approximately one out of three Americans who work in non-industrial buildings such as schools, offices, and hospitals, are exposed to poor air quality in their workplaces.

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Indoor Air Quality Facts and Figures

- National Institute for Occupational Safety and Health (NIOSH) recently reviewed approximately 500 indoor air quality investigations and found that the primary sources of indoor air quality problems were due to:
  - Inadequate ventilation 52%
  - Contamination from inside building 16%
  - Contamination from outside building 10%
  - Microbial contamination 5%
  - Contamination from building 4%
  - Unknown sources 13%

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Indoor Air Quality Facts and Figures

- 80-90% of most people's exposure to insecticides occurs indoors.
- Exposure to dust mites, cat saliva, animal dander, and mold is estimated to cause at least 200,000 emergency room visits by asthma patients each year.
- Indoor air pollution consistently ranks among the top five environmental risks to public health.

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Indoor Air Quality Facts and Figures

- Over 50 million Americans suffer from allergies.
- 15 million American suffer from asthma.
- Health care costs for acute respiratory infections total $30 billion annually.
- These respiratory infections result in approximately $35 billion in sick leave, plus restricted activity at work.

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Indoor Air Quality Facts and Figures

- World Health Organization (WHO) 2009 Guidelines for Indoor Air Quality – Dampness and Mold state:
  - Moisture problems are estimated to affect 10-50% of indoor air environments in Europe, North America, Australia, India, and Japan.
  - Apart from entry during occasional events (such as water leaks, heavy rains, and flooding), most moisture enters a building in incoming air, including air that infiltrates through the building envelope; or that resulting from occupants' activities.
  - Health problems associated with moisture affect people with asthma; especially children, in whom the prevalence of asthma has increased about 20% in some countries.

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Indoor Air Quality Facts and Figures

- U.S. Department of Energy (DOE) studies suggest that improving building and indoor environments could reduce health care costs and sick leave, and increase worker performance resulting in an estimated productivity gain of $30-$150 billion annually.
- The DOE further estimates that the potential decrease in adverse health effects from improvements of indoor environments to be 10-30% for infectious respiratory disease, and allergy and asthma symptoms; and 20-50% for Sick Building Syndrome symptoms (headache, fatigue, respiratory tract irritations, dry cough, dry or itchy skin).

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Senate Bill 599

- Signed by the Governor 6-20-03, effective date 9-1-03
- Codified in the Government Code, Chapter 2165, Subchapter G, “Indoor Air Quality”
- Senate Bill 599 – An act relating to the:
  - investigation and testing,
  - technical assistance, and
  - certain other matters related to indoor air quality in state occupied buildings.

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Related Legislation

- Health and Safety Code, Chapter 385, “Indoor Air Quality in Government Buildings”
  - Effective date 9-1-95, amended effective date 9-1-01.
  - Voluntary guidelines for indoor air quality in government buildings (schools, city, county, state buildings), including guidelines for ventilation and indoor air pollution control systems.

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Related Legislation

- Texas Administrative Code, Title 25, Part 1, Chapter 297, Subchapter A, Rules 297.01 – 297.10
  - Effective date 12-22-02
  - Rules to implement Health and Safety Code, Chapter 385, “Indoor Air Quality in Government Buildings”
  - Rules include recommendations for implementing a governmental building Indoor Air Quality Management Program

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Legislative Updates

- Senate Bill 219, 84th Regular Legislative Session
  - Effective date 4-2-15
  - Section 2.285 amends Government Code 2165.301 to read "Department" to mean Department of State Health Services; was Texas Department of Health
  - Section 2.285 amends Government Code 2165.301 to read "Executive commissioner" means the executive commissioner of the Health and Human Services Commission; was executive commissioner of Texas Department of Health
  - Section 3.0896 amends Health and Safety Code to read "Executive commissioner" means the executive commissioner of HHSC; not TDH

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Legislative Updates

- Senate Bill 202, 84th Regular Legislative Session
  - Effective date 6-17-15
  - Article 3, Deregulation of Certain Activities and Occupations
  - Section 3.001 Section 2165.03(b), Government Code is amended to read as follows:

    (b) The commission (TFC) shall report the findings and test results under this section to the office (SORM) [~~and the department~~] in a form and manner prescribed by the office [~~and the department~~] for that purpose.

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Legislative Updates

- Senate Bill 202, 84th Regular Legislative Session
  - Article 3, Deregulation of Certain Activities and Occupations
  - Section 3.002 Section 2165.305(c) is amended to read as follows:

    (c) In developing a seminar required by this section, the office (SORM) shall receive assistance from:

    (1) the commission (TFC); and

    (2) [~~the department; and~~

    ~~[(3)]~~ an entity that specializes in research and technical assistance related to indoor air quality but does not receive appropriations from the state.

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Legislative Updates

- Senate Bill 202, 84th Regular Legislative Session
  - Section 3.029 The following provisions of the Government Code, including provisions amended by Senate Bill 219, Acts of the 84th Legislature, Regular Session, 2015, are repealed:
    (1) Section 2165.301 (2);
    (2) Section 2165.302; and
    (3) Section 2165.304.

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Legislative Updates

- Senate Bill 202, 84th Regular Legislative Session
  - Section 3.029 The following provisions of the Health and Safety Code, including provisions amended by Senate Bill 219, Acts of the 84th Legislature, Regular Session, 2015 are repealed:

    (35) Chapter 385

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Investigation and Testing

- The Texas Facilities Commission (TFC) is responsible for air monitoring related to asbestos abatement activities.
- TFC shall contract with a private entity to conduct any air monitoring related to asbestos abatement activities.
- TFC may establish a system of charges for air monitoring that is related to asbestos abatement activities.
- TFC shall report the findings and test results obtained under a contract for air monitoring to SORM.

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Continuing Education on Indoor Air Quality

- SORM shall provide current and updated information annually on maintaining safe indoor air quality in state occupied buildings.
- SORM shall receive assistance from:
  - TFC, and
  - An entity that specializes in research and technical assistance related to indoor air quality in developing the educational seminar.
- SORM shall publish on its internet website, https://www.sorm.state.tx.us, all indoor air quality information.

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SORM's Role in Indoor Air Quality

- SORM reviews all investigation and testing reports provided by TFC involving indoor air monitoring during asbestos abatement activities at SORM client agencies.
- SORM provides assistance, if needed, to SORM client agencies in resolving any issues that arise during air monitoring of asbestos abatement activities.

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SORM's Role in Indoor Air Quality

- SORM will monitor SORM client agency compliance with the:
  - naming of an agency Indoor Air Quality Coordinator, and
  - completing a written Indoor Air Quality Management Plan.
- SORM will check compliance with the above during SORM client agency visits.

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Indoor Air Quality Management Plan

- The Indoor Air Quality Management Plan should include the following:
  - Training
    - Train employees in the recognition, prevention, and resolution of Indoor Air Quality (IAQ) problems.
  - Communication
    - Develop a procedure for communicating with building occupants concerning IAQ problems. All communication should be in writing. Planned maintenance activities (i.e. pesticide use, painting, dust producing activities, etc.) should be posted at least five days prior to the planned activity.

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Indoor Air Quality Management Plan

- Complaint Response
  - Develop a procedure for documenting and responding to IAQ complaints and problems.
- Recordkeeping
  - Develop a procedure that defines the minimum IAQ documentation to be collected; handling instructions; record retention time; and documentation of any maintenance, repair, or remodeling activity that could adversely impact the IAQ.

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Indoor Air Quality Management Plan

- Written Preventive Maintenance Program
  - HVAC systems
    - Filters
    - Coils and condensate drain systems
    - Air supply and return systems
  - Sewer traps
  - Housekeeping
  - Cleaning procedures
  - Pest control

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Indoor Air Quality Management Plan

- Written prevention plan for the introduction of airborne contaminants into the building
  - Chemical
  - Biological
  - Radiological
- Location and design of outdoor air intakes
- Security of outdoor air intakes
  - CCTV surveillance
  - Security fencing
  - Restricted access
- Control access to mechanical rooms
- Control access to building roofs
- Secure return air grilles

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Indoor Air Quality Management Plan

- Building Maintenance Program that includes:
  - Spill response procedures
  - Leak response procedures
  - Water damage procedures
  - Remediation procedures
- Procedures for investigating and resolving IAQ problems
- Annual Inspection
  - Documented annual inspection of the facility by the IAQ coordinator
- Annual review of the Indoor Air Quality Management Plan

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Indoor Air Quality Resources

- An Indoor Air Quality Management Plan template, that can be used in the preparation of an agency plan, is available at : https://www.sorm.state.tx.us.
- An excellent source of IAQ building information is available at: www.epa.gov/iaq/largebldgs/index.html
- An excellent source of information on protecting building environments is available at: www.cdc.gov/niosh/topics/indoorenv/
- An excellent source on best practices on design, construction, and commissioning of new buildings is available at: www.ashrae.org/resources--publications/bookstore/indoor-air-quality-guide

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