

University of Texas at Dallas Indoor Air Quality Policy for University Buildings

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Summary

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The University of Texas at Dallas (UTD) has created a guiding policy for the minimization of indoor air quality issues surrounding new construction/ remodeling/ renovation projects on campus or leased facilities. The policy framework adopted relevant sections of the Voluntary Indoor Air Quality Guidelines for Government Building issued by the Texas Department of Health, December 22, 2002.

(a) **Purpose.** UTD developed these guidelines to promote practices that prevent or reduce the contamination of indoor air, thereby contributing to a safe, healthy, productive and comfortable environment for building occupants.

(b) **Scope.** UTD buildings owned or leased that are enclosed on all sides from floor to ceiling by walls or windows (exclusive of door ways) that extend from the floor to the ceiling are covered by this policy.

Recommendations for Implementing a Governmental Building IAQ Program

(a) **Initial program development.** In order for the development for an effective IAQ program the following considerations need to be taken into account; an IAQ coordinator, occupant considerations, facilities assessment, development of goals, UTD administrative support for stated goals, funding, and staff.

(b) **IAQ management plan.** A written IAQ management plan should be developed and maintained which include the following; training, effective communication, compliant response, record keeping, and maintenance and operational plan.

§297.4. Design/Construction/Renovation.

(a) **Building design (new construction).** The following factors should be considered during the planning and design stages of a new building; IAQ guidelines, site selection, documentation, site and facility planning, and HVAC system design.

(b) **Maintaining acceptable IAQ during renovation.** Building occupants should be protected from airborne contaminants that may be disturbed, generated, or released during mitigation and/or renovation, including irritating or toxic substances such as asbestos, lead, pesticides, heavy metals, mold, cement dust, paint vapors, and roof tarring vapors.

(c) **HVAC system testing.** For new construction and major remodeling, the HVAC systems in those areas should be tested and balanced by an independent certified contractor at the completion of construction or remodeling.

(d) **Design documentation.** Design documentation including the owner's project requirements (design intent), and basis of design should be retained for the life of the facility. As-built documents should be prepared during construction and retained at the facility.

(e) **Monitoring activities.** Construction and renovation activities should be monitored by the owner's representative, facility IAQ coordinator, and commissioning authority.

(f) **Ventilation protocols.** Ventilation protocols should be developed to include proper area exhaust rates and pressurization requirements to be used during repairing and remodeling. During initial occupancy of a new area and during re-occupancy following repairs or renovations, the fresh air rate and the total air supply rate may need to be increased until any out gassing of the new material has decreased to a level that will not cause adverse health effects to the occupants.

§297.5. Building Operation and Maintenance Guidelines.

(a) **Written preventive maintenance program.** A written preventive maintenance program should be established for each public building to provide a healthy environment. The program should include procedures for the following; HVAC systems, sewer traps, emergency response plan, records, maintenance requirements, and recommissioning.

(b) **Training.** Personnel should be educated and trained in the prevention, recognition, and resolution of IAQ concerns.

(c) **Scheduling maintenance.** Schedule and conduct maintenance activities that could produce high emissions (painting, roofing repair, pesticide applications) to minimize occupant exposure to indoor air contaminants. Increase ventilation in occupied areas as necessary to control odors.

(d) **Housekeeping.** Should include a custodial program, proper storage and supplies, cleaning procedures, and walk-off mats.

(e) **Tobacco products.** The use of any smoking tobacco products or smokeless tobacco products by employees or visitors should be prohibited in government buildings, within twenty feet of any entrance, and within twenty feet of the building's fresh air intakes. The use of such tobacco products should be permitted only in outside areas that have been designated for "Tobacco Product Use."

(f) **HVAC systems.**

(1) Outside air. The HVAC systems should be operated to provide acceptable outside air with quantities in conformance with the most current and accepted standard.

(2) Positive pressure. The HVAC systems should be operated to provide a positive building pressure to significantly reduce the entry of outside contaminants, and provide more effective temperature and humidity control.

(3) Moisture control. The HVAC systems should be operated to prevent excessive moisture that could cause microbial growth or high humidity.

(4) Ducts. There must be periodic inspections, cleaning, as well as replacement of materials when necessary.

(5) Drain pans. Condensate drain systems should be free of microbial growth and other debris. The condensate pan should drain completely so there is no standing water.

(6) Exhaust air. Exhaust air systems should be operating properly and vented to the outside. Proper operation and flow rates should be verified annually.

(7) Preconditioning. The HVAC systems should be operated for sufficient time prior to building occupancy to remove contaminants and to condition the air.

(8) Responsibility. Assignment of responsibilities for maintenance and operations of all areas and systems is essential to an indoor air quality program.

(9) Documentation. Documentation provided by design, construction and renovation projects must be maintained and updated.

(10) Standards. Maintenance standards should be developed and maintained for all systems and operations.

(g) Loading dock operation. Vehicle exhaust should be prevented from entering enclosed work spaces (including air intakes and building openings) and by installing barriers to airflow from loading dock areas (i.e. doors, curtains, etc.) and using pressurization.

(h) Remediation of contaminants. Use recognized best practices for the removal of toxic contaminants of concern (lead, microbial, asbestos, chemical, etc.) when performing maintenance, repairs or remediation. Always follow any applicable state and federal laws.

(i) Cleaning products. Certain factors such as toxicity, proper training and directions, labeling requirements according to the Health and Safety Code §502.007, adequate ventilation, as well as scheduling the use of cleaning products when building is not occupied in order to minimize exposure to students, staff, and other occupants.

(j) Pesticide use. Whenever pesticides are used appropriate management, product safety, statutes, and removal of dead pests must be adhered to. This includes but is not limited to regulations set forth by the Structural Pest Control Act.

(k) Emergencies. An emergency response plan, including staff training, should be developed for chemical spills, release of hazardous air contaminants, and similar events. Such response measures may be required by state or federal law in some circumstances.

(1) **Records.** Material safety data sheets must be maintained for each hazardous chemical used or brought into the workplace, workplace chemical list in fulfilling the requirements of the Health and Safety Code, §502.005, facility chemical list if required by the Health and Safety Code §506.006, and maintenance records that are appropriately documented by a signed and dated report or check-off list is to be maintained.

§297.6. Recommended Building Occupant Responsibilities.

Cleanliness of the building, use of toxic materials, diffusers, grills, mechanical rooms, spills, pets, food, garbage, tobacco, portable air cleaning devices, ozone-generating devices may act adversely to the IAQ of the building. Hence, these should be checked, and reported. For those who may experience chronic or serious health problems, seeking medical care is encouraged to manage illness.

§297.8. Guidelines for Comfort and Minimum Risk Levels.

(a) **IAQ comfort.** Comfort is an important part of indoor air quality. The major comfort issue is thermal comfort that involves temperature, relative humidity, and air velocity each of which has a role in achieving thermal comfort.

(1) **Temperature.** The room temperature for a typical occupied office or classroom environment should be kept between 72 to 79 degrees Fahrenheit in the summer and 68 to 76 degrees in Fahrenheit in the winter. Additional guidance documents for other situations are available.

(2) **Relative Humidity.** The relative humidity for a typical occupied office or classroom environment should be generally between 30 to 50%. The relative humidity should never exceed 60% due to potential mold growth.

(3) **Air Velocity.** Some air movement is recommended to avoid a feeling of stagnant air, typically 25 to 55 feet per min (fpm). Air supplied from a diffuser at elevated speeds can create drafts in the occupied zone, causing complaints of too hot or too cold, dry eyes, sore throats and nasal irritation. Guidance documents are available, including ASHRAE Standard 55-1992 and 55a-1995.

(4) UTD Environmental Health and Safety recommends following the OSHA standards. The following table shows some common parameters along with the OSHA's PEL values.

Table 1. OSHA Standards

Test Parameter	OSHA PEL
Formaldehyde	0.75 ppm
Benzene	1 ppm
Carbon dioxide	5000 ppm
Carbon monoxide	50 ppm
Temperature	68-79 F
Humidity	30-60%

OSHA – Occupational Health and Safety Administration
PEL – Permissible Exposure Limit (8-hr Time Weighted Average)
Ppm – parts per million
F – Fahrenheit

§297.9. Lease Agreements.

Whenever a government entity leases from or to another public or private entity, a clause should be included in the lease agreement to require the property owner/property management to comply with all applicable sections of the current Texas Department of Health Voluntary Guidelines for Indoor Air Quality in Government Buildings.

Important Note: The building should be opened and aerated with fresh air for 2-4 weeks prior to opening it up for occupancy.

References:

- (1) ASHRAE
- (2) OSHA
- (3) Texas IAQ Voluntary Guidelines