

# SAFETY POLICY – INDOOR AIR QUALITY (IAQ)



**RESEARCH,  
CAMPUS,  
and  
ENVIRONMENTAL  
SAFETY**



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**The University of Texas at Dallas**  
**Indoor Air Quality (IAQ) Policy for University Buildings**

The University of Texas at Dallas (UTD) is committed to supporting campus-wide safety and environmental programs. Minimizing risks, implementing safe practices, and proactively incorporating control measures is the responsibility of each of our Community members.

Everyone must do their part to ensure safety across campus.

Our hope is to develop and foster a climate of responsible health, safety, and environmental practices to recognize the value of safety, prevent accidents, protect our environment, and aid in getting the job completed with pride and professionalism.

Safety programs at UTD are supported by the Research, Campus, and Environmental Safety office (UTD Safety), and the Indoor Air Quality Policy/Program is administered by Safety Professionals within the UTD Safety office in collaboration with the UTD Facilities Management (FM) Department.

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 Buildings* issued by the Texas Department of Health, December 22, 2002.

Additional reference documents which guide best practices for minimizing indoor air quality problems, and are incorporated into UTD's IAQ approach, include the OSHA Indoor Air Quality in Commercial and Institutional Buildings publication (OSHA 3430-04 2011) and the EPA "IAQ Tools" resource documents. National consensus standards such as ANSI/ASHRAE Standard 55 and 62.1, as well as ASTM E1971-05 may also be considered.

(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. Each building has its own unique set of circumstances.

**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." UTD prohibits all tobacco use on any UTD owned property, and by occupants of any UTD leased space.

(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. Negative pressure conditions may be warranted in special-function rooms/areas, such as research labs or clinical treatment rooms.
- (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. UTD Facilities Management coordinates all operations and maintenance activities in UTD properties.

(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.** Although there are numerous indoor air pollutants that can be spread through a building, they typically fall into three basic categories: biological, chemical, and particle. 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.

Prior to initiation of any work which may generate airborne contaminants, Facilities Management and UTD Safety must be contacted to proactively assess and identify potential impact to building materials and provide guidance regarding remediation and compliance.

(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.

(l) **Records.** Material safety data sheets and a workplace chemical list must be maintained for each hazardous chemical used or brought into the workplace, in accordance with the Texas Health and Safety Code, §502.

#### §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, and/or 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.

UTD Community members who have concerns regarding IAQ in their occupied work areas must contact the UTD Safety team and/or the Facilities Management Department. UTD Safety and FM work collaboratively to assess conditions using occupant surveys, physical site evaluation, and air quality assessment tools/measurement as warranted.

Recommendations for improvement in IAQ conditions may include source management, engineering controls, and/or administrative controls.

#### §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 which involves temperature, relative humidity, and air velocity - each of which has a role in achieving thermal comfort. Occupants with IAQ comfort concerns should request support from Facilities Management via the work order process.

(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.

(4) Contaminants/Pollutants. UTD Safety recommends following OSHA and other relevant agency/industry standard guidance, including ASHRAE/ANSI standards.

Table 1 shows some common parameters along with the recommended values.

Table 1.

Indoor Air Quality /Comfort Parameter	Guidance Level	Recommending Body
Fine Particulate Matter – PM 2.5	35 µg/m <sup>3</sup> 24-hour	EPA (NAAQS)
Carbon Monoxide – CO	9 ppm 8-hour	EPA (NAAQS)
Nitrogen Dioxide – NO <sub>2</sub>	0.1 ppm 1-hour	EPA (NAAQS)
Radon	4 pCi/L 48 hours+	EPA
Carbon Dioxide – CO <sub>2</sub>	5,000 ppm 8-hour	OSHA
Polycyclic aromatic hydrocarbons – PAH's	Naphthalene 10 ppm 8-hour [note: odor threshold = 0.08 ppm]	OSHA
Formaldehyde	0.5 ppm 8-hour (Action Level) [note: odor threshold = 0.8 ppm]	OSHA
Methylene Chloride	12.5 ppm 8-hour (Action Level) [note: odor threshold = 200 ppm]	OSHA
Temperature	68 to 74°F in winter 72 to 80°F in summer	ASHRAE
Relative Humidity	30 – 60%	ASHRAE

EPA (NAAQS) - Environmental Protection Agency (National Ambient Air Quality Standards)

OSHA – Occupational Health and Safety Administration

ASHRAE - American Society of Heating, Refrigerating and Air-Conditioning Engineers

#### §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) ANSI
- (3) OSHA
- (4) EPA
- (5) Texas IAQ Voluntary Guidelines

# Sustainability Guideline - 201904

## Green Cleaning



### Guideline Statement

The University of Texas at Dallas is committed to sustainability in custodial practices and purchasing in order to maintain buildings to the highest standard. As part of this commitment, UT Dallas has implemented a comprehensive Green Cleaning Program. University requires the custodial staff and contractors to perform cleaning in compliance with University's Green Cleaning Guideline. The Green Cleaning Guideline is a comprehensive program that reflects the criteria in [USGBC's LEED guidelines for Green Cleaning](#) and fulfills requirements set by the [Association for the Advancement of Sustainability in Higher Education \(AASHE\)](#). The Contractor shall submit quarterly cleaning supplies, equipment and material reports indicating compliance with University green cleaning protocol.

### A. Criteria

#### Cleaning Products

UTD's Custodial Department and contractors shall purchase at least 75% of all cleaning and janitorial paper products that meet one or more of the following criteria:

- The cleaning products meet 1 or more of the following standards for the appropriate category:
  - Green Seal GS-37, for general-purpose, bathroom, glass and carpet cleaners used for industrial and institutional purposes.
- Disinfectants, metal polish, floor finishes, strippers or other products not addressed by the above standards meet 1 or more of the following standards for the appropriate category:
  - Green Seal GS-40, for industrial and institutional floor care products.
- Disposable janitorial paper products and trash bags meet the minimum requirements of 1 or more of the following programs for the applicable product category:
  - Environmental Protection Agency (EPA) Comprehensive Procurement Guidelines (or local equivalent for projects outside of the U.S.) for Janitorial Paper and Plastic Trash Can Liners.
  - Green Seal GS-09, for paper towels and napkins.
  - Green Seal GS-01, for tissue paper.
- Hand soaps meet 1 or more of the following standards:
  - Green Seal GS-41, for industrial and institutional hand cleaners.
  - Environmental Choice CCD-104, for hand cleaners and hand soaps.
- Any products purchased that do not fall under the categories above must meet one of the standards below.
  - Forest Stewardship Council (FSC)
  - Green Seal
  - UL ECOLOGO
  - U.S. EPA Safer Choice

Cleaning products include general purpose bathroom, glass and carpet cleaners; degreasing agents; biologically-active cleaning products (enzymatic and microbial products); floor-care products (e.g., floor



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finish and floor finish strippers); hand soaps and hand sanitizers, disinfectants, and metal polish and other specialty cleaning products.

Janitorial paper products include toilet tissue, tissue paper, paper towels, hand towels, and napkins. Other janitorial products and materials (e.g., cleaning devices that use only ionized water or electrolyzed water) should be excluded from both total expenditures and expenditures on environmentally preferable products to the extent feasible.

### Equipment

UTD's Custodial Department and contractors shall purchase at least 40% of all powered janitorial equipment (purchased, leased, or used by contractors) that meet the following sustainability criteria.

- All powered equipment must have the following features:
  - safeguards, such as rollers or rubber bumpers, to avoid damage to building surfaces;
  - ergonomic design to minimize vibration, noise, and user fatigue, as reported in the user manual in accordance with ISO 5349-1 for arm vibrations, ISO 2631-1 for vibration to the whole body, and ISO 11201 for sound pressure at operator's ear; and
  - as applicable, environmentally preferable batteries (e.g., gel, absorbent glass mat, lithium-ion) except in applications requiring deep discharge and heavy loads where performance or battery life is reduced by the use of sealed batteries.
- Vacuum cleaners must be certified by the Carpet and Rug Institute Seal of Approval/Green Label Vacuum Program and operate with a maximum sound level of 70 dBA or less in accordance with ISO 11201.
- Carpet extraction equipment, for restorative deep cleaning, must be certified by the Carpet and Rug Institute's Seal of Approval Deep Cleaning Extractors and Seal of Approval Deep Cleaning Systems program.
- Powered floor maintenance equipment must have vacuums, guards, or other devices for capturing fine particles, and must operate with a maximum level of 70 dBA, in accordance with ISO 11201
- Propane-powered floor equipment must have high-efficiency, low-emissions engines with catalytic converters and mufflers that meet the California Air Resources Board or EPA standards for the specific engine size and operate with a sound level of 90 dBA or less, in accordance with ISO 11201.
- Automated scrubbing machines must be equipped with variable-speed feed pumps and either (1) on-board chemical metering to optimize the use of cleaning fluids or (2) dilution control systems for chemical refilling. Alternatively, scrubbing machines may use tap water only, with no added cleaning products.

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### Green Cleaning



#### B. Required Reporting

- Total expenditures on janitorial and cleaning products.
- Expenditures on cleaning products that are Green Seal or UL ECOLOGO certified and/or Safer Choice labeled
- Total expenditures on janitorial paper products.
- Expenditures on janitorial paper products that are FSC, Green Seal, and/or UL ECOLOGO certified

#### C. Standards and Terms

##### Forest Stewardship Council

The [Forest Stewardship Council \(FSC\)](#) is an independent, non-profit organization that protects forests for future generations. FSC Chain-of-Custody certification traces the path of products from forests through the supply chain, verifying that FSC-certified material is identified or kept separated from non-certified material throughout the chain. FSC Forest Management certification confirms that a specific area of forest is being managed in line with the [FSC Principles and Criteria](#)

##### Green Seal

[Green Seal](#) is an independent, non-profit organization “dedicated to safeguarding the environment and transforming the marketplace by promoting the manufacture, purchase, and use of environmentally responsible products and services”. Green Seal certification is based on multi-attribute environmental standards that meet the ISO 14024 standards for eco-labeling.

##### Safer Choice Label

Formerly known as Design for the Environment (DFE), the [Safer Choice label](#) is the US Environmental Protection Agency’s program to identify products with safer chemical ingredients.

##### UL ECOLOGO

The [UL Environment ECOLOGO](#) program certifies products, services, and packaging for reduced environmental impact. ECOLOGO Certifications are voluntary, multi-attribute, lifecycle based environmental certifications that meet the ISO 14024 standards for eco-labeling.