INDOOR AIR QUALITY MANAGEMENT PLAN

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Table of Contents

Indoor Air Quality

Team

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What is Indoor Air Quality?

Indoor air quality (**IAQ**) is a term which refers to the air quality within and around buildings and structures, especially as it relates to the health and comfort of building occupants. IAQ can be affected by gases (including carbon monoxide, radon, volatile organic compounds), particulates, microbial contaminants (mold, bacteria), or any mass or energy stressor that can induce adverse health conditions. Source control, filtration and the use of ventilation to dilute contaminants are the primary methods for improving indoor air quality in most buildings. Residential units can further improve indoor air quality by routine cleaning of carpets and area rugs.

Determination of IAQ involves the collection of air samples, monitoring human exposure to pollutants, collection of samples on building surfaces, and computer modelling of air flow inside buildings.

IAQ is part of indoor environmental quality (IEQ), which includes IAQ as well as other physical and psychological aspects of life indoors (e.g., lighting, visual quality, acoustics, and thermal comfort).[1]

Indoor air pollution in developing nations is a major health hazard.[2] A major source of indoor air pollution in developing countries is the burning of biomass (e.g. wood, charcoal, dung, or crop residue) for heating and cooking.[3] The resulting exposure to high levels of particulate matter resulted in between 1.5 million and 2 million deaths in 2000.

How can IAQ help in a school district?

An effective IAQ program can help schools and districts address IAQ issues quickly and efficiently and create a healthier learning environment for staff and students. The program should be tailored to the specific needs of your school.

How IAQ binds everyone together towards a common goal:

Everything done in the building intertwines.

- The way custodians clean the building and the chemicals they use or don't use affect IAQ.
- The HVAC system directly affects the buildings and the people by the air that is circulated inside.
- The way teachers and students interact with pets in the classroom and the food that is or isn't stored properly.
- If vehicles are parked idling outside the building next to air intakes will affect the air that breathed inside, etc.

These are just a few things that affect the indoor air quality. According to the EPA there are seven technical solutions for effective IAQ management in schools. See the example listed next.

The Framework for Effective School IAQ Management: **Seven Technical Solutions**

Quality HVAC
- Inspect HVAC systems regularly
- Establish a maintenance plan
- Change filters regularly and ensure condensate pans are draining
- Provide outdoor air ventilation according to ASHRAE Standards or local code
- Clean air supply diffusers, return registers and outside air intakes
- Keep unit ventilators clear of books, papers and other items

Control of Moisture/Mold
- Conduct routine moisture inspections
- Establish mold prevention and remediation plan
- Maintain indoor humidity levels between 30% and 60%
- Address moisture problems promptly
- Dry wet areas within 24–48 hours

Strong Integrated Pest Management (IPM)
- Inspect and monitor for pests
- Establish an IPM plan
- Use spot treatments and baits
- Communicate with occupants prior to pesticide use
- Mark indoor and outdoor areas treated with pesticides

Effective Cleaning and Maintenance
- Conduct routine inspections of school environment
- Develop a preventative maintenance plan
- Train cleaning/maintenance staff on protocols
- Ensure material safety data sheets (MSDS) are available to staff
- Clean and remove dust with damp cloth
- Vacuum using high-efficiency filters

Smart Materials Selection
- Maintain products inventory
- Develop low-emitting products purchasing and use policies
- Use only formaldehyde-free materials
- Use only low-toxicity and low-emitting paint
- Select products based on product rating systems
- Use least toxic cleaners possible (only those approved by the district)

Aggressive Source Control
- Conduct regular building walkthrough inspections
- Test for radon; mitigate if necessary
- Implement a hazardous materials plan (use, label, storage and disposal)
- Establish a school chemical management and inventory plan
- Implement smoke-free policies
- Establish an anti-idling school bus policy
- Use walk-off mats at building entrances
- Conduct pollutant-releasing activities when school is unoccupied

Integrated Energy Management Solutions
- Protect IAQ during energy efficiency upgrades and building renovations
- Conduct regular HVAC maintenance and tune-ups
- Install programmable thermostats
- Consider performing post-construction commissioning for HVAC systems
- Control moisture in building assemblies, mechanical systems and occupied spaces

ACTION KIT
- HVAC
- Moisture/Mold
- IPM
- Cleaning & Maintenance
- Materials Selection
- Source Control
- Energy Efficiency

Mission of Wylie ISD IAQ

The health, comfort, and learning environment of students and staff are important aspects of Wylie ISD's mission. Working with EPA and their *IAQ Tools for Schools* Program, we developed an IAQ Management Plan that will help monitor and improve the quality of air in school buildings.

The objectives of this IAQ Management Plan are:

• Reduce the levels of indoor air pollutants through preventive measures such as routine maintenance activities, periodic building evaluations and inspections, and IAQ-specific policies.

• Provide and maintain adequate airflow by repairing and maintaining ventilation equipment, which will promote a comfortable and healthy learning and working environment.

• Respond to IAQ-related concerns and problems in a prompt and thorough manner, and effectively communicate the progress of investigations and their resolution to all interested parties.

Role of the IAQ Coordinator and IAQ Team

IAQ Coordinator

Wylie ISD has identified Tony Jacinto as the IAQ Coordinator for the district. The school administration and school board is committed to providing the necessary support to meet the school district's IAQ Management Plan objectives.

The IAQ Coordinator's responsibilities include:

• Acting as the key contact person within the district to respond to and address IAQ issues and concerns.

• Coordinating the development and management of the district's IAQ Management Plan. This includes establishing and overseeing an IAQ Team, coordinating building walkthrough inspections, coordinating the building system evaluations, coordinating the investigations of reported IAQ issues and concerns, and modifying the IAQ Management Plan to fit the district's specific needs and objectives.

• Responding to IAQ concerns and issues that are discussed or reported.

• Coordinating the IAQ Team's activities and meetings, including distribution of the IAQ checklists.

• Communicating with staff, administrators, and other parties regarding the progress made with the Plan and the process of reporting IAQ concerns.

• Coordinating the annual review of the Plan, which involves building walkthrough inspections, building systems evaluations, and revising the Plan to include new information.

• Facilitating administrative approval of the IAQ Management Plan after every major revision.

IAQ Team

Wylie ISD has established an IAQ Team to represent staff, students, and parents. The IAQ Team assists the school district administration by reviewing IAQ-related information and recommending IAQ policies to maintain and improve the air quality within district facilities and school buildings. Led by the IAQ Coordinator, the IAQ Team is involved in the following efforts.

• Supporting the IAQ Coordinator to ensure good IAQ in all facilities and areas.

• Contributing to the IAQ Management Plan creation and implementation.

• Meeting regularly to review and resolve IAQ issues.

• Meeting as needed to review the IAQ Management Plan, which includes the completion of walkthrough inspections of school buildings, key building systems evaluations, and the review of existing policies in the IAQ Management Plan.

• Meeting to evaluate and respond to IAQ concerns that have been reported to the district. The Team takes steps or recommends measures to resolve the reported concern.

• Maintaining IAQ Team reports and other documents in the IAQ Management Plan.

The members of the IAQ Team are identified on page 2.

Background and IAQ Findings

Indoor air quality (IAQ) is a critical component of providing a healthy and comfortable learning environment. Indoor air pollutants may cause or contribute to short- and long-term health problems including asthma, respiratory tract infection and disease, allergic reactions, headaches, nasal congestion, eye and skin irritations, coughing, sneezing, fatigue, dizziness, and nausea. In addition, indoor air pollutants and extremes in temperature and humidity may cause discomfort, which can affect students' ability to concentrate and learn. IAQ problems can hasten building deterioration, contribute to the closing of schools, create liability problems, and strain relationships among parents, teachers, school staff, unions, and the school administration.

The IAQ Coordinator researches IAQ issues affecting the school. For example, schools' histories related to radon, pests, lead, and other IAQ issues are investigated and documented. During the walkthrough inspections and building systems evaluations, the IAQ Coordinator or Team identifies IAQ and problems and issues. The issues are prioritized from most important to least important. Urgent or simple issues are addressed first and issues that require continual attention are scheduled appropriately. Problems are reported to the IAQ Coordinator, who documents all IAQ concerns, performs an initial investigation, and documents and communicates the resolution to all interested parties. Many issues are resolved using in-house staff. However, professionals, experts, and other outside personnel may be brought in to deal with specific issues. The IAQ Coordinator [or Team] uses [a variety of tools, such as the Problem Solving Wheel, Problem Solving Checklist, and Sections 4-6 of the IAQ Reference Guide] to help identify IAQ problems. If the problem cannot be identified or persists despite the district's efforts to identify and remediate it, the IAQ Coordinator discusses the matter with the appropriate school official(s) in order to

determine whether a contracted service provider is needed. When a problem has been identified, the IAQ Coordinator organizes a response, communicates with the relevant parties, documents actions taken, and keeps copies of all documents. When the problem is not urgent but requires a policy change, the IAQ Coordinator organizes a meeting with the *IAQ Team or a committee* to develop and recommend specific procedural changes. These changes are presented to the appropriate school officials for review and adoption. All new or revised procedures are added to the existing IAQ Management Plan. All interested parties are informed about the measures taken to resolve the problem and all procedure and/or policy changes.

IAQ Policy, Procedures, and Plans

IAQ Policies

Animals in the Classroom

While many teachers and students have classroom pets, animals can be a source of allergens, asthma triggers, and microorganisms that may cause infectious diseases. Therefore, Wylie ISD will institute an animal policy based on information gathered from walkthrough inspections, building systems evaluations, IAQ concern reports, and staff meetings. Animals should be isolated to the extent possible and should be kept away from carpets, upholstered furniture, and stuffed toys. Specific types of animals may be restricted from the classroom if a concern is expressed by staff, students, or parents. The district also reserves the right to ban certain animals if they pose a threat to the safety or comfort of staff and students. Classroom pets should be placed away from return air ducts and from students with known allergy or asthma problems.

Anti-Idling

Delivery and bus pickup and drop off zones have been located away from building outdoor air intakes to ensure that exhaust fumes do not enter the facility. Wylie ISD prohibits buses and cars from idling while waiting to pick up or drop off students. Buses shall idle no longer than the time required to bring engines to proper operating temperature and to defrost all windows. This policy is not in effect when temperatures fall below 32 degrees Fahrenheit. The school district's anti-idling practices are maintained by the IAQ Coordinator**.**

Applicable Local and State Requirements/Regulations

Wylie ISD will ensure this plan is continually updated and follows all applicable local and state requirements and regulations related to IAQ.

Asbestos Hazard Emergency Response Act (AHERA) Management Plan

An AHERA Management Plan is required by Federal law and is intended to prevent staff exposure to asbestos during general operation and maintenance activities. It describes the location and condition of asbestos-containing building materials, and documents their removal and repairs. The AHERA Management Plan also describes the proper recordkeeping practices that school officials must follow. Schools must update their AHERA Management Plans with information collected from their periodic

surveillance every 6 months, re-inspection of buildings for asbestos-containing materials every 3 years, and response actions taken within the school. The AHERA Management Plan is located in the office of the Director of Construction Services at 200 Pirate Drive.

Food in the Classroom

Food should not be left in classrooms. When it is necessary to store food in classrooms, it must be kept in airtight, sealed containers to minimize the potential for pests, odors, and biological growth. This is important from an IPM standpoint as well.

Hazardous Materials

It is important to handle hazardous materials according to the manufacturers' guidelines. Wastes generated from hazardous materials should be stored separately from regular waste and disposed in appropriate containers. Hazardous materials are common in art, science, and vocational/industrial classes. Training sessions for staff can help explain the risks associated with hazardous materials and the importance of complying with this policy. The school district's Hazardous Materials Policy is located in the office of the IAQ Coordinator at 200 Pirate Drive**.**

Integrated Pest Management Program

Integrated Pest Management (IPM) is a comprehensive strategy for controlling pests, pest-generated substances (such as cockroach fecal matter), and pesticides, which can act as irritants and trigger allergies and asthma. The district's IPM program aims to reduce the frequency and magnitude of both pesticides use and pest problems. The school district's IPM Plan is located in IPM/IAQ Coordinator's office at 200 Pirate Drive**.**

Lead

Lead can adversely affect the nervous system. Young children are particularly susceptible. If lead is present in existing school building paint coatings, renovation procedures must be employed that minimize the exposure of building occupants to airborne lead-based paint particles. In addition, a "Lead in Water Plan" has been implemented that includes water sampling, faucet replacement, education, and record keeping. The monitoring of lead in water is maintained and documented by the Lead Plumber at the direction of the Assistant Director of Maintenance**.**

Non-Smoking

Wylie ISD prohibits tobacco use in all public school facilities and vehicles. Information about smoking regulations is located on the school website and at each campus facility.

Painting

Schools should use latex, water-based paints; using paints that contain mercury or lead is prohibited. Painting and drying should only occur when the area of the building is unoccupied and properly ventilated. It is also important to inform all affected staff and students before a painting job begins. The school district's Hazardous Materials Policy is located in the office of the IAQ Coordinator at 200 Pirate Drive**.**

IAQ Procedures

Cleaning and Chemicals

Regular and thorough cleaning is an important means for the removal of air pollutant sources. However, the use of cleaning products may also contribute to indoor air pollution. To ensure that cleaning practices remove pollutant sources while using cleaning products appropriately, guidelines have been established per below.

• Custodial staff shall only use cleaning agents approved by the district for school use. All products must be clearly labeled and stored in a secure area. Bottles of cleaning agents must be tightly closed when stored.

• All safety data sheets should be stored in an area available to all staff, and the location of this information is discussed in the district's annual training.

• Rooms must be kept clean. Slightly damp cloths are used to remove dust from surfaces— however, wiped surfaces should not be left damp or wet for extended periods of time, since this can cause mold growth.

• Ammonia-based cleaning agents and chlorine-containing cleaners (such as bleach) must never be used because the possibility of generating toxic gases when mixed.

• During routine operations, pollutant-releasing activities are restricted by time of day, week, or year. For example, the waxing of floors will generally be performed on Friday afternoons or vacations, to ensure that gases are removed by the time classes resume.

• Areas of frequent use should be cleaned more often than areas of infrequent use.

• Large walk-off mats must be used to trap dirt and moisture at building entrances. These mats are cleaned according to manufacturers' guidelines to ensure optimal performance. Trapping dirt and moisture at building entrances helps to maintain the cleanliness of floors and carpets throughout the building.

• Staff are not permitted to bring any cleaning products, pesticides, air fresheners, or other chemicals into the school.

Communication

Communication is a critical element in successful IAQ management. The IAQ Coordinator and other district authorities work diligently to create awareness and limit misinformation and confusion through the use of effective communication. In order to develop and maintain the trust of the community and staff, the IAQ Coordinator and other designated district employees should communicate with relevant parties in a prompt, honest, and courteous manner until the issue is resolved. Every time an IAQ concern is addressed or resolved, the IAQ Coordinator should report the measures taken and the resolution of the identified concern to the appropriate parties.

In the unlikely event of an IAQ emergency, the district will accommodate the needs of students, parents, and staff. One or more contacts shall be selected to handle the media and update the community during a crisis. No one other than the district representative(s) should discuss IAQ-related issues with the press. The media will be alerted by the Communications Department when it is necessary to provide information to a broader audience. Every effort will be made to share appropriate information as soon as it becomes available to the school district.

The IAQ Team and Coordinator will inform parents and staff about:

• The IAQ Management Plan and ongoing efforts, how to view the Plan upon request, and how to report an IAQ concern.

• How to contact the IAQ Coordinator about IAQ issues.

• Where to find self-help information on how to evaluate IAQ in the school and to learn about structural features and operational practices of the school buildings.

Wylie ISD provides this information to parents and staff using on an ongoing basis through the web-site and/or via newsletters.

Construction and Renovation

Wylie ISD should consider IAQ when planning construction and renovation projects. The IAQ Coordinator, facilities team, and administration discuss major structural changes that may impact IAQ. The findings from walkthrough inspections and building systems evaluations should be considered when planning renovations. *IAQ Design Tools for Schools (DTfS)*, a web-based guide for establishing good IAQ practices into the design, construction, renovation, operation, and maintenance of K-12 school facilities (www. epa.gov/iaq/school design) can be utilized. Related plans may also be included in the facility department design guidelines**.** To the extent possible, major renovations should be performed when school is not in session. If renovation projects must be performed while school is in session, the return air from any area being renovated should be isolated from the main ventilation system. Engineering controls should be used to contain and minimize the distribution of dust and other contaminants produced by construction activities. Cleaning operations should be more frequent during and after renovation.

Emergency Response

An emergency is defined as an unforeseen circumstance that requires immediate action, assistance, or relief. This includes situations that are potentially life threatening, such as:

• Spills of hazardous materials;

• Complaints of severe headaches, nausea, and combustion odors; and

• Diagnosed Legionnaire's disease or tuberculosis.

In addition, emergencies include situations where there is limited time available to prevent serious property damage, such as flooding in a carpeted area or health problems. It is up to the discretion of the school administrators to identify and react to emergencies on a case-by-case basis, using the above definition as a general guideline only. If doubt exists about whether exposure to a specific hazard

constitutes an emergency, a precautionary approach may be used where the matter is handled as an emergency. Non-emergency situations are addressed according to routine maintenance work flow through the work order system in order to maintain open communication lines for emergencies.

District officials must respond to emergencies immediately. If the problem cannot be resolved with in-house resources, external help should be acquired (e.g., local health agency, IAQ professionals). If a hazard poses an immediate health threat to the students and staff, the affected building areas must be evacuated. All avenues of communication need to be utilized to warn and inform affected or interested parties in a prompt manner.

Flooring

The two most common types of floor covering for general use in schools are carpet and resilient floor covering products. While there is considerable debate about the most appropriate flooring material for use in schools, EPA recognizes that there are advantages and disadvantages associated with all types of floors coverings. Regardless of the floor covering type, regular and effective cleaning and maintenance is essential to keep it dry and clean. All carpets must be cleaned with hot water extraction at least once a year. Carpet may not be cleaned during summer months unless it can be dried within 24 hours.

Microbial Management

Microbials, such as mold, bacteria, and viruses, are a significant cause of illness, health symptoms, and discomfort. School staff should be aware that the easiest way to control microbial growth is to control moisture. Signs of water intrusion and microbial growth will be investigated during walkthrough inspections, building system evaluations, and other efforts. Maintenance staff will be informed about damaged buildings systems and components that cause water leaks and water condensation. Staff must make the necessary repairs and adjustments in a prompt manner. Materials that have sustained damaged by water should be replaced when possible. Damp or wet materials must be dried within 48 hours (preferably within 24 hours). Materials contaminated with microbials should be promptly cleaned or replaced. Mold growth should be removed from non-porous surfaces with a strong brush and non-ammonia containing detergent and thorough drying. Remediation projects that cannot be handled by district staff should be contracted to a professional. Large-scale remediation projects may require specific control and protection measures. For additional information on mold remediation, refer to EPA's guide, "Mold Remediation in Schools and Commercial Buildings" and EPA's website: www.epa.gov/mold.

Preventive Maintenance and Operations

Preventive maintenance involves routine inspection, adjustment, and repair of building structures and systems, including the heating, ventilating, and air conditioning system (HVAC); unit ventilators; local exhaust; fresh air intakes; and flooring. Preventive maintenance plays a major role in maintaining the quality of air by assuring that the building systems are operating effectively and efficiently. Moreover, it helps to maintain comfortable temperatures and humidity in occupied spaces.

The preventive maintenance schedule for Wylie ISD is located in the office of the Assistant Director of Maintenance or Executive Director of Operations at 200 Pirate Drive. The schedule describes the time intervals and locations of building and ventilation components that are inspected and maintained on a routine basis. The schedule was established using equipment specifications, historical data, visual

observations, technical guides, and coordination of district resource availability. All records of preventive maintenance are kept on record with the appropriate trade lead and/or in the district's work order system.

Unless otherwise noted, school buildings should be maintained according to the American Society of Heating, Refrigerating, and Air-Conditioning Engineers' (ASHRAE) recommended comfort parameters. If the recommended parameters cannot be met, the district staff makes ventilation adjustments that provide fresh air, temperature, and humidity levels that are as close to the ASHRAE parameters as possible.

Reporting and Response

Wylie ISD encourages the reporting of IAQ concerns, regardless of how certain the issue may seem. The prompt reporting and resolution of IAQ issues has the potential to prevent serious problems from developing, which will help to prevent potential health effects, discomfort, and unnecessary costs. This makes the investigation of all reported concerns worthwhile.

The IAQ Coordinator should request concerned staff, students, and parents to report their IAQ concerns in writing (via the work order system is best for tracking purposes). A written description of the concerns reduces misunderstanding and creates a history that can be referred to at a future date. All written concerns should be sent to the IAQ Coordinator to initiate an official IAQ concern reporting process. The resolution of the issue needs to be documented and the affected parties should be informed in writing about the measures taken. Information collected must be processed and stored according to the school district's policies.

Staff Education

All district employees play an important role in maintaining and improving air quality since their behavior can affect the quality of the air present in school buildings. For example, placing objects on unit ventilators, adjusting room thermostats, or turning off unit ventilators can worsen the quality of air in a room. An educated employee is more likely to take steps to maintain good air quality. In addition, an employee with an understanding of IAQ is more likely to report IAQ concerns quickly and accurately. For these reasons, district staff must be educated about IAQ.

Wylie ISD will provide IAQ information to all employees annually, applicable to their function. The IAQ Coordinator or another qualified person will implement the staff education program, which may include emails, newsletters, viewing of provided training slides or videos, and/or in-person training sessions**.**

The *IAQ Tools for Schools* Backgrounder and checklists are assessment and educational tools made available to schools at no cost by the EPA. Staff should use these tools annually or when IAQ issues arise.

Staff Responsibilities

All staff members are responsible for improving and maintaining good IAQ:

• Teachers should refrain from interfering with airflow from ventilators (e.g., do not stack books or other items on ventilators, cover vents with posters, or tur n off the fan due to noise), remove clutter in their classrooms, properly dispose of hazardous waste, and enforce the school's various IAQ policies in their classrooms.

• Administrators should communicate the school's activities to the school board, staff, students, and community. They also need to ensure that the school is implementing IAQ policies appropriately.

• Facility operators must ensure that HVAC systems are operating properly and that buildings are maintained adequately and cleaned regularly.

• Custodians need to follow all policies regarding cleaning chemicals, ensure that the school is regularly vacuumed and swept, clean drain pans, empty trash cans, and check drain pipes regularly. They should also look for signs of pest problems and inform the appropriate people of any issues.

• Health Officers/School Nurses should track illnesses, such as asthma, that may provide an early warning of IAQ problems.

• The School Board shall approve of the IAQ Management Plan and ensure the Plan must is updated or reapproved regularly. They should ask relevant questions and provide support for good school IAQ.

Steps for Prevention

Wylie ISD is committed to preventing IAQ problems. To reach this goal, the district will complete the following activities:

• Every school should designate an IAQ contact (typically the facilities-designated staff), distribute and collect checklists when needed, and maintain communication with the IAQ Coordinator.

• The IAQ Coordinator should ensure that all IAQ efforts are coordinated and completed in a timely manner.

• All IAQ policies and programs (for IPM, anti-idling, non-smoking, etc.) must be maintained.

• The school board, community, staff, and students need to be updated on the district's IAQ efforts and carry out their responsibilities for maintaining good IAQ.

• Every school should review and ask questions or request changes to the IAQ Management Plan as needed. An annual review is recommended because changes may occur in the building systems, components, occupants, and the administration's attitudes and priorities. The annual review should include:

- Building systems evaluations;
- Walkthrough inspections;
- Reviewing IAQ concerns and other information;
- Discussing new issues with the IAQ Coordinator or Team; and
- Updating the IAQ Management Plan as needed. A brief description of the changes to the Plan should be summarized and included in all future versions of the Plan. This documentation should reduce the likelihood of repeating policies and procedures that were ineffective or inefficient and ensure the success of the IAQ program.

IAQ Response Plans

Please see below specific guideline response plan documents as they relate to various IAQ issues.

- Water Response
- Drying and Remediation
- Water Damage Restoration
- Managing Asthma in Schools

Any further questions on the IAQ Program should be directed to the IAQ Coordinator, IAQ Team, or Facilities Department.

WATER RESPONSE

Purpose

To identify the proper response procedure for the Facilities Department when a water leak or damage is reported.

Response Procedures

1. Campus reports leak to Facilities Department.
2. Custodial Operations and Maintenance insure that proper supervision is notified in both departments and they respond to the location.
3. The maintenance or custodial lead or director in charge, in consult with the IAQ Coordinator, will determine whether Facilities Department staff can effectively remove the water and dry the area or if an outside contractor should be employed for this service. Emergency procurement procedures are in place to secure remediation contractors immediately if necessary.
4. Maintenance will isolate and stop the leak if appropriate and/or notify the appropriate utility if the leak is not from district property.
5. Custodial Operations will remove water from the damaged surfaces via the use of wet vacuums and floor dryers. Furniture and other items such as file cabinets will be removed as required to gain access to floors and walls.
6. Facilities department personnel will utilize moisture metering equipment to determine moisture content of affected materials per the drying guidelines. All affected materials should be documented. Wet items that can be disposed of should be done so immediately. Items that can be removed should be removed immediately as well. Personal items should be taken home.
7. If building materials other than carpet have become wet, maintenance or custodial operations will place air drying equipment to dry out these components also. Cove base and drywall may have to be removed to expose the wall cavity to provide adequate drying. Any mold that is discovered upon opening the space must be cleaned up (on non-porous materials) or removed (on porous materials) prior to air drying. If this is not done, mold spores will be spread

throughout the area, increasing the chance that negative health consequences could occur in the area. Contact the IAQ Coordinator for further assistance.

8. Reassess the water damage and determine whether WISD can effectively dry all materials or if a contractor needs to be employed.
9. Maintenance will perform any additional remediation/restoration that may be required.

DRYING AND REMEDIATION

Criteria for determining when Building Materials are "Dry"

Underlying principles that guide the development of these standards are:

1. Ambient conditions must be stabilized and be able to be held at normal room conditions;
2. Building materials must be returned to their equilibrium moisture content to prevent the active growth of fungal spores; and
3. Building materials must be returned to their pre-loss moisture state. When these three criteria are met, a building can be considered dry.

Drying services shall be considered sufficient when the following three conditions have been achieved.

1. The interior ambient conditions are at or better than normal room conditions (50%-60%RH @ 70° F);
2. The moisture in the building materials themselves will not support the active growth of mold and mildew; and
3. The building materials and contents will finish returning to equilibrium with normal room conditions by themselves without further damage to them.

The facilities department or approved contractor will provide measurement of moisture in building materials.

Hardwood Floors - For the purposes of this Guideline, drying services on a hardwood floor shall be considered sufficient when all three of the following conditions are met.

1. The moisture content (MC) of the wood is decreasing.

2. All affected wood is within 2.5% of its normal moisture content as determined by actual measurement in a control point elsewhere on the same floor.

3. The building environment is stabilized and the existing HVAC system is capable of maintaining normal room conditions.

Drywall – Generally, drying services for drywall will be provided by WISD Maintenance and/or Custodial Operations. An outside contractor might be called in for extensive flooding. If drying procedures are not initiated within 24 hours of the initial water loss or dried within 72 hours, all wet drywall should be replaced. Note that for incidental wetting of drywall associated with wet floors, carpeted or otherwise,

that has been wicked up by the drywall (a common occurrence), drying of the floor might or might not be sufficient to dry out the drywall sufficiently, especially when associated with vinyl cove base or molding. Since Custodial Operations is the primary responder for floor flooding, they will need to consider whether Maintenance needs to be called in for more extensive drying of walls. For the purposes of this Guideline, drying services on drywall shall be considered sufficient when all three of the following conditions are met.

1. The moisture content of the drywall is decreasing.

2. All affected drywall is within 10% of its normal moisture content as determined by actual measurement in a control point elsewhere in the same building. (Example: Taking several readings in unaffected areas of drywall showed that the moisture content that should be expected in the building is 14%. Therefore, the maximum reading at the end of the job should be no more than 15.4%.)

3. The building environment is stabilized and the existing HVAC system is capable of maintaining normal room conditions.

Concrete Block - For the purposes of this Guideline, drying services on concrete block shall be considered sufficient when all four of the following conditions are met.

1. The moisture content of the concrete block is decreasing.

2. All affected concrete block is within 10% of its normal moisture content as determined by actual measurement in a control point elsewhere in the same building. (Example: Taking several readings in unaffected areas of concrete block showed that the moisture content that should be expected in the building is 10%. Therefore, the maximum reading at the end of the job should be no more than 20%).

3. 95% of the affected concrete block area meets criteria 1 & 2.

4. The building environment is stabilized and the existing HVAC system is capable of maintaining normal room conditions.

Plaster - For the purposes of this Guideline, drying services on plaster shall be considered sufficient when all four of the following conditions are met.

1. The moisture content of the plaster is decreasing.

2. All affected plaster is within 10% of its normal moisture content as determined by actual measurement in a control point elsewhere in the same building. (Example: Taking several readings in unaffected areas of plaster showed that the moisture content that should be expected in the building is 10%. Therefore the maximum reading at the end of the job should be no more than 20%).

3. 95% of the affected plaster area meets criteria 1 & 2.

4. The building environment is stabilized and the existing HVAC system is capable of maintaining normal room conditions.

Concrete - For the purposes of this Guideline, drying services on concrete shall be considered sufficient when all four of the following conditions are met.

1. The moisture content of the concrete is decreasing.

2. All affected concrete is within 10% of its normal moisture content as determined by actual measurement in a control point elsewhere in the same building. (Example: Taking several readings in unaffected areas of concrete showed that the moisture content that should be expected in the building is 10%. Therefore the maximum reading at the end of the job should be no more than 20%).

3. 95% of the affected concrete area meets criteria 1 & 2.

4. The building environment is stabilized and the existing HVAC system is capable of maintaining normal room conditions.

Carpeting - For the purposes of this Guideline, drying services on carpeting may be effective if the following conditions are met.

1. The carpet is not wet with Category 1 or 2 water for more than 48 hours.

2. The carpet is not wet with Category 3 (black) water for any amount of time.

3. The building environment is stabilized and the existing HVAC system is capable of maintaining normal room conditions.

4. If 1 and 2 are not met, the carpet must be removed and replaced. Carpeting shall be cleaned and thoroughly dry prior to reoccupancy.

Insulation: For the purposes of this Guideline, some types of thermal insulation materials used in walls or ceilings cannot be adequately dried and reused. Common insulation types containing mold growing ingredients are paper backed fiberglass and blown cellulose. If insulation material cannot be dried out within 72 hours or before it grows mold, it must be removed from the building. The area where it was installed must be thoroughly cleaned, disinfected and dried. New insulation may then be installed. Foam may be used as replacement insulation as it does not grow mold.

WATER DAMAGE RESTORATION

Purpose

The Wylie Independent School District Water Damage Restoration guidelines were developed to ensure that all water intrusions are handled in a professional manner, which includes the latest information / procedures available. Every effort will be made to ensure the health and safety of all WISD faculty, students, staff, and visitors to the campus.

Goal

Guidelines, procedures, and standards have been established not only to ensure the safety of everyone on campus but also to include every means available to promote the preservation, replacement and/or repair of district property.

Definitions

Certain terms and definitions associated with water damage restoration exist. The following are definitions of terms used.

Category 1 Water - Water originating from a source that does not pose substantial harm to humans. Category 1 water is also referred to as "clean water."

Examples of clean water sources may include, but are not necessarily limited to the following:

- Broken domestic water supply lines;
- Water fountains leaks;
- Tub or sink overflows with no contaminants;
- Appliance malfunctions involving domestic water supply lines;
- Melting ice or snow;
- Falling rainwater; and
- Broken toilet tanks and toilet bowls that do not contain contaminants or additives.

Clean water that has contact with structural surfaces and content materials may deteriorate in cleanliness as it dissolves or mixes with soils and other contaminants, and as time elapses.

Category 2 Water - Water containing a significant degree of chemical, biological and/or physical contamination and having the potential to cause discomfort or sickness if consumed by or exposed to humans. Category 2 water is also referred to as "gray water." Gray water carries microorganisms and nutrients for microorganisms.

Examples of gray water sources may include, but are not necessarily limited to the following:

- Discharge from dishwashers or washing machines;
- Overflows from toilet bowls with some urine (no feces)
- Sump pump failures;
- Seepage due to hydrostatic pressure;
- Chilled and condensate water; and
- Fire Protection Sprinkler Water.

Gray water may contain chemicals, bio contaminants (fungal, bacterial, viral algae) and other forms of contamination including physical hazards.

Time and temperature aggravate category 2 water contamination levels significantly. Gray water in flooded structures that remains untreated for longer than 48 hours may change to category 3 - black water.

Category 3 Water - Grossly unsanitary water containing pathogenic agents, arising from sewage or other contaminated water sources and having the likelihood of causing discomfort or sickness if consumed or exposed to humans. Black water includes sewage and other contaminated water sources entering or affecting the indoor environment. Category 2 water that is not removed promptly from the structure may be reclassified as category 3 water. Toilet back flows that originated beyond the toilet trap is considered black water contamination, regardless of visible content or color.

Category 3 water includes, but is not necessarily limited to all forms of flooding from:

- Ground surface water; and
- Rising water from rivers or streams.

Such water sources carry silt and organic matter into structures and create black water conditions.

Excess Water Removal - Excess water removal is essential as the beginning point of restoration procedures. Removal of excess water may be achieved by physical means such as mopping or soaking up excess moisture from hard surfaces or furnishings. However, water removal usually involves the use of a more sophisticated technique and equipment such as pumps, or specially designed commercial wet vacuuming equipment.

Evaporation - Once excess water is removed, remaining water must be changed from a liquid to a vapor by promoting evaporation. Normally, this is accomplished efficiently with specialized air-moving equipment.

Dehumidification - Once moisture is evaporated from structural materials and contents into the air, the moisture must be removed from the air through dehumidification, or it must be externally exhausted. Failure to dehumidify may result in substantial secondary damage and present a significant health hazard. A relative humidity of < 60 % is preferred. Dew point temperature should be <62.2 degrees F.

Temperature Control - Both evaporation and dehumidification are greatly enhanced by controlling the temperature in a confined environment. Additionally, microorganisms' growth is temperature related. Thus, temperature modification and control is an important basic principle for safe, effective drying. The Texas Department of Health recommends exhausting moist air out of the facility, increasing temperature, and increasing circulation for microbial management. TDH also recommends a normal setting of 72-76 degrees and relative humidity less than 60% for optimal indoor air quality.

Monitoring - The damaged structure must be monitored starting with the initial assessment and evaluation, and continuing throughout the restoration process. Monitoring procedures may include, but are not limited to the following:

- Temperature and humidity readings;
- Updating drying progress status; and
- Checking the moisture content of structural wood and other materials with a moisture meter.

When applicable, monitoring also must include checking equipment operation, work progress and indoor environmental quality. Drying Standards have been developed and are presented in the following response plan.

Inspection - Following the removal of excess water, a detailed inspection must be conducted that considers the extent of water migration, the types and quantities of affected materials and the degree of apparent damage. The information obtained may be used to analyze the extent of damage and to determine the job scope. A comprehensive inspection may include, but is not necessarily limited to, the following:

- Identifying and evaluating health and safety hazards;
- Determining the source of water;
- Determining the need to protect floor covering materials and contents;
- Determining the extent of moisture intrusion;
- Determining the job scope;
- Evaluating flooring materials;
- Evaluating inventories and/or contents items;
- Evaluating the HVAC system if affected;
- Assess other structural materials (walls, ceilings, etc.);
- Documenting preexisting conditions not related to the current loss (wear, urine contamination, delamination, etc.); and
- Establishing drying goals.

Floor covering evaluation - It is recommended that a determination be made as to whether floor-covering materials (e.g. carpet, cushion, vinyl, wood, laminates) are salvageable. Considerations may include, but are not necessarily limited to the following:

- Construction integrity;
- Ability to remove, clean, and dry adequately to inhibit microbial growth; and
- Porosity and potential health effects from contaminants.

Disposition of floor coverings and the ability to salvage them will be determined according to the appended Drying Standards.

Structural Materials - Throughout the restoration process, it is highly recommended that effort is directed toward anticipating secondary damage and attending to other structural components that may require drying or demolition and replacement. This is especially important if water remains in contact with building materials longer than 24 hours, such as water on flooring in

contact with gypsum board. These components may include, but are not necessarily limited to the following:

- Ceilings
- Walls
- Built-in furnishings and fixtures
- Insulation
- Structural wood

Occupant Evacuation - For areas with extensive water damage, determine if occupants need to be evacuated from the damaged area, and, if so, estimate the duration of time. Factors used to make this determination may include, but are not necessarily limited to the following:

- Contamination;
- Obvious indications of high levels of microbiological or chemical contamination; and
- Presence of occupants who are immunocompromised or have mold allergies, asthma or other applicable medical conditions.

Technician Training - Technicians performing category 2 water (gray water) and category 3 water (black water) damage restoration must be trained in risks of exposure and procedures for safe cleanup of these materials. Blood borne pathogen training is essential.

Personal Protection - Persons working in or around Category 3 water during the initial stage of decontamination, cleaning and biocide application must be equipped with personal protective equipment (PPE) including but not necessarily limited to the following:

- Rubber gloves
- Eye protection
- Protective suit
- Rubber boots

An evaluation must be made to determine the necessity for respiratory protection. In the case of overhead hazards or contamination, hard hats must also be worn.

MANAGING ASTHMA IN SCHOOLS

Wylie ISD Facilities Department works in conjunction with Wylie ISD Health Services Department to implement the following recommended means to manage asthma in the school environment:

1. Use IAQ

Help people with asthma by improving the school environment with IAQ practices.

2. **Control Animal Allergens**

Remove classroom animals from the school, if possible. If not, locate the animals away from sensitive students and ventilation systems.

3. **Control Cockroach Allergens**

Use IPM practices to prevent cockroach and other pest problems (e.g., store food in tightly sealed containers and place dumpsters away from buildings).

4. **Clean up Mold and Control Moisture**

Fix moisture problems and thoroughly dry wet areas within 24-48 hours to prevent mold growth. Clean up hard, moldy surfaces with water and detergent, then dry thoroughly.

5. **Eliminate Secondhand Smoke Exposure**

Make sure the school is dusted and vacuumed thoroughly and regularly.

6. **Reduce Dust Mite Exposure**

Make sure the school is dusted and vacuumed thoroughly and regularly.

7. **Develop Asthma Management in the School**

Include school policies on inhaler and other medication usage and emergency procedures for school staff for use when a student has an attack. Obtain the National Asthma Education and Prevention Program's Managing Asthma: A Guide for Schools.

8. **Provide School – Based Asthma Education Programs**

Contact your local American Lung Association about Open Airways for Schools, a school-based asthma management program for students with Asthma.

9. **File Student Action Cards**

Encourage students to work with their health care providers to identify their asthma triggers. Make sure students with asthma obtain and turn in copies of their asthma and allergy foundation of America action cards to teachers, school nurse, etc.

10. **Gather additional Asthma Information and Resources**

Establish a complete file on existing asthma and allergy-related information sources to reference throughout the year.

Further resources found at www.epa.gov/asthma. Please see attached articles for more information on Asthma in schools.

For Wylie ISD specific health policies related to asthma inhalers or other health related questions, visit https://www.wylieisd.net/Domain/6221 or contact the District Coordinator of Health Services at 972-429-2373. The school nurse can also help address immediate questions as well.