

TEAMS: Indoor Air Quality (IAR) Program

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Background Information

The Carrollton-Farmers Branch Independent School District (“CFBISD”) found the need to reduce air quality concerns and complaints, and find an effective and efficient method to reduce the rising cost of utilities. An Indoor Air Quality (IAQ) program was required to embrace the two needs with the overall objective to educate all—teachers, administrators, various departments, and students. The educational outreach program chosen is TEAMS, which is the IAQ program designed to attain these goals.

The CFBISD prides itself in acting quickly to resolve IAQ issues. Our belief is problems defined and recognized, create trust, and enable the District to maximize potential for performance improvements via reduced concerns by staff.

We’ve had our IAQ program in place since April of 2002. Recognizing the need to expand the program in depth and breadth, we designed TEAMS. We were able to do this by assistance from Mike Miller and the EPA, who gave the District six “Tools for Schools” test kits (TfS Kit). The information from these kits gave us a guideline to build TEAMS to meet our objectives of reaching a larger audience with additional material, and adding to the goals of TEAMS—increased efficiency, reduced cost, and educated consumers.

“TEAMS”

“**T**” - Tools for Schools – (IAQ and IPM)

“**E**” Energy Efficiency

“**A**” Asbestos

“**M**” Moisture Management

“**S**” Safety and Security

Our objective as TEAMS members is to solve IAQ and IPM problems in a timely and efficient manner. To accomplish this, we visit schools, and give a presentation to teachers and administrators outlining exactly what our program can do.

Afterwards, we walk through the school assessing conditions and determine what, if any, problems need addressing. Through education and a cooperative working relationship, we effectively mitigate impacts of common problems. For example, a painter caulking the building envelope is performing an IPM function by eliminating a point of entry for insects. The painter is also performing an energy conservation function by preventing the loss of conditioned air from the interior. The painter performs an IAQ function by preventing the infiltration of moisture and unfiltered outside air that contribute to undesirable air quality inside the building. Finally, the painter is helping to develop a safer, healthier and comfortable working environment.

Linking the concepts of our TEAMS program to improve the IAQ of our schools is TEAMS' number one priority for overall success. By taking a “multi-discipline” approach to involve all of the components that affect IAQ, and using “cross-training” techniques to provide a “one, any or all” point of contact, we are able to magnify the efficiency and effectiveness of our efforts. Our objective is to provide a quality environment for our employees and students.

Outreach to Schools

Our TEAMS program is not mandatory. Respecting site-based management, we ask the principal of a school with problems, if he/she would like to see the TEAMS presentation. Along with the presentation, we give teachers a questionnaire developed from information within the Tools for Schools kits.

With the information gathered from the questionnaires, we visit each classroom and talk with the teacher about the particular problems noted on the questionnaire. We explain the source of the problem and we offer a resolution. This approach creates a positive working environment in which the teachers know we respect them and will work cooperatively with them, to resolve their problems.

The “WE” Approach

Our main theme of the TEAMS concept stresses “I” cannot fix the problem, but together “WE” can. If the problem falls under TEAMS— including IAQ — any

TEAMS member may be contacted, “one, any, or all.” Utilizing the attitude of “WE,” not “I,” reinforces the point *we* all use energy, and individually and collectively, *we* can make a difference.

CFBISD TEAMS Teachers’ Questionnaire

SCHOOL _____ DATE _____ ROOM# _____

No	Please Answer All Questions	Yes	No	NA
1	I keep my classroom clean and clutter free			
2	My classroom is dusted and vacuumed regularly			
3	Trash is removed daily from my classroom			
4	My classroom is free of pests			
5	My classroom is free of pets			
6	I have fire exit maps of the school in my room			
7	Indoor wall surfaces are free of condensation			
8	Areas under and around sinks are free of leaks			
9	Classroom bathrooms are free of leaks			
10	Ceiling tiles and walls are free of leaks (discoloration may indicate a leak)			
11	My classroom is usually at a comfortable temperature			
12	I am the only teacher that uses my classroom			
13	My classroom has an exterior window			
14	Food is kept in my room overnight			
15	My classroom has a play box with sand, rice, macaroni, etc.			
16	Animal food is stored in my room			
17	I have plants in my room			

No	Please Answer All Questions	Yes	No	NA
18	I use household chemicals in my room			
19	I have chemicals/combustibles in the classroom			
20	My classroom is drafty			
21	My classroom has a microwave			
22	My classroom sometimes smells like vehicle exhaust			
23	My classroom has kitchen/food odors			
24	My classroom has a musty odor smell			
25	I store items in cardboard boxes in my classroom			
26	My classroom has upholstered furniture			
27	My classroom has scented candles or deodorizers			
28	My classroom has new furniture, computers or polypropylene toys			
29	I and/or my students sometime sit on the floor			
30	I use paint and/or aerosols in my room			
31	My classroom has a refrigerator			
32	My classroom has an old chalkboard			
33	I use propane in my classroom or on school grounds			
34	I have extension cords in my room			
35	I use surge protectors for my computer			
36	I have a power strip plugged into a power strip			
37	My classroom has an adjoining bathroom			
Comments, Ideas, or Notes:				
Revision 11/11/2008				

The TEAMS program has been presented to 30 schools throughout the CFBISD. Each school has their own reasons for requesting the presentation. Two schools in particular, Davis Elementary and Blair Intermediate, has taken the TEAMS approach and applied it to different areas within their own schools. We are now learning things from them and passing these ideas along to other schools within our district. One example follows:

Sent: Thursday, August 18, 2005 8:56 AM
To: Davis Staff
Cc: Lillie, Wade; Melton, Victor
Subject: custodial and bug issues

To reduce the bug and cleanliness problem, let's try three simple adjustments.

1. After snack put your trashcan outside the door so that the custodian can dispose of food items as he makes building rounds. This would be a good classroom "job" for students.
2. In the afternoon, or permanently, put the trash can by your door to reduce time for the night custodians.
3. Stack student's chairs on top of the desks at dismissal; see Erin if you need a model, she stacks them upside down, but opposite ways and they do not fall off. Vacuuming is faster when the floor is clear. Also have students pick up pencils, crayons and pieces of paper.

Let's try these three procedures. We are not getting any more labor to help at night, yet we added the equivalent of another wing onto the building with 5 more bathrooms.

We definitely have a bug problem in this building and food is a lot of the reason. Since strong pesticides cannot be used, any help WE can provide is good.

Thanks so much for your cooperation. Please implement today.

Lisa Williams-Principal
Davis Elementary School
972-323-6965

As mentioned before, the word “TEAMS” stands for the following:

“T” Tools for Schools, which includes IAQ and IPM;
 “E” Energy Efficiency;
 “A” Asbestos;
 “M” Moisture Management;
 “S” Safety and Security

We selected several people within the CFBISD, to represent these areas of expertise. This is an effective use of on-staff experts, and ultimately this approach benefits the TEAMS group as well as the District as a whole.

The following CFBISD employees are members of our TEAMS program:

Terri Lyons RN, BSN Nurse Manager

Rosalie Getz RN, Occupational Health Nurse

Patty Jo Nierste, Safety/Property Specialist

Renee Putter, Athletic Director

Johnny Hibbs, Executive Director Facilities/Transportation

Tom Bell, Construction Supervisor

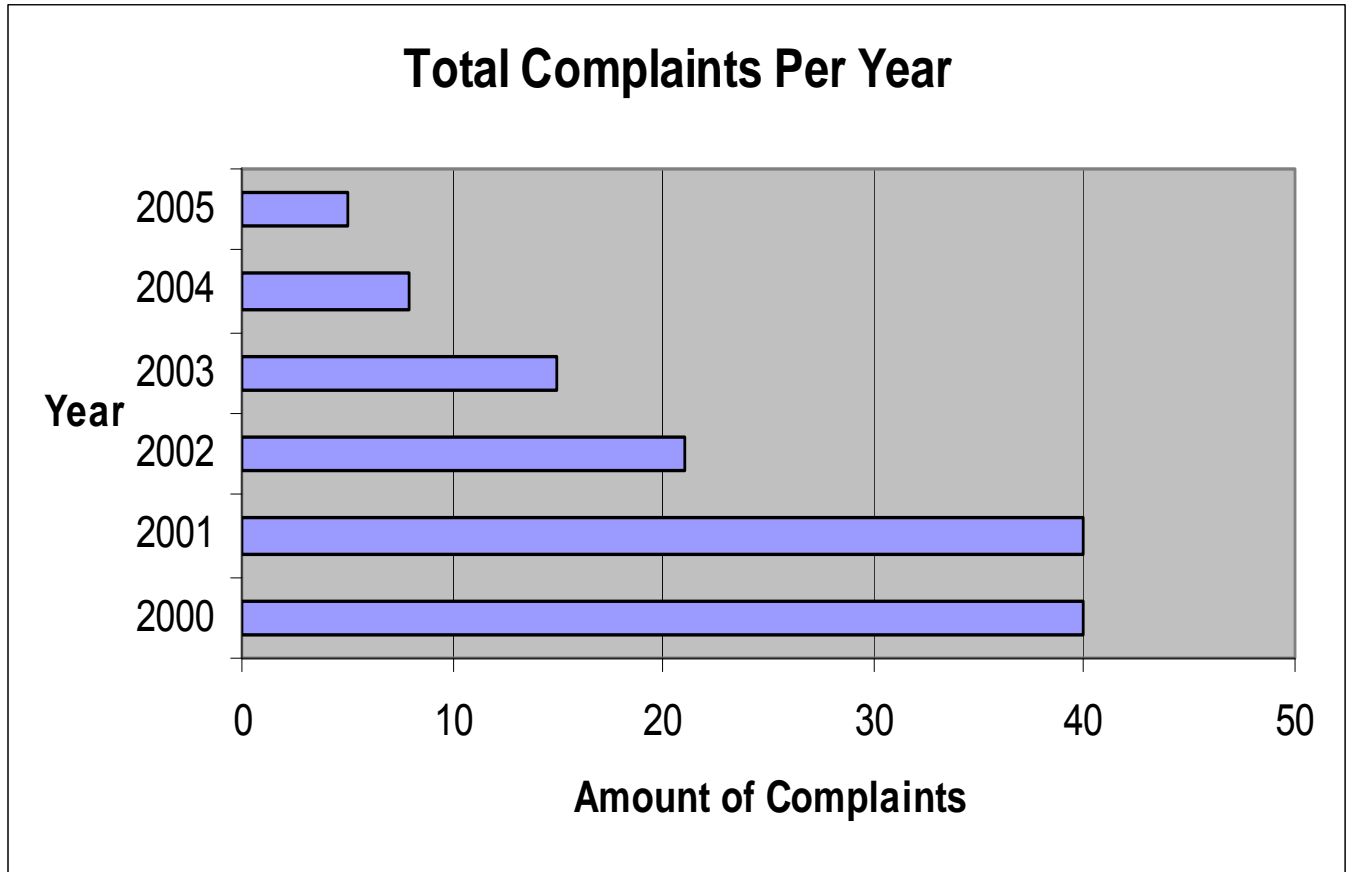
Melvin Beckham, Plant Operations Department Head

Victor Melton, Environmental Specialist and Energy Manager/IPM

Terry Vandenberg, HVAC Tech and Controls

Any TEAMS member can call a meeting to discuss a problem. With assistance and cooperation of the entire group, we immediately respond. This proactive response provides guidance to teachers and schools—they know who to call when they have a concern. Once a problem is solved, teachers are happy and invariably tell others about their experience, reinforcing TEAMS’ ability to get things done quickly and efficiently as possible.

Example of Proactive Approach to Responding and Resolving Issues



Responsiveness

A phone call, e-mail, or work order to any TEAMS member will prompt an IAQ investigation. The environmentalist visits the area or the complainant within one hour of acknowledgement. A determination is made and the appropriate department is notified. A report is begun, and a detailed investigation begins. If the problem is a VOC or mold, other TEAMS members may be called to help with the investigation. After resolution, the respondent contacts the complainant, informing them the issue is resolved. If the environmentalist determines no problem exists, a call or e-mail lets the complainant know the results of the findings.

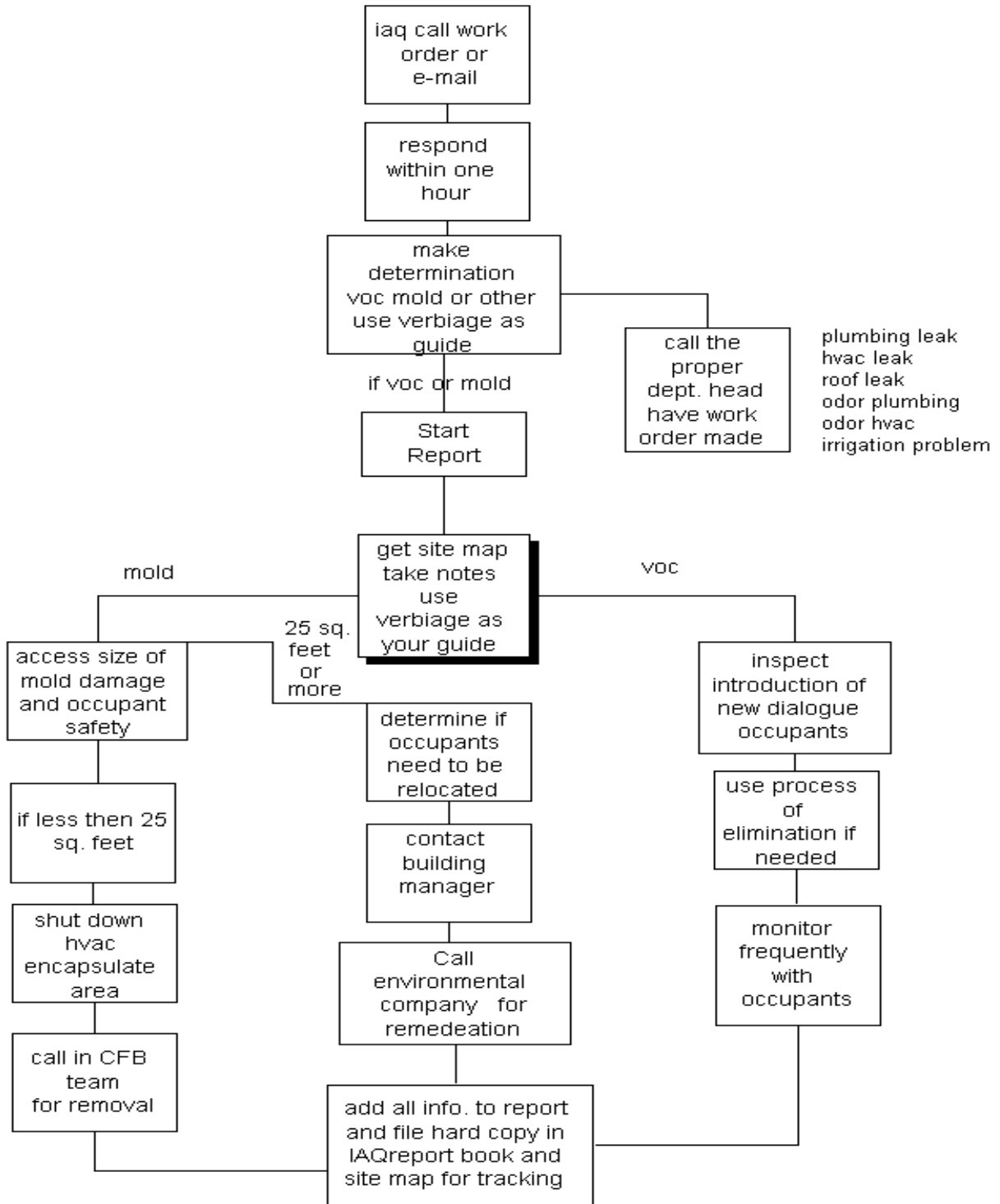
The process flow diagram titled, “IAQ Report Flow,” shows the procedure for time from report of a problem to resolution.

Proactive Approach to MRSA

The District is concerned about MRSA — a staph infection— whose spread can be reduced by good hygiene practices. We educate our elementary school children about the importance of washing their hands, and we stress the importance of frequent hand-washing with a song written by one of our TEAMS schools. Davis Elementary volunteered to write and record the message for distribution to the elementary schools District-wide. We give a presentation to all middle school students, high school students and coaches on the effects of MRSA, the importance of personal hygiene, and the prevention and spread of staph infection. Using the TEAMS concepts, CFBISD addresses this public health concern head-on to minimize exposure.

The TEAMS members are trained in IAQ, IPM, energy awareness, asbestos, moisture management and safety. We found during our presentations, teachers and staff have little instruction and training in these areas. Once the information is presented in the context of TEAMS, they understand interrelated issues and willingly cooperate to help us maintain our IAQ levels and best practices. We found teachers want to do the right thing; however, they may not have the knowledge or education to take action. Our IPM segment works the same way. Once we explain the difference between a “pest” and a “pet,” and why the district does not use chemical treatments indoors, they know how to keep their classrooms pest and odor free.

IAQ REPORT FLOW



Communication

We are able to communicate plans/improvements to the schools, media and parents through a CFBISD web page <http://cfbstaff.cfbisd.edu/CFBEnergyAwareness/> and during the annual Principal's meeting.

Estes McClure and Associates, an engineering firm working with the CFBISD, has given a short version of our TEAMS presentation at the both the 2004 and 2005 World Energy Engineers Congress ("WEEC"). We make the TEAMS presentation available through our website and offer on-site presentations to other districts. Once the principals see our TEAMS presentation and tell the teachers and staff, word of mouth is the best for our introduction, followed up by resources from the District's website.

Our TEAMS presentation educates teachers and staff about IAQ. We explain IAQ in simplified terms. We also explain what sorts of things in the classroom environment may adversely affect the indoor air quality and how these effects are detrimental to personal safety, the safety of students and the general classroom/learning environment.

During the IAQ portion of the presentation, a large beaker is displayed. We pour a portion of a new bottle of water into the beaker. *This represents our new classroom.* As the presentation continues, we ask the teachers what sorts of things they bring into the classroom. Items such as fabric furniture, plug-ins, fish tanks, plants and pets are all mentioned. Each time a teacher lists an item brought into the classroom, we add something to the beaker—like coke, orange juice, milk or applesauce. We explain all material brought into the classroom can affect IAQ.

Individual items may not cause a problem; however, combinations of these items create an environmental cocktail, which can result in individual safety hazards and unintended consequences, such as poor IAQ.

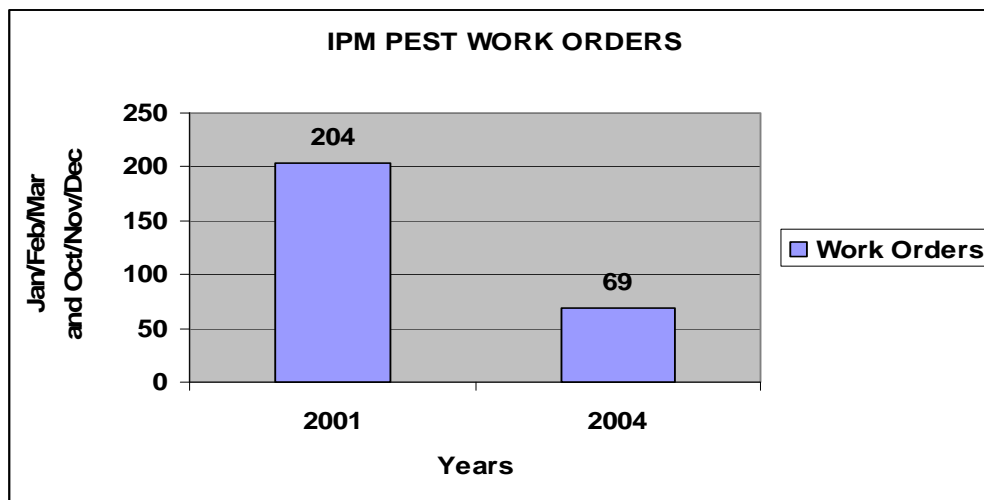
Each person's tolerance to contaminants is different. Some students may have an allergic reaction or worse, an asthma attack. When teachers and staff realize things brought to make classrooms smell better or feel more like home, can affect the IAQ, they understand why these sorts of items need to be eliminated or limited. This understanding is one of the most important outcomes of our presentation.

Off Gassing and VOCs

We try to have all of our new and/or remodeled buildings completed, with time left to run the HVAC in order to lessen the off gassing (VOCs) of new products before the students and teachers arrive. The District strives to ensure furnishings are removed from shipping containers and the refuse is promptly removed from the building. This is now our Standard Operating Procedure (SOP) for new and renovated buildings. *Before any chance of problems begins in a new school, new classroom, or remodeled classroom, we highly recommend all of these schools receive the TEAMS presentation again, or for the first time.*

Results of IAQ/IPM and TEAMS

The CFBISD has six individuals trained in IPM. The CFBISD was the first district to host a formal meeting with other school districts within Texas, to discuss the importance of the use of IPM during new school construction and remodeling. We estimate with our current IPM and TEAMS program, District has saved \$200,000 in expenses within the last four years. This was accomplished by a decreased use of chemicals, and using our own certified and trained employees for IPM. This resulted in a decreased number of pest work orders. In 2003, the CFBISD won second place in the State IPM awards program for Texas and in 2004 the CFBISD first place. Most recently the CFBISD was awarded the first IPM Star Certification in the state of Texas. “The approach to healthy schools and classrooms at Carrollton – Farmers Branch is unique and one of the best we have seen,” reports Dr. Thomas Green, president of the IPM Institute, who conducted the evaluation. “IPM is fully integrated into the overall effort to create healthy schools...”



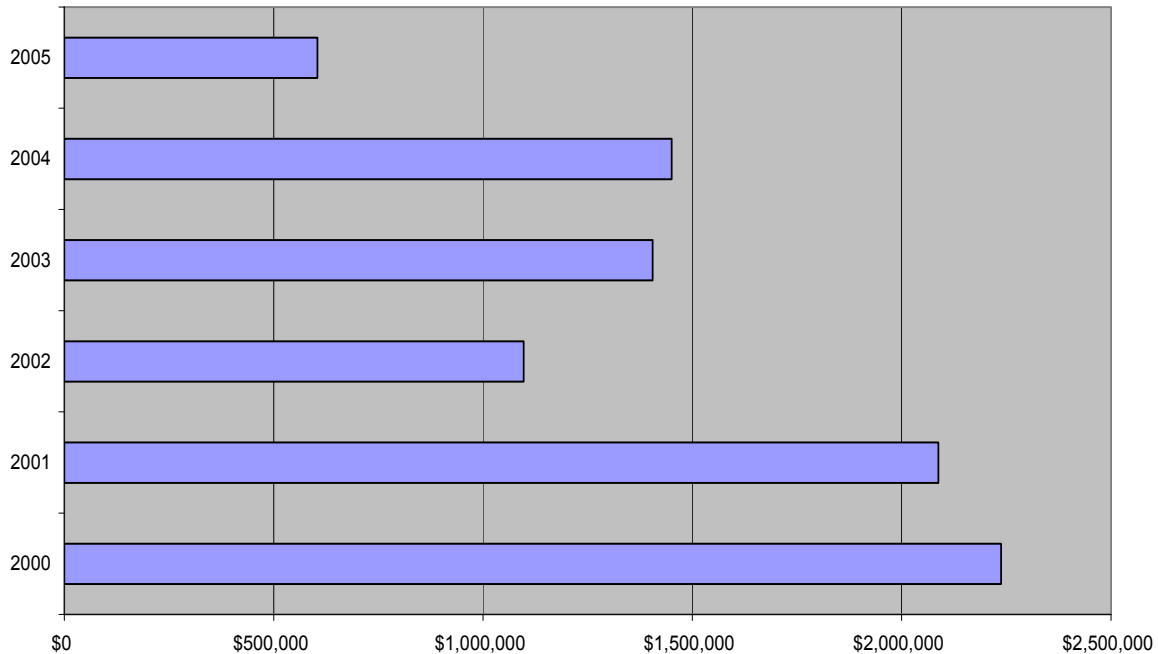
Controlling Mold

Controlling moisture is the key to preventing mold growth. We initiated a map and track system in our TEAMS schools. We are able to map our leaks and inform responsible parties of the number of leaks and their locations. This practice enables informed decision making, such as which school may need a new roof and/or where the majority of our problems lie. The maintenance department knows precisely where to find the leak to fix. Tracking leaks is a tool for confirming the leak has been fixed. During our TEAMS presentation, we emphasize to the teachers and staff, they are our best eyes and ears in their schools. If they see a leak that's been reported, but not fixed, they can call on any of the TEAMS members to respond and the problem will be addressed in a timely manner. We invite them to "help us, help you."

Safety

Routine housekeeping and safety hazard abatement is especially stressed as part of the TEAMS "safety" component. We empower our faculty and staffs by letting them know how much workplace injuries cost the District and explain how those costs relate to annual budgeting. The District's savings to date is over 1 million dollars, as a result of our modified-duty safety program and the TEAMS concept. We stress the importance of minimizing potential contributing factors to workplace injuries, which in turn, minimize factors that contribute to poor IAQ. We also stress the fact that if their classroom is hazardous to them, it is also hazardous for their students.

**Loss History for Carrollton-Farmers Branch ISD
Claim Years 2000, 2001, 2002, 2003, 2004 & 2005
(All Departments, Year-End Total Incurred)**



	2000	2001	2002	2003	2004	2005
■ C-FB ISD	\$2,237,736	\$2,087,618	\$1,097,289	\$1,405,155	\$1,450,672	\$604,200

The Graph above represents money saved as a result of CFBISD safety program

Support

Because we have been extensively open and inclusive, we have not experienced significant roadblocks in implementing our TEAMS approach. We have positioned the TEAMS/IAQ program in a way that stresses the overwhelmingly high positive (benefits) in vast contrast to the relatively low sacrifice (cost). When we first conceived this program, we approached managers with the idea. Upper management fully supported us and three months later TEAMS became a reality.

There are two main reasons why we do not experience many roadblocks: 1.) We do not mandate TEAMS in our schools, and 2.) We have the full support from the top management on down. Occasionally we receive isolated criticism from teachers who do not understand the importance of IAQ in the classroom. In the vast

majority of those cases, after we speak with them about the effects of poor IAQ and re-emphasize the overall benefits, versus costs, we convince them and they are cooperative.

Because IAQ is improved, absenteeism rates are down.

TEAMS Lifetime

TEAMS is a sustainable program because the concept works to educate and education is never ending. TEAMS can be extensive or minimal.

The concept itself will always be a part of the CFBISD because of the proactive approach taken by the core TEAMS members. And to continue, we are in the process of training others within the district to give the TEAMS presentation. Programs can be changed and even eliminated; however, the actual concepts developed and implemented will remain unchanged and carry forward. The presentation will need to change as the challenges change to maintain good IAQ.

The challenges will inevitably change but our commitment to good indoor air quality and integrated pest management will not. We strive to create a positive learning environment for our students who are after all, the future teachers and leaders of tomorrow.

Our Thanks

The engineering firm of Estes McClure and Associates has given the District invaluable advice and assistance. We thank you all!

The Texas State Energy Conservation Office (SECO) has also given us a lot of good ideas. We thank you, all too!

Mike Miller and the US EPA must be thanked for their assistance as well as the Tools for Schools kits so graciously given to the District. Innovative ideas found within the kits gave us seeds to plant great ideas for our presentations.

We thank Janet Hurley of the Texas A&M Extension Agency for all her assistance. She provides CFBISD with the necessary educational materials on the best IPM practices. She also keeps us up-to-date via a monthly newsletter, on what other Texas schools are doing to improve their IPM programs. Whenever we require help with a pest problem, the Texas A&M Extension Agency has been our best source for a resolution.

We use Commercial Risk Services, a risk management consulting firm, to assist in the coordination of employee safety. By connecting workplace safety with IAQ and the quality of the learning/working environment, we are able to achieve a level of success not realized in the past, when the two efforts were unconnected. We increased teacher morale and safety, and significantly decreased workers compensation costs and claims.