

2007 Indoor Air Quality (IAQ) Tools for Schools Evaluation Results
Connecticut School Indoor Environment Resource Team (CSIERT)

Introduction:

School indoor environmental quality (IEQ) problems continue to be an important public health issue, both in Connecticut and nationally. In Connecticut a consortium of federal and state agencies and organizations, led by the CT Department of Public Health, conducted a ten-year effort to respond to the problem by assisting school districts to implement and maintain EPA's Tools for Schools program. The EPA Indoor Air Quality Tools for Schools program is based on an action kit that provides materials necessary to promote a low-cost, preventive, problem-solving team approach to improving IAQ. A committee or "building team" made up of administrators, teachers, maintenance staff, school nurses and parents use the kit to investigate and prioritize indoor air hazards. Short and long-term strategies are then developed to assist the schools in solving IAQ problems.

An impact/outcome evaluation of Connecticut schools was conducted in 2002 and 2003. These two surveys were analyzed, and the 2003 survey results were reported in an ATSDR Public Health Consultation and an unpublished ATSDR white Paper. Among other findings, the 2003 survey report found that, as a result of utilizing the TfS program to document IAQ problems, most schools reported that they had either remediated or repaired those problems or had them scheduled for remediation or repair. IAQ problems with the most potential health impact that were reported included ventilation problems and poor maintenance. A large majority of the schools that identified these problems were able to rectify them: for ventilation problems, 81%, and for general cleanliness 54%. Although there was an attempt to collect IEQ-related health outcome data from school nurses, there was a lack of systematic data collection. Based on the interventions reported, there were a large number of students (as many as 22,000) and staff (2,251) who are benefiting from improved ventilation and cleanliness. In addition, a substantial number of schools(49) reported remediation efforts regarding water problems. It can be inferred that children and staff in those schools are likely to have benefited from these interventions.

In 2006-2007, a new evaluation project was undertaken to survey a larger sample of schools and attempt to collect health outcome data. This report summarizes the 2007 evaluation project.

Methodology:

The survey instrument was developed and distributed to a sample of TfS building team coordinators. The principal objectives of the survey were to collect information about:

- Documentation of IAQ problems,
- Utilization of TfS to make changes,
- Identification of barriers the teams may have encountered
- Impact of TfS implementation on health in schools.

The survey instrument (Attachment C), along with a cover letter, was e-mailed to TfS building team coordinators at 654 schools that had implemented the program at the time of the mailing. These schools were chosen on the basis of having completed the 2-session training mentioned above and having at least 6 months additional time to implement the program. The coordinators

were asked to answer all questions except those pertaining to health. The school nurse was asked to answer the health questions on page 3 of the survey. Follow-up e-mails were made to increase participation from schools that did not initially respond. A total of 110 schools (17 %) responded. The survey responses were entered into a Microsoft Access database for analysis.

SURVEY RESULTS

Demographics:

The survey response by type of school reflects the overall state school type percentages:

State percentage of elementary schools – 67% (63% -survey)

State percentage of middle schools – 17% (24% - survey)

State percentage of high schools – 17% (17 % - survey)

The type of respondents by occupation reflects the fact that the majority of the team coordinators are administrators or school nurses.

Tools for Schools Implementation:

Previous IAQ Efforts [Question # 2]: A substantial number (46%) reported that they had an IAQ management plan or health and safety team prior to implementing the TfS program. Although we did not collect more specific data differentiating whether they had a plan OR a H & S team, it is likely that this result reflects the fact that there is a state law requiring workplaces (over 25 employees) to have labor/management health and safety teams.

Motivating Factors for Implementation [Question # 3]: The most frequent reasons cited for implementing TfS was “school district administration directive” (34%) and “state mandate” (10%). The passage of the 2003 state law mandating that all schools have an indoor air program is likely for the majority of district decisions to implement the program. The large majority of the rest of the responses can be attributed to health concerns (complaints, health and safety issues – 32%) or building concerns (10%).

Implementation Process [Questions # 1, 4]: CSIERT’s implementation training program consists of 2 workshops. The vast majority (90%) of participating schools reported that their teams had completed both workshops. This result mirrors our training schedule tracking data: a small number of districts or individual school teams did not attend the 2nd session workshop. The TfS program involves completion of a number of steps in order to be able to assess problems and begin to facilitate improvements, as shown below in Question # 4. The first key steps are to distribute (using the “action packet” which contains introductory materials and the appropriate checklist), collect and summarize the checklists (i.e., the teachers’ checklist). Only 60% of the respondents reported “distribution of action packets.” However, 70% reported that the checklists were collected and summarized. This discrepancy may be partially explained by: 1) turnover in team leadership, 2) use of an electronic version of the survey without distributing the packets, and 3) confusion about the question.

IAQ Problems Identified & Response:

Respondents were asked to report identified IAQ problems, grouped into categories: ventilation, source reduction, water identification and other problems.

Ventilation Problems: The most frequent (63%, N=59) ventilation problem identified was thermal comfort (temperature, humidity). This finding is in line with other surveys and anecdotal evidence. Responding to thermal comfort issues is often difficult because of individual perceptions, occupant behaviors, and access to air conditioning. Eighteen schools identifying thermal comfort reported the problem(s) repaired or scheduled for repair. The second most frequent problem identified was the need for improved outdoor air intakes (30%, N=27). Air intakes for central HVAC systems and individual classroom ventilators may be located near pollutant sources such as idling vehicles and pollen sources. Eleven schools (12%) reported that they had intakes repaired or scheduled for repair.

Source Reduction: Of the Source Reduction section of problems, *General Cleaning Improvement* was the most cited area (44%, N=42,). This relatively low percentage is somewhat surprising. Cleanliness in schools is a major issue, as schools have a high occupancy rate, and regularly face funding shortfalls with maintenance budgets usually the first area cut. In addition, school custodial closet rates (# of custodians per square foot) are lower generally than typical office buildings, even though school buildings have four times the occupancy rate (EPA). Twenty-six percent (24) of the respondents identified Carpet Cleaning or Removal, with 55% (N=51) marking repaired/scheduled for repair. Of all IAQ interventions, carpet removal in the lower elementary grades appears anecdotally to have the greatest impact on health complaints and symptoms. Of interest was the finding that of the 82 schools responding to the question *Bus Idling Policies Lacking*, 21 schools identified this as a problem, with 9 having taken steps. Generally, it is reported over the last 3-4 years of training that buses are no longer idling. This may point to the need for follow up with those schools and districts citing this as a problem.

Water Identification Problems: Water/moisture related problems are often the most publicized IEQ problem in schools because of the subsequent growth of mold when these conditions occur. *Inspections of leaks, spills, moisture* had the highest frequency at 69% (N=67) of the respondents. Fifty-eight percent of responding schools identifying these problems had repaired or scheduled for repair moisture-related problems. Fifty schools reported roofing problems, with 34 (68%) relating that they had taken steps to address them.

Other Problems: Question # 5 also asked about other problems, and specifically about renovations. Renovation projects, though always welcome, can pose particular problems, especially when extensive renovations take place when the school facility is occupied by students and staff. These problems may include fugitive general dust, asbestos, lead dust, and contamination of the HVAC system. 23 of the 75 (31%) schools responding to this question reported their schools were slated for or under renovation. There were 29 “other” problems listed individually. Of these, the majority (11) were ventilation-related (fans installed, vents, increased air flow), with 4 mold-related responses, and 4 pertaining to renovations. A detailed chart can be found in appendix A

IAQ Funding:

Question # 6 inquired about funding sources for repairs and upgrades that required financial outlays. The most frequent response “School Budget (52%) was followed by “Maintenance Budget (most likely a subset of the overall school budget) (42%), and “Capitol Improvement fund” (35%). The responses to “Other” fell under school or maintenance budget.

New Policies as a Result of Implementing TFS:

Question # 7 inquired about new policies or committees implemented as a result of implementing TFS. The establishment of new policies and/or committees is a major goal of implementing TFS. Thirty-eight respondents (42%) marked yes, and 36 schools wrote in specific responses. The majority (12) wrote in “IAQ Committee or “TFS Committee,” as might be expected. Six respondents listed “Wellness Committee,” which likely reflects efforts by the Departments of Public Health and Education to establish wellness committees in school systems. Of interest would be to find out whether the TFS building teams are integrated into broader wellness committees.

Operation of TFS District Program

Questions #8 through #13 pertain to the ongoing operation of the school and district’s TFS program. TFS is geared to be a long-term program, to be sustained over time. Through a multi-year effort, schools and districts are more likely to be successful in identifying and remediating IEQ problems.

School respondents were asked how often their IAQ building team met since being trained (Q#8). The majority (55%) reported meeting “not more than a few times,” 8% reported “monthly,” and 35% reported “other.” Building Teams are encouraged during the implementation training sessions to meet several times a year, based on the need for work to be done, and not necessarily on a monthly basis. With the continuing increase in demands on staff time, this has instruction has become more crucial to the success of the program. Therefore, this finding is not necessarily a negative one.

Question # 9 asked whether the program has lasted beyond the initial year of implementation. A large majority of responding schools (83%, 85 schools) report that their TFS program has continued beyond the initial implementation year. Sixteen schools (15%) reported that they were still in their initial year, and only 3 schools reported that the program had not continued. Overall, this is an encouraging finding. However, there is an inherent bias here, as schools participating in this survey are more likely to have continued their program.

School Districts are encouraged to develop or utilize an ongoing district-wide structure to oversee and sustain their TFS program (Q #10). Of those responding, 93% (87 schools) reported having such a system. The majority of those (48%) were district health and safety committees, which are likely to be labor/management committees set up to comply with state law requiring employers to have such committees. The next highest frequency (34%) was “Specially appointed Committee.” One question posed by this response is whether the respondents are referring to a district committee, or mistakenly are reporting their individual committee. Eleven

schools reported their district had a single designated coordinator, and one reported that the Building and Grounds Committee was designated.

Question #11 inquired about building team participants. CSIERT considers an effective team to include an administrator, teacher, custodian, head nurse and a parent. High Schools are strongly encouraged to include students. Almost all reported having the school nurse (97%), a teacher (90%) and an administrator (91%) on the team. A somewhat lower number (87%) reported custodial participation – a key component to success. Seventy percent (74 schools) reported parent involvement. Question #12 asked respondents why parents were not involved. Of the 12 schools responding, four reported they made unsuccessful attempts or were unable to replace a parent that left, and 2 schools reported it as an oversight. Some schools reported district administrative involvement: 59% reported facility manager involvement (likely under-reported) and 28% reported “Central School Administration” participation. Sixteen schools reported school board member participation. This is a positive finding as school boards decide budget issues for the district.

Question #13 asked about actions taken to implement a long-term TfS program. Fifty-seven percent (61 schools) checked that they have established a written communication plan. Communication is a strong factor in the success of TfS, both in the short and long term. Forty-nine schools (46%) reported that they had established a staff IAQ coordinator position. There was apparently some confusion in what this meant – for the survey’s purposes, this means creating a paid position to specifically coordinate the district’s TfS program. As of now, we are aware of only 2 districts that have taken this step. It is likely that the respondents meant a staff person assigned such as the facilities director. Many schools (35) checked that they had adopted a district policy regarding training custodial staff about IAQ issues. CSIERT strongly suggests that districts conduct “kick-off” meetings of teams in the fall as a way to sustain the program. Only 34 schools (32%) reported conducting these meetings. Finally, districts are encouraged to adopt written IAQ management plans by both EPA and CSIERT. Only 21% of those responding indicated that they had established plans.

Major Barriers and Needed Resources

Survey respondents were asked to list major barriers to fully implementing TfS that might exist (Q #14). As would be expected, the largest response (36%) was funding. Many of the problems that TfS assesses arise from overall school funding problems. In addition, maintenance budgets are virtually always the first budget item to be reduced, which affects building conditions. Lack of time was another barrier reported, with 31% reporting. Eleven schools listed staff issues as a barrier, which may be related to lack of time. Three schools listed renovation issues.

Question # 15 asked respondents to list what additional resources CSIERT and EPA might provide. This question only received 22 (20%) responses. Similar to question #14, the majority of responses (8) listed funds. “Information” (7) and “Training” (4) were the other principal responses. Information may refer to the need for additional technical information about addressing specific issues.

Noteworthy Interventions or Funding Sources

Respondents were asked to list interventions or funding sources that were noteworthy (Question # 16). Thirteen schools responded to this question. Three schools specifically mentioned utilizing air conditioners as a method of addressing ventilation problems, and 2 schools listed HVAC systems being replaced. Improving ventilation is perhaps the most important intervention to address IAQ problems. Other noteworthy interventions noted include addressing carbon monoxide issues, radon testing, switching to green products and upgrading to higher quality filters.

Regarding funding sources, one school listed the use of a cash surplus to improve HVAC equipment, and another reported a town-wide referendum that approved a building renovation project.

Satisfaction with TfS, Comments and Suggestions

The majority of respondents (51%, N=50) expressed satisfaction (circled #4 or #5) with the implementation of TfS in their school, as reported in Question #17. However 43% (N=42) circled #3, which can be interpreted to be neither satisfied nor unsatisfied. Only 12% (6) respondents were unsatisfied with TfS implementation.

Question # 18 asked respondents to offer comments or suggestions. Of the comments offered, 7 were positive, expressing satisfaction with the resources provided and stating that the program has improved conditions in the building. Five respondents expressed problems, including coordination issues, problems with the EPA teacher's checklist, and noting that the process "has grown into a monster at times."

Health-Related Questions

The survey contained a separate page of questions to be answered by the school nurse. This was the most problematic section of the survey because of the lack of systematic collection of comprehensive health data from school nurses. The first question, "In your opinion, has there been a decrease in the number of IAQ-related symptom complaints since TfS was implemented" had a total of 82 responses. Of those responses, the majority (49%) checked "Don't Know/Not Sure." Twenty-nine percent (24) responded "Yes", and 22% (18) checked "No."

School nurses were also queried about changes that may have occurred in the reporting of asthma symptoms for those students with a known asthma diagnosis since implementing TfS. There were 79 responses, with 56% (44) stating that in their opinion there had been no change. Twenty-one nurses (27%) checked "Don't Know/Not Sure." and 14% (11) reported that there had been a decrease in asthma-related symptoms.

The Nurses survey page also presented a chart requesting cumulative numbers regarding student absences, number of IAQ-related staff complaints, number of trips to the nurses office, number of respiratory-related trips, and number of times asthma medication was dispensed and number of students with a known asthma diagnosis, for the year prior to TfS and the 2005-06 school year. For several reasons, the results are not valid, principally due to the lack of or incomplete data – including lack of access to existing data, fluctuating student enrollment and reporting

problems. These problems were noted in the Comments section of the nurse's survey. Of the 22 comments listed in this section, 8 cited data collection issues as a problem, including inadequate data collection (no computer-based system) and parental reporting problems. Others cited that asthma medicine was self-administered by students, therefore no access to numbers, and that the most of the asthma-related trips to the nurse's office were exercise-related. Three respondents reported moving to a new school.

Study Limitations:

There are several limitations regarding our survey and subsequent data collection.

Low Response Rate: First, it is difficult to obtain an optimum response rate. Part of this problem is due to incomplete or inaccurate email addresses initially collected at the training workshops. School personnel have many time demands – responding to voluntary surveys would likely be a lower priority. Also, it is possible that there is a reluctance among some school administrators to give information regarding the state of their facilities and/or a lack of action regarding their TfS program. Finally, the survey tool may have been perceived as being too long and detailed, and therefore limiting response.

Data Accuracy: Another potential problem with the survey strategy is the possibility that the TfS coordinator filling out the form may not have access to the most up-to-date information. The responses to a self-reporting survey tool are difficult to verify for accuracy. In addition, there is an inherent self-selection bias. Additional accuracy issues may have resulted from data entry problems. Our experience from this survey and the previous 2003 effort have led us to conclude that more accurate data may be collected from the TfS district coordinator, who is usually a facilities director and/or district business officer. Finally, more accurate data regarding the impact of the TfS interventions could be obtained by environmental sampling, however this was not feasible.

Health Data Collection: Obtaining accurate health outcome data is the most problematic survey task, as noted above. The most important reason is the lack of a comprehensive surveillance system that includes IAQ-related data collection points.

Conclusions and Recommendations:

1. Attempting to evaluate the efficacy of interventions such as the TfS programs can be difficult. There are several substantial problems with conducting self-administered surveys of TfS school-based coordinators, including obtaining an adequate response rate and collecting accurate data. School staff are under significant time pressures and therefore make survey response a low priority. In addition, coordinators may change or leave without being replaced. Present coordinators may not have or be able to obtain the most accurate information about TfS improvements. *Future efforts to collect information regarding TfS impacts and outcomes should be directed at school district facilities directors and/or business managers, with input from head custodians.*

2. *It is important to develop and implement a comprehensive system of collecting and reporting health outcome data by school nurses, including such indicators as IEQ-related respiratory complaints, numbers of asthma-related office visits, nebulizer use, asthma or allergy-related absenteeism, and specific building-related health complaints. This data collection and reporting should be part of CDC's Environmental Tracking Program efforts.*

3. Based on the survey response, schools have been successful in utilizing the TFS program to identify and remediate IEQ problems:

- Thermal comfort problems were the most frequently cited ventilation-related problem. This is in line with reports from IEQ studies and studies -temperature and humidity are widely regarded to be difficult to address.
- Of source reduction problems, general cleaning improvement was the the most frequently cited issue. Building maintenance, particularly custodial coverage, is a major factor in preventing IEQ problems in schools. The custodian per square foot guideline for schools is less than typical office buildings, although schools have four times the occupancy rate. With budget cuts, school maintenance budgets are generally the first item to be reduced. *It is important to maintain adequate school maintenance budgets to maintain healthy schools and preserve the facilities. There is a direct connection between poor maintenance and poor IEQ in schools.*
- Water-related problems were the most frequently mentioned IEQ problem of all IEQ issues identified – 67% of all respondents. The majority of these schools reported taking steps to repair these problems. This is an important finding, as moisture problems lead to mold infestation and potential structural damage.

4. *All schools in Connecticut should adopt and maintain EPA's Tools for Schools program.* The findings of this survey indicate TFS to be an effective intervention. The program also addresses part of the requirements of the 2003 School IAQ Act (Public Act No. 03-220).

5. *Schools that have adopted TFS should actively maintain their program after the initial year of implementation.* CSIERT offers free training to assist school districts to sustain their TFS program.

6. *All CT school districts should develop and maintain an IEQ Management Plan. The EPA Tools for Schools kit provides useful guidelines in developing a plan. IEQ Management Plans should include a district wide structure (i.e., a committee) to oversee the TFS and other related programs.*

7. Parental involvement in the Tools for Schools process is very important to the success of the program. A substantial factor in the success of the TFS program is having a good communication plan. Parents are an important part of such a plan. Seventy percent of the responding schools reported parent involvement. *CSIERT should continue to work with school districts to make parental involvement in TFS a priority and should work to ensure that all TFS building teams have at least one parent member.*

? add info re: 2003 survey and compare results.

Appendix A: 2007 Indoor Air Quality (IAQ) Tools for Schools Evaluation
Connecticut School Indoor Environment Resource Team (CSIERT)

Elementary Middle School High School

67 (62.62)	26 (24.30)	18 (16.82)
# students		# staff
50872.00		5617.00

School Nurse Facility Mgr. Administrator Teacher Parent Other:

Title		
	Frequency	Percent
Administrator	41	40.59
Facility Manager	3	2.97
Other	2	1.98
School Nurse	44	43.56
Teacher	11	10.89

1. Did your school complete **both** of the *IAQ Tools for Schools* trainings (Introductory & Walkthrough with Industrial Hygienist)?

School completed both trainings		
	Frequency	Percent
No	10	9.52
Yes	95	90.48

2. Did your school have an **IAQ management plan** or **health and safety team** that addressed IAQ **prior** to *IAQ Tools for Schools* trainings?

IAQ Mgmt plan prior to TFS		
	Frequency	Percent
No	56	55.45
Yes	45	44.55

3. What were the **motivating factors** to implementing *IAQ Tools for Schools* at your school?

Motivating Factors		
	Frequency	Percent
Administration	31	34.07
Building Issues	9	9.89
IAQ Complaints	12	13.19
Improve Health & Safety	20	21.98
State Mandate	9	9.89
Director of maintenance implemented program to provide structure to address IAQ	1	1.10
Discussion s with the media on mold in schools.	1	1.10
Felt this was a more comprehensive program	1	1.10
Interested in seeing exactly what shape our building was in. The kit was very organized and fairly easy to use.	1	1.10
Maintenance Dept expresses interest since renovations were just completed	1	1.10
Success stories shared by other schools	1	1.10
Were already forming a committee and this was a great tool to implement already in place	1	1.10
encouragement from state agencies and regional schools	1	1.10
we knew we needed it	1	1.10

4. Which **IAQ Coordinator Checklist steps** have been **completed** to date?

	Freq	Percent
Distribution of Action Packets	64	59.81
Checklist Log	64	59.81
Checklists Collected & Summarized	74	69.16
Results mapped on School Blueprint	55	51.40
Assess Pest/Pesticide Status	63	58.88
Assess Asbestos Status	55	51.40
Assess Radon Status	56	52.34
Prioritize Repairs & Upgrades	55	51.40
Develop & Distribute Summary Report	45	42.06
Present Report to Board of Education	24	22.43
Establish or Update School IAQ Policy	18	16.82
All Steps Completed	51	47.66

5. Which IAQ problems have been identified, repaired, or scheduled for repair? *(Please check all that apply)*

	NO PROBLEM IDENTIFIED	IDENTIFIED	SCHEDULED FOR REPAIR
VENTILATION PROBLEMS	Freq Percent	Freq Percent	Freq Percent
Obstructions from air vents	62 65.26	6 6.32	27 28.42
Filters need upgrading or replacing	51 57.30	10 11.24	28 31.46
HVAC units & ventilators need cleaning	51 56.67	9 10.00	30 33.33
Temperature/dryness/humidity need improving	35 37.23	41 43.62	18 19.15
Arts/sciences room needs ventilating	72 79.12	12 13.19	7 7.69
Outdoor air intakes need improving	63 70.00	16 17.78	11 12.22
SOURCE REDUCTION PROBLEMS			
Radon remediation needed	74 87.06	1 1.18	10 11.76
Asbestos remediation needed	72 84.71	4 4.71	9 10.59
Cleaning products need replacing with "greener products"	52 59.09	20 22.73	16 18.18
General cleaning improvement needed	54 56.25	30 31.25	12 12.50
Carpet cleaning or removal needed	42 45.16	24 25.81	27 29.03
Pests or pesticide use remediation needed	70 84.34	6 7.23	7 8.43
Arts/science materials need replacing with "greener products"	70 78.65	12 13.48	7 7.87
Classroom animal dander exposure	83 91.21	5 5.49	3 3.30
Bus idling policies lacking	70 76.92	12 13.19	9 9.89
WATER IDENTIFICATION PROBLEMS			
Inspections of leaks, spills, moisture	30 30.93	28 28.87	39 40.21
Plumbing problems	57 63.33	11 12.22	22 24.44
Roof problems	43 46.24	16 17.20	34 36.56
Basement or crawlspace needs upgrading	71 83.53	8 9.41	6 7.06
Removal of water-damaged materials needed	63 69.23	9 9.89	19 20.88
OTHER PROBLEMS			
Renovations to classrooms, buildings	52 69.33	9 12.00	14 18.67
Other1 (specify)_____	5 25.00	5 25.00	10 50.00
Other2 (specify)_____	3 33.33	2 22.22	4 44.44
Other3 (specify)_____	1 33.33	N/A	2 66.67

Other1		
Other1	Frequency	Percent
4 moldy portable classrooms	1	4.55
Building project	1	4.55
Interior courtyard renovated	1	4.55
ceilings replaced	1	4.55
current building will be renovated as a M.S.	1	4.55
difficulty maintaining IAQ in temp classrooms	1	4.55
exhaust ventilation	1	4.55
fumes from laminator	1	4.55
humidifier in 4 rooms	1	4.55
increased air flow in computer lab	1	4.55
mold in sink	1	4.55
mold smell in library	1	4.55
office windows	1	4.55
parking lot exhaust fumes	1	4.55
removed carpet in 11 rooms	1	4.55
renovate like new ongoing	1	4.55
replaced 5 roof fans	1	4.55
roof replacement	1	4.55
science labs	1	4.55
temporary partial roof repair	1	4.55
tested for radon 1/07	1	4.55
vents need cleaning & repair	1	4.55

Other2		
Other2	Frequency	Percent
classroom fans installed	1	14.29
increased air flow in copier room	1	14.29
individual air purifiers brought in	1	14.29
leaks	1	14.29
longer blind rods	1	14.29
replaced 2 big roof fans	1	14.29
speech/language office space	1	14.29

Other3		
Other3	Frequency	Percent
2 bathroom exhaust fans	1	50.00
removed overgrown shrubs	1	50.00

6. If **funds** are or were required for **repairs/upgrades**, how will/were they obtained?

- | | |
|---|---|
| <input type="checkbox"/> School budget 56 (52.34) | <input type="checkbox"/> Capitol improvement fund 37(34.58) |
| <input type="checkbox"/> Town budget 22(20.56) | <input type="checkbox"/> Maintenance budget 45(42.06) |
| <input type="checkbox"/> Board of Education 27(25.23) | <input type="checkbox"/> Bonding 13(12.15) |
| <input type="checkbox"/> Other _____ | |

Funding - Other		
	Frequency	Percent
Building committee	1	20.00
RESC funds	1	20.00
combination of above	1	20.00
in process of deciding	1	20.00
renovation project	1	20.00

7. Have any **new policies** or **committees** resulted from implementing *IAQ Tools for Schools*?

- | | |
|--|-----------------------------|
| <input type="checkbox"/> YES (Please note type of policies/committees) | <input type="checkbox"/> NO |
| 38 (42.22) | 52 (57.78) |

New policies or committees		
	Frequency	Percent
IAQ Committee	7	19.44
TFS Committee	5	13.89
Animals	2	5.56
Wellness Committee	6	16.67
Health and Safety Committee	5	13.89
* but teachers are aware and are reporting concerns	1	2.78
- upholstered furniture and carpeting removed, professional team hired to examine, recommend improvements	1	2.78
Facilities Action plan committee for strategic planning	1	2.78
Facilities section of BOE policies	1	2.78
Teachers told not to put items on heating vents or air intake vents, District provides building and grounds meeting times for teams to meet	1	2.78
Using green products	1	2.78
bus idling policy	1	2.78
general kickoff meeting yearly	1	2.78
individual school committees	1	2.78
long term capital replacement plan Feb 2008	1	2.78
window opening/closing; green cleaning supplies; bus idling signs	1	2.78

8. How often has your **IAQ team** met since training took place?
- Monthly since training
 Have not met more than a few times
 Never
 Other _____

Frequency of IAQ meetings		
	Frequency	Percent
Monthly since training	8	8.00
Never	2	2.00
Not more than a few times	55	55.00
Other	35	35.00

9. Has the *IAQ Tools for Schools* process continued beyond the initial year of implementation?
- YES
 NO (Please note reasons why not)
 N/A in first year of implementation

TfS process continued beyond initial year		
	Frequency	Percent
N/A	16	15.38
No	3	2.88
Yes	85	81.73

Note: CSIERT offers Refresher trainings for districts that need to “jumpstart” their program. Contact Kenny Foscue at 860-509-7742 or kenny.foscue@po.state.ct.us.

10. CSIERT recommends that each school district set up a system or committee to coordinate Tools for Schools efforts for their district. Does such an entity exist in your school system?

- YES NO
87 (92.55) 7 (7.45)

If yes, what type of system:

TfS System Committee		
	Frequency	Percent
Building and Grounds Committee	1	1.18
District Health and Safety Committee	41	48.24
Other	3	3.53
Single Coordinator	11	12.94
Specially appointed committee	29	34.12

11. Please check ANY of the following categories of individuals that **participated** in your *IAQ Tools for Schools* process:

- | | | |
|---|---|--|
| <input type="checkbox"/> School nurse | <input type="checkbox"/> School Health Advisory Board | <input type="checkbox"/> Teacher(s) |
| <input type="checkbox"/> 104 (97.20) | <input type="checkbox"/> 5 (4.67) | <input type="checkbox"/> 96 (89.72) |
| <input type="checkbox"/> Parents | <input type="checkbox"/> School Principal/Admin | <input type="checkbox"/> Custodial staff |
| <input type="checkbox"/> 74 (69.16) | <input type="checkbox"/> 97 (90.65) | <input type="checkbox"/> 93 (86.92) |
| <input type="checkbox"/> Facility manager | <input type="checkbox"/> School Board of Education | <input type="checkbox"/> Central School Administration |
| <input type="checkbox"/> 63 (58.88) | <input type="checkbox"/> 16 (14.95) | <input type="checkbox"/> 30 (28.04) |
| <input type="checkbox"/> Students | <input type="checkbox"/> Parent Organization (PTO) | <input type="checkbox"/> Other _____ |
| <input type="checkbox"/> 6 (5.61) | <input type="checkbox"/> 24 (22.43) | |

(Please specify)

Other participants		
	Frequency	Percent
District health dept	1	6.25
Industrial Hygienist	1	6.25
LHD	2	12.50
Town Medical Director	1	6.25
community agencies	1	6.25
district health dept	1	6.25
health district	1	6.25
local health dept	1	6.25
multi site reps	1	6.25
paraprofessional	2	12.50
science lab asst.	1	6.25
secretary	1	6.25
selectman	1	6.25
town facilities staff	1	6.25

12. EPA and CSIERT believe it is important to have **parents** on the *IAQ Tools for Schools* building team. If parents were not involved at your school, please list the reasons you believe they were not involved.

- Parent(s) on team
- 107 (100.00)

Reason no parents involved		
	Frequency	Percent
Because IAQ is in written format - problems when identified are given to Safety Coordinator and addressed	1	8.33
Not Applicable (RESC school)	1	8.33
PTO was invited	1	8.33
Should have been involved	1	8.33
did have parent earlier	1	8.33
did not know about involving parents	1	8.33
logistical difficulties	1	8.33
moved, not replaced	1	8.33
oversight	1	8.33
parent participation solicited through newsletters, no volunteers	1	8.33
parents were advised, no parents served since staff answered all questions	1	8.33
they work	1	8.33

13. One of the goals of TfS is to keep the program going long term. Please indicate below what action have been taken to implement your long term IAQ program:

- Adopted district policy regarding custodial maintenance staff training for IAQ issues.* 35 (32.71)
- Established a staff IAQ coordinator position. 49 (45.79)
- Established a formal reporting/response procedure for IAQ issues. 47 (43.93)
- Established a written IAQ management plan. 22 (20.56)
- Maintained an active communication plan. 61 (57.01)
- Conduct yearly kickoff meetings. 34 (31.78)

*Note: CSIERT offers an advanced TfS Workshop for custodial and facilities personnel. Contact Kenny Foscue at 860-509-7742 or kenny.foscue@po.state.ct.us..

14. What **major barriers** to fully implementing/maintaining *IAQ Tools for Schools* still exist?

Major barriers		
	Frequency	Percent
Funds	28	35.90
Time	24	30.77
Building-related issues	5	6.41
Staff issues	11	14.10
Training	2	2.56
Communication	2	2.56
Renovation issues	3	3.85
Need some direction from our district coordinator on what to do and when we should be doing it.	1	1.28
the portable classrooms	1	1.28
upgrading the ventilation system in some classrooms	1	1.28

15. What **additional resources** could CSIERT and/or EPA provide?

Additional resources		
	Frequency	Percent
Funds	8	36.36
Training	4	18.18
Information	7	31.82
testing air quality	1	4.55
we need to plan for the advanced TfS Workshop for Custodial and Facilities Personnel	1	4.55
your updated information and materials have been very good	1	4.55

18. Please feel free to offer **comments** or **suggestions** about *IAQ Tools for Schools* in the space below.

Comments/Suggestions		
	Frequency	Percent
After trainings have not heard anything of TFS	1	5.56
Appreciate the work of Kenny Foscue who has been an excellent resource person.	1	5.56
Appreciate your support and guidance. The packets and visitors have been helpful	1	5.56
Coord position should be compensated	1	5.56
Has helped in making some people more aware of IAQ issues believes air quality in school has improved because of awareness	1	5.56
I feel our school is cleaner & healthier than before tools for schools. Asthma meds needed is decreasing from years past.	1	5.56
IAQ TFS did a good job addressing issues	1	5.56
If no coordinator or lack of interest difficult to run program.	1	5.56
Information is worthwhile heightened awareness of issues monitoring of classrooms, custodians and teachers	1	5.56
Our school building is very well maintained so the need for intervention was not necessary. We found that the IAQ TFS program validated procedures we have in place.	1	5.56
Ours is a fairly modern building with active ventilation, asbestos management and little carpeting.	1	5.56
Program very satisfactory as it is	1	5.56
Would like a refresher training	1	5.56
Data requested may give a skewed view of respiratory disease and it's relation to IAQ.	1	5.56
keep staff informed about process and needs	1	5.56
more handout tools at 2nd training and walkthrough	1	5.56
Process has grown into a monster at times - everything become TFS; is a debate on where/how to report it.	1	5.56
teacher classroom checklist was confusing - double negatives	1	5.56

All coordinators submitting a completed survey will receive the updated TFS CD that contains a wealth of IAQ information.

CSIERT is very interested in receiving media coverage, newsletters, articles, and summary reports from the committees for our files and as educational examples. Please include such items when you return this survey.

Indoor Air Quality (IAQ) Tools for Schools Evaluation

THE FOLLOWING QUESTIONS SHOULD BE ANSWERED BY THE SCHOOL NURSE.

As you know, common symptoms that can be related to IAQ include headaches, stuffy/runny nose, lethargy, dizziness, nausea, and breathing difficulties. Please keep these symptoms in mind as you answer the following questions.

15. In your opinion, has there been a decrease in the number of IAQ-related symptom complaints since *IAQ Tools for Schools* was implemented?

YES NO Don't Know/Not Sure

Decrease in IAQ symptoms		
	Frequency	Percent
Don't Know/Not Sure	40	48.78
No	18	21.95
Yes	24	29.27

16. In your opinion, what, if any, change has occurred in the reporting of asthma symptoms for those students with a **known asthma diagnosis** since the implementation of *IAQ Tools for Schools*?

Increase Decrease No Change Don't Know/Not Sure

Change in symptoms among asthmatics		
	Frequency	Percent
Decrease	11	13.92
Don't Know/Not Sure	21	26.58
Increase	3	3.80
No Change	44	55.70

17. Please provide as complete information as possible for each of the areas identified below. If data are not available for your school, provide your opinion as to whether there has been an increase, decrease or no change in each of these areas since the implementation of *IAQ Tools for Schools*.

	Year Prior to <i>IAQ Tools for Schools</i> , if available	2005-2006 school year
Number of student absences	44124.00	81232.00
Number of IAQ-related staff complaints	1173.00	187.00
Number of trips to school nurse	92407.00	156333.00
-# of <u>respiratory-related</u> trips to school nurse	6425.00	7441.00
Number of times asthma medication dispensed	5121.0	8403.00
Number of students with a known asthma diagnosis	802.00	2974.00

22. Please list any additional comments.

Additional Comments		
	Frequency	Percent
"Due to increased pollen this year, the outdoor air has triggered most incidents requiring medication. Cold air during recess also contributed to trips to the nurse. Most of our kids suffer from illness (URI) - induced asthma, increased allergens during recess (triggers), or exercise-induced asthma. Our building is in good conditions and problems are acknowledged and addressed as they occur. Since our 5th grade room has been ventilated by and air conditioner, this helps to keep room temperature at a more comfortable temp.	1	3.57
Fluctuating student enrollment affects numbers.	1	3.57
I would only assume that the air quality is better with the implementation of TfS ECC does an impeccable job with keeping up to the standards. Only a few children with asthma that I see on occasion, usually related to URI virus	1	3.57
In process of setting up documentation of the above information.	1	3.57
My elementary school is K-5. If there is a greater number of studies with and asthma diagnosis in 5th grade, the year they move to 6th grade will show a reduction in visits due to asthma/respiratory symptoms. This will not be able to related to IAQ but will be a result of a school switch.	1	3.57
Overall it is not felt that, from a professional standpoint, Long Meadow Elementary has IAQ issues other than some dryness.	1	3.57
Program implemented in one building, school moved to new building 1/0./ Difficult to do a year to year comparison	1	3.57
Some of the absences are for vacation. Parent often times do no inform us of the reason for their child's absence.	1	3.57
The mold problem occurred over the summer when students were not at school.	1	3.57
There is no significant change in respiratory-related trips to the school nurse. Most asthma related medication administration has been related to exercise.	1	3.57
computer program can give information for present school year but I am unable to obtain information from that far back	1	3.57
computers with medical tracking to be made available 2008-2009	1	3.57
difficult to be accurate with asthma numbers since every year students graduate and new ones come in.	1	3.57
middle school: metered dose inhalers are self-administered and often kept in student lockers	1	3.57
Most respiratory related trips to the nurse are for inhalers at gym or recess. School population has increased yearly	1	3.57
moving to LEED silver certified school	1	3.57
new school, lack of data	1	3.57
none of the trips to school nurse were related to IAQ complaints	1	3.57
nurse wrote decreased next to all	1	3.57
School staff changes from year to year. No records of staff issues are documented, Attendance reports not provided to school nurse	1	3.57
Series of 3 nurses in office this year.	1	3.57
we can track as of 6/07	1	3.57