

Biddeford High School TBS Initial Scope Summary 02-22-11

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Who is TBS?

⌘ Interdisciplinary Group

- Building Scientists**
- Mechanical Engineers**
- Industrial Hygienists**
- Architects and others if needed**

- ⌘ 37 Year Focus On IAQ & Building Science
Diagnostics in Non-Industrial Buildings, have
investigated several buildings with NIOSH, advise
US EPA and others.**

Assist the School District, as needed, collaborate with Others if requested:

⌘(Initial scope limited by budget < \$3k)

1. Review Existing Recent Data (18 documents)
2. Interview (1day) Those With First Hand Knowledge of IAQ Concerns (12 interviews)
3. Review Construction Containment Plans & Method of Communication to Staff & Parents
4. Develop Further Scope of Services, Based On Information Available

(Interview 1-6, Proposal 1-11, Initial Report Issued 2-17-11)

TBS General Observations & Discussion (1)

➤ Building History Review

1. Cinder Block, Wood, Floors & Ceiling Tiles
(Not A Lot of Paper Covered Gypsum)
2. History Of Moisture Intrusion in Multiple Locations & Occupant Concern
3. Extensive, Multi-phased Renovations Recently Begun, Completion of Effort Expected to Reduce Past IAQ Problems

TBS General Observations & Discussion Cont'd. (2)

- **Occupant Concerns "Interviews"**
 1. Existed Prior to Commencement of Construction
 2. Occupant Concerns Have Continued Since Construction Started, May Have Increased After Commencement of Construction, Current Level Of Expressed Concerns Is Unknown
 - a) Health
 - b) Water Intrusion (Mold?)
 - c) Dust, Odors, Fumes
 - d) Thermal Comfort

TBS General Observations & Discussion Cont'd. (3)

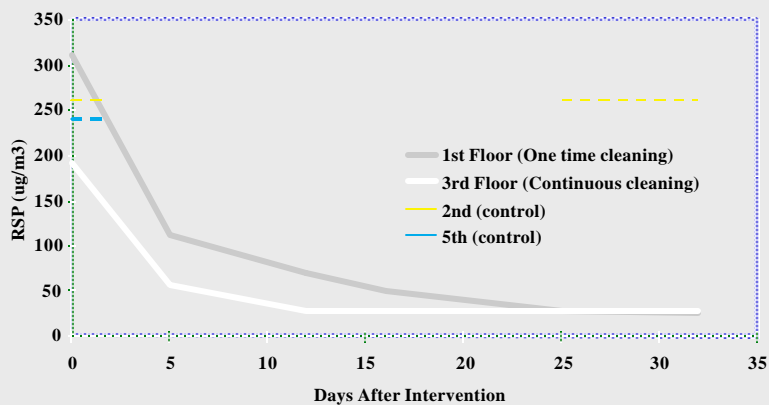
- **Construction Containment Review**
 1. Detailed Phasing Plans Exist
 2. Written General Containment Approach Exits
 3. Initial Construction Containment Appears to Not Have Achieved Isolation of Construction Areas
 4. Containment Isolation Efforts Reported to Be Improved & SMACNA Guidelines Obtained
 5. Construction Area Cleaning Reported to Be Improved

TBS General Observations & Discussion Cont'd. (4)

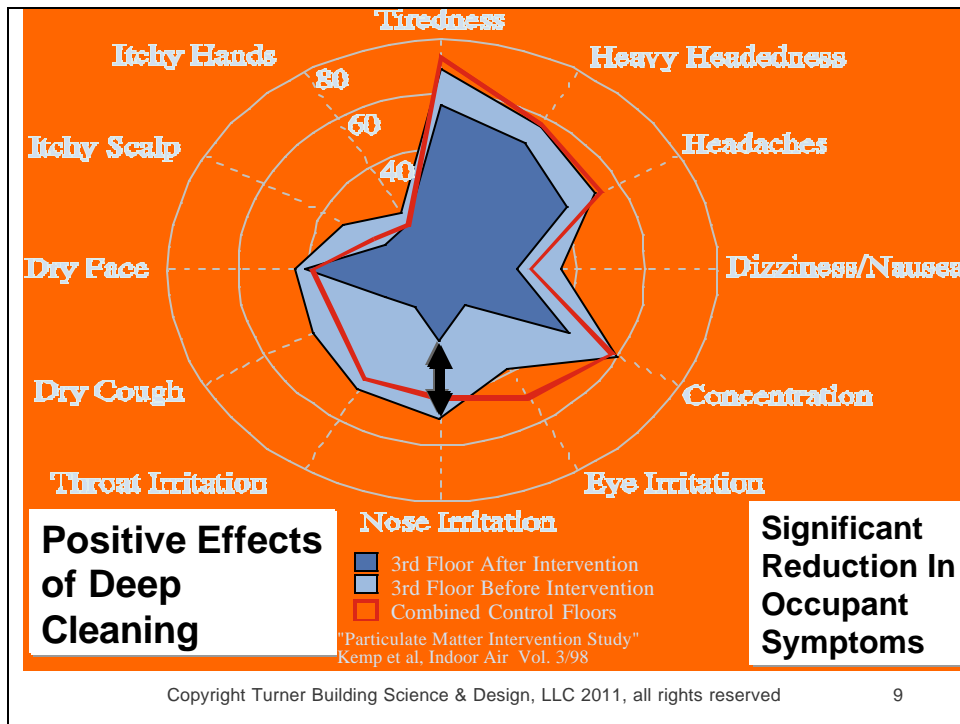
➤ **Consultant Testing Results Review**

- 1. Regulated Hazards:** No Confirmed Exposures
- 2. Molds:** Marginal Elevated Levels (water damage)
- 3. Ventilation:** (Carbon Dioxide Testing), some areas marginal or poor, no extreme levels recorded
- 4. Particles:** Observed occasionally high breathable dust levels in real time data set. *TBS comment:* these high levels of dust would be expected to lead to occupant complaints, cleaning and source elimination would be expected to reduce complaints. (see next slides)

Education Moment: Breathable Dust Levels & Reported Occupant Reactions Study, "Cleaning Intervention Reduces Occupant Symptoms"



"Particulate Matter Intervention Study"
Kemp et al, Indoor Air Vol. 3/98



TBS General Observations & Discussion Cont'd. (5)

➤ **Consultant Recommendations Summary:**

1. **Cleaning:** Improve District Methods (undertaken)
2. **Containment:** Prevent Migration of Dust and Odors to the Occupants (reported improvements made)
3. **Evaluate For Mold Reservoirs:** Properly manage (remove and prevent) if found. (testing and cleaning were undertaken in several areas)

TBS Expanded Scope Recommendations (1)

- 1. Conduct A Critical Review of Current Proposed Containment Plans For Balance of Constructions** (see next slides)
- 2. Conduct A Critical Review Of Current School Ventilation Systems For Expected (Positive or Negative) Impact on Containment Success** (see next slides)

***Adopt:
Containment Standard:
SMACNA
"IAQ Guidelines For Occupied
Buildings Under Construction"***

Sheet Metal & Air Conditioning
Contractors National Association
www.smacna.org / Publications Store

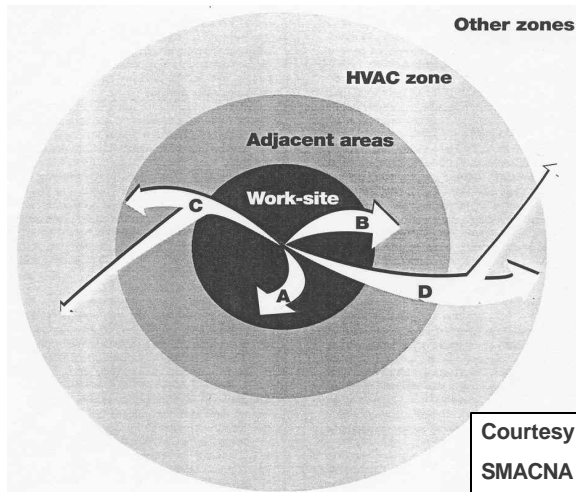


Address: Work-site Contaminant Migration?!

**B. Tracking To
Adjacent Spaces?**

**C. Movement By
Pressure
Difference?**

**D. Recirculation
By HVAC Return?**



Courtesy
SMACNA
Figure 2-1



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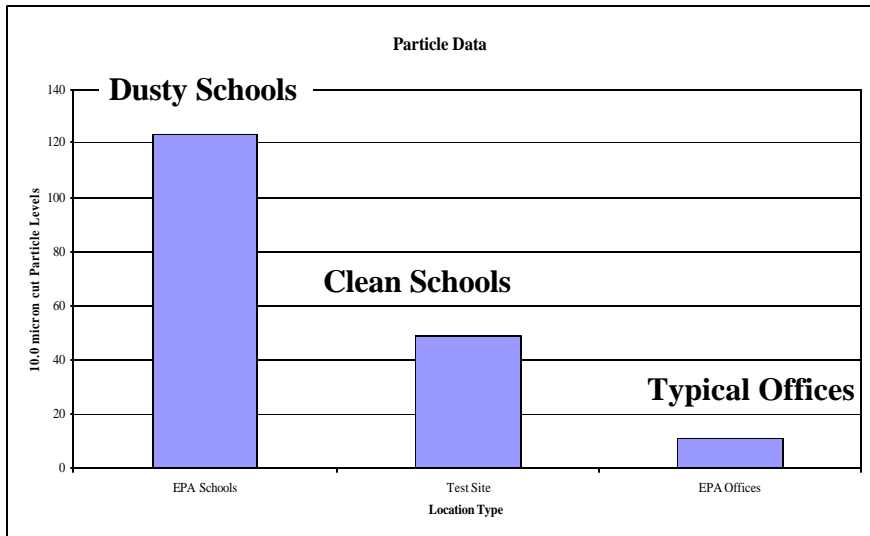
TBS Expanded Scope Recommendations Cont'd. (2)

- 3. Evaluate Certain Areas For Mold Reservoirs**
(several listed in report, history of water damage)
- 4. Evaluate Districts Current Fugitive Moisture Management Procedures & Methods At High School** (If one exists)
- 5. Review Current District Cleaning Procedures Within The High School** (Vacuuming reported to be implemented) (see next slides)

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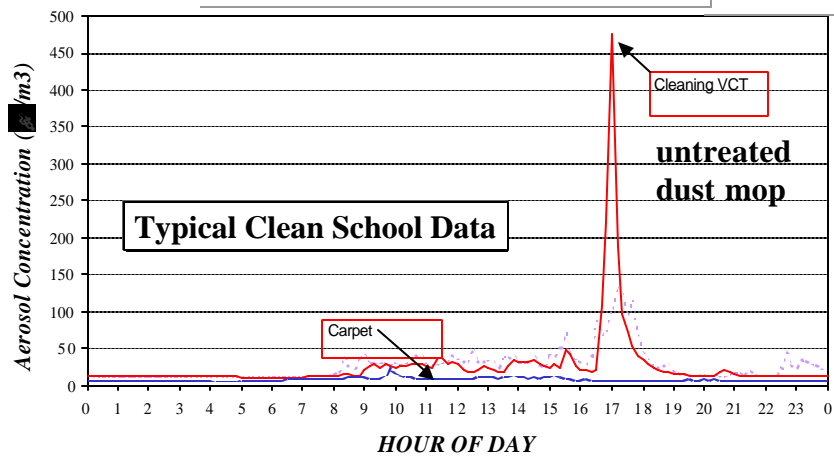
Clean the Floor • Min. Daily “Remove” the Dirt



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Dust Mops Don't Remove Dirt !! Aerosol Concentrations



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TBS Expanded Scope Recommendations Cont'd. (3)

- 6. Continue Occupant Interviews On A Scheduled Basis**
- 7. As Feasible, In Confidence As Needed, Investigate Report of Past Anaphylaxis Allergic Reactions**

TBS Limitation of Review

Assume current data reviewed is accurate.

Impossible to know, within current initial scope, if it is a good representation of all areas of the building.

Once results of recommended expanded scope are available, further short or long-term specific recommendations will be made as or if they are warranted.

***Questions & Comments
Regarding Current or
Recommended Scope ?***

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