

Colorado Coalition for School IPM Newsletter

November 2018

Inside this issue:

- Partner Spotlight: Harvard T.H. Chan School of Public Health
- Featured Pest of the Month: Cluster Flies
- Current Pests

Colorado Coalition for School IPM Agency Partner Spotlight: Harvard T.H. Chan School of Public Health



Schools for Health: Impacts of Indoor Air Quality on Students

John Spengler, Piers MacNaughton, Erika Eitland

Healthy Buildings Program at Harvard T.H. Chan School of Public Health

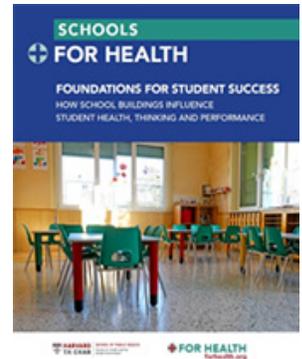
For more information, visit forhealth.org.

With the warmer days behind us, the migration indoors begins. By winter, kids ages 11–17 will spend 60 minutes a day outdoors, compared to 175 minutes in the summer. For kids younger than age 11, the difference is even greater. At the same time, our facility managers prepare for the colder temperatures by sealing up schools and reducing ventilation rates to conserve energy. Current ventilation guidelines recommend lower per person ventilation rates in schools than in offices, despite increased occupant density and child physiological differences. This is further exacerbated by the lack of an indoor air quality management plan in more than 50 percent of schools, which were built on average 50 years ago.

Given these trends, the [Schools for Health](#) team dove deeply into the more than 30 years of research to investigate the causes of poor air quality; the impacts on student health, thinking and performance; and the solutions to optimize ventilation and air quality in schools.

The recent report, [Foundations for Student Success: How School Buildings Influence Student Health, Thinking and Performance](#), details the

findings of the Team from the Healthy Buildings Program at Harvard T.H. Chan School of Public Health.



Below are some of the pollutant sources that may lead to poor indoor air quality if the building is not properly ventilated:

Indoor Sources

- **Cleaning products** may contain phthalates, which are associated with allergies and asthma in schools.
- **Mold** can form due to a lack of temperature and humidity controls, leading to asthma exacerbation, dizziness and headaches.
- **Accumulated dirt and dust** may contain pest allergens, flame retardants, stain-repellent chemicals, radon, asbestos, polychlorinated biphenyls (PCBs) and heavy metals (e.g., lead, mercury), all of which are detrimental to young learners, who have been shown to ingest more dust and spend more time on the floor than adults.
- **School supplies** can release volatile organic compounds (VOCs) and nose- and throat-irritating odors.

- **Kids** release body odors, bring pet allergens from home on their clothes, spread infectious agents and contribute to high carbon dioxide (CO₂) levels.

Outdoor Sources

- **Idling buses and vehicles** result in buildups of diesel exhaust that affect local air quality and bus driver health. Diesel exhaust is associated with respiratory illnesses, allergies and asthma.
- **Wildfires** cause smoke and other gaseous air pollutants to migrate indoors, resulting in school closures. For example, many schools closed in response to the wildfires in California and Canada this summer.

How indoor air quality and ventilation impact student health, thinking and performance:

Scientific Research Provides Evidence for the Following Relationships				
Indoor Air Factor		Student Health	Student Thinking	Student Performance
Ventilation: Low ventilation rates	was associated with...	↑ nasal patency ↑ communicable disease transmission ↑ asthma ↑ fatigue	↓ cognitive function ↓ attention span ↓ concentration ↓ focus	↓ test scores
Air Quality: High indoor carbon dioxide & volatile organic compounds		↑ allergies ↑ asthma ↑ eye, throat & nose irritation	↓ memory ↓ response time ↓ concentration	

What can you do to optimize indoor air quality?

To improve air quality in schools, either remove sources of air pollutants or deploy strategies to reduce pollutant concentrations through ventilation or filtration.

Remove Sources

- Many classroom supplies and cleaners emit VOCs, which can cause respiratory symptoms. Make sure these products are district approved, stored properly and used only when necessary.
- When purchasing supplies and cleaners, give preference to those that are third-party certified by programs like Green Seal or EPA’s Safer Choice.
- When conducting renovations and repairs, make sure work zones are properly contained and that low- or no-VOC sealants and paints are used.
- Institute bus idling policies.

Improve Ventilation

- If your school is mechanically ventilated, increase the MERV rating of the filters in your HVAC system. For example, MERV 13 filters will remove about 90 percent of fine particulate matter.
- If your school is naturally ventilated, open the windows to mitigate exposures to indoor sources. However, in cool climates or areas with poor outdoor air quality, portable filtration units may be a better solution to reduce the concentration of pollutants of both indoor and outdoor origin.
- Increasing ventilation rates will reduce concentrations of indoor gaseous pollutants, such as VOCs and CO₂, which are not affected by filtration.

Register for an upcoming webinar about the report!



The graphic features a blue header with the text 'Register for an upcoming webinar about the report!'. Below this is a white box containing a green and blue header for 'SCHOOLS FOR HEALTH' with a plus sign icon. Underneath is the subtitle 'FOUNDATIONS FOR STUDENT SUCCESS' and the main title 'HOW SCHOOL BUILDINGS INFLUENCE STUDENT HEALTH, THINKING AND PERFORMANCE'. A photograph of a classroom with green chairs and tables is shown. At the bottom of the white box are logos for 'HARVARD T.H. CHAN SCHOOL OF PUBLIC HEALTH' and 'FOR HEALTH forhealth.org'. To the right of the white box, on a light orange background, is the main title 'Examining the Evidence: How School Buildings Influence Student Health, Thinking and Performance' in blue. Below this is the date 'Date: Thursday, November 29, 2018' and time 'Time: 1:00 p.m.–2:30 p.m. EST'. At the bottom right is a blue button with the text 'REGISTER NOW' in white.

SCHOOLS FOR HEALTH

FOUNDATIONS FOR STUDENT SUCCESS
HOW SCHOOL BUILDINGS INFLUENCE
STUDENT HEALTH, THINKING AND PERFORMANCE

**Examining the Evidence:
How School Buildings Influence
Student Health, Thinking and
Performance**

**Date: Thursday, November 29, 2018
Time: 1:00 p.m.–2:30 p.m. EST**

REGISTER NOW

HARVARD T.H. CHAN SCHOOL OF PUBLIC HEALTH
FOR HEALTH forhealth.org

Questions?

EPA offers free IAQ Tools for Schools resources—including the [School IAQ Assessment Mobile App](#)—to help schools maintain a healthy indoor environment by identifying, correcting and preventing IAQ problems. Learn more about the IAQ Tools for Schools guidance and access other valuable school environmental health resources at www.epa.gov/iaq-schools.

If you have any questions about the IAQ Tools for Schools guidance, please contact the IAQ Tools for Schools Connector Coordinator at iaqschools@epa.gov.

Featured Pest of the Month:

Cluster Flies

Assefa Gebre-Amlak

Extension Specialist, Colorado State University
Extension

Cluster flies (*Pollenia* species) are often the most common flies found in homes during the cool months and are particularly abundant in higher elevation areas of the state. They can sometimes be serious nuisance problems, particularly in taller buildings where they tend to concentrate on upper stories on the south and west sides. Cluster flies are moderate sized, generally dark gray and are distinguishable by the presence of golden hairs on areas of the thorax.



Cluster flies are actually a type of blow fly, but have very different habits than the bluebottle flies and black blow fly. They are not a type of “filth fly” that develop as a scavenger, but instead are parasites of earthworms. In spring and summer the adult flies are present in lawn areas, where they lay eggs on the soil in sites where earthworms are present. When eggs hatch, the tiny larvae of the cluster flies burrow into the soil to seek an earthworm on which they will feed.

Cluster flies survive winters in the adult stage, but in a semi-dormant condition (diapause) during which time they neither feed nor reproduce. In late summer and early autumn they may be seen sunning themselves on sun-exposed sides of buildings during warm periods. Many of these will move into cracks and crevices of the building, seeking cavities behind walls as a protected sites to spend the winter months. In the process of seeking these sheltering sites within the building they tend to migrate upwards, and thus are found most abundantly in upper floors of buildings.

During the cool season cluster flies normally remain inactive, resting in cavities behind walls, often in large clusters. Some flies may become active during warm periods, move about a bit and may then incidentally wander into living areas, where they may be seen flying lazily about a room. However, cluster flies do not feed nor reproduce within buildings and those that move out from their sheltered sites behind walls will usually die within a couple of weeks.

Management of cluster flies: Screening and other exclusion techniques can be important steps to take to limit several types of indoor fly problems, particularly with flies that develop outdoors and use homes for temporary shelter. Tight fitting screens can prevent indoor access by many flies. However, cracks and crevices around windows, under soffits, and around ventilation openings are common sites that allow flies to work their way behind walls and later enter living areas. These openings must be sealed before flies enter buildings. For example, cluster flies rarely are found indoors until late winter and spring but typically enter buildings during late August and September. To prevent later problems with cluster flies and other “winter flies” all sealing/caulking activities should be done by the end of August, before these insects start to filter into cavities behind walls for winter shelter.

Source: Colorado State University Extension Fact Sheet #5.502 (By W.C. Cranshaw and F.B. Peairs).

Current Pests: What Are You Seeing?

Arapahoe, Douglas, & Elbert Counties

Household Insects

Indian meal moth: Adults are most commonly observed flying about homes during early winter.

Fungus gnats: Adults begin to be observed around windows and around the soil of potted plants where they originate.

Boxelder bugs, conifer seed bugs, multicolored Asian lady beetles: Overwintering adults continue to be active in and around homes during warm days.

Fruit flies: Flies from overripe fruit continue to be present in homes.

Denver Metro Area

Household Insects

Indian meal moth: Adults are most commonly observed flying about homes during early winter.

Fungus gnats: Adults begin to be observed around windows and around the soil of potted plants where they originate.

Boxelder bugs, conifer seed bugs, multicolored Asian lady beetles: Overwintering adults continue to be active in and around homes during warm days.

Fruit flies: Flies from overripe fruit continue to be present in homes.

Eastern Plains Counties

Household Insects

Indian meal moth: Adults are most commonly observed flying about homes during early winter.

Fungus gnats: Adults begin to be observed around windows and around the soil of potted plants where they originate.

Boxelder bugs, conifer seed bugs, multicolored Asian lady beetles: Overwintering adults continue to be active in and around homes during warm days.

Fruit flies: Flies from overripe fruit continue to be present in homes.

El Paso & Teller Counties

Household Insects

Indian meal moth: Adults are most commonly observed flying about homes during early winter.

Fungus gnats: Adults begin to be observed around windows and around the soil of potted plants where they originate.

Boxelder bugs, conifer seed bugs, multicolored Asian lady beetles: Overwintering adults continue to be active in and around homes during warm days.

Fruit flies: Flies from overripe fruit continue to be present in homes.

High Country Counties

Household Insects

Indian meal moth: Adults are most commonly observed flying about homes during early winter.

Fungus gnats: Adults begin to be observed around windows and around the soil of potted plants where they originate.

Boxelder bugs, conifer seed bugs, multicolored Asian lady beetles: Overwintering adults continue to be active in and around homes during warm days.

Fruit flies: Flies from overripe fruit continue to be present in homes.

Northern Front Range

Household Insects

Indian meal moth: Adults are most commonly observed flying about homes during early winter.

Fungus gnats: Adults begin to be observed around windows and around the soil of potted plants where they originate.

Boxelder bugs, conifer seed bugs, multicolored Asian lady beetles: Overwintering adults continue to be active in and around homes during warm days.

Fruit flies: Flies from overripe fruit continue to be present in homes.

Pueblo & Fremont Counties

Household Insects

Indian meal moth: Adults are most commonly observed flying about homes during early winter.

Fungus gnats: Adults begin to be observed around windows and around the soil of potted plants where they originate.

Boxelder bugs, conifer seed bugs, multicolored Asian lady beetles: Overwintering adults continue to be active in and around homes during warm days.

Fruit flies: Flies from overripe fruit continue to be present in homes.

Southwestern Counties

Household Insects

Indian meal moth: Adults are most commonly observed flying about homes during early winter.

Fungus gnats: Adults begin to be observed around windows and around the soil of potted plants where they originate.

Boxelder bugs, conifer seed bugs, multicolored Asian lady beetles: Overwintering adults continue to be active in and around homes during warm days.

Fruit flies: Flies from overripe fruit continue to be present in homes.

Tri-River Counties

Household Insects

Indian meal moth: Adults are most commonly observed flying about homes during early winter.

Fungus gnats: Adults begin to be observed around windows and around the soil of potted plants where they originate.

Boxelder bugs, conifer seed bugs, multicolored Asian lady beetles: Overwintering adults continue to be active in and around homes during warm days.

Fruit flies: Flies from overripe fruit continue to be present in homes.

Source: <http://bspm.agsci.colostate.edu/outreach-button/insect-information/> (Yard/Garden Insect Calendars)

Credits

Editors: Clyde Wilson, U.S. EPA Region 8; Assefa Gebre-Amlak, CSU Extension; Frank Peairs, CSU Extension; Thia Walker, CEPEP.

Design & layout: Kierra Jewell

“Pest of the month” photo(s): Whitney Cranshaw, CSU Professor & Extension Specialist

Want to subscribe or unsubscribe? Go to:

https://lists.colostate.edu/cgi-bin/mailman/listinfo/ccsipm_1

Remember, the CCSIPM listerv is a forum for you to post a message to the entire group! Simply write a message to ccsipm_L@lists.colostate.edu!

Did we miss something? See an error?

Please contact Assefa Gebre-Amlak at:

Assefa.Gebre-Amlak@colostate.edu

(970) 491-2666