



Department of
Toxic Substances
Control

*Preventing
environmental
damage from
hazardous waste,
and restoring
contaminated
sites for all
Californians.*



State of California



California
Environmental
Protection Agency

Fact Sheet, October 2006

Special School Information Advisory

Recommended Housekeeping Activities to Reduce Exposure to Naturally-Occurring Asbestos in Schools

This fact sheet identifies recommended housekeeping activities to limit exposure to naturally-occurring asbestos (NOA) in schools. It was prepared by the California Department of Toxic Substances Control (DTSC) in consultation with the California Air Resources Board, the U.S. Agency for Toxic Substances and Disease Registry (ATSDR), and the U.S. Environmental Protection Agency (USEPA). Sources of NOA that may impact schools include dusts or soils from nearby areas with unpaved or unlandscaped surfaces with ultramafic or serpentine rock, such as unpaved roads, undeveloped lots, parking lots, disturbed rock deposits, construction and/or quarrying operations, and mines. This fact sheet does not address asbestos from asbestos-containing materials (ACM) used or found in buildings.

This fact sheet provides information about:

- What is naturally-occurring asbestos? How is it hazardous?
- How can we know if school areas are surfaced with materials containing NOA?
- How can NOA dust migration into classrooms be prevented?
- What is the recommended method and frequency for cleaning classrooms to reduce NOA accumulation?

These recommended strategies need not be costly, and can be integrated into day-to-day maintenance activities for schools to reduce exposures, and thereby increase protection of children, staff, and community from potential health effects that could be caused by exposure to particulate matter containing NOA. Several studies have shown that good indoor air quality leads to a healthy environment which in turn increases occupant productivity and reduces absenteeism.

What is naturally-occurring asbestos? How is it hazardous?

Asbestos minerals belong either to the serpentine mineral group or the amphibole mineral group. The most common type of asbestos found in California is chrysotile, a serpentine mineral; other types found in California include tremolite asbestos and actinolite asbestos, which are amphibole minerals. State and federal health officials consider all types of asbestos to be potentially hazardous. Soil and rock-disturbing activities, such as digging, grading, construction, vehicle traffic, or recreational activities, can result in suspension of tiny asbestos fibers in air. When these fibers are inhaled, over time they may cause mesothelioma, lung cancer, and non-cancer diseases.



How can we know if school areas are surfaced with NOA?

The California Education Code requires that school districts conduct environmental assessments under the oversight of DTSC for new or expanding school sites. DTSC has developed protocols for testing and mitigating prospective school site soils if NOA is found, which may include placement of hardscape or landscape caps, forming a barrier to prevent or reduce human exposure to NOA-containing soils. When these caps are placed at school sites, follow-up monitoring and maintenance activities may also be required. For more information, please see DTSC's Interim Guidance – Naturally Occurring Asbestos (NOA) at School Sites available at DTSC's website: www.dtsc.ca.gov.

How can NOA dust migration into classrooms be prevented?

The following activities are suggested to reduce dust generation and migration:

- Pave over unpaved walkways, driveways, or roadways which contain ultramafic or serpentine rock.
- Cover crushed ultramafic or serpentine rock in yards/gardens with adequate clean soil or landscape cover materials that do not contain asbestos (e.g., plants, textiles, mulch, wood chips, etc.).
- Avoid use of leaf blowers and other similar devices that disturb dusts.
- Keep windows and doors closed on windy days and during periods when nearby ultramafic or serpentine containing material or rock may be disturbed, such as during construction activities.
- Replace carpeting and other soft fabric surfaces with hard surfaces, such as stone, tile, or wood floors, benches, and chairs.
- Use washable materials, such as area rugs. Avoid use of stuffed furniture and curtains, which can act as reservoirs, trapping dust, dirt, and asbestos fibers.

What is the recommended method and frequency for cleaning classrooms to reduce NOA accumulation?

The following activities are suggested for cleaning classrooms:

a) Prevent Track-in

- Use boot scrapers before entering school buildings.
- Use interior and exterior entryway mats to reduce the amount of soils tracked into the classrooms; studies have shown mats may reduce track-in of soils by 20%.
- Vacuum mats daily, using a vacuum cleaner with a high efficiency particulate air (HEPA) filtration system.
- Wash mats weekly or clean mats with a water extraction system. NEVER shake mats as this could release fibers into the air.

b) Clean Carpets and Upholstery

Wherever possible, it is recommended that soft surfaces of carpets and upholstery be replaced with hard surfaces that are more easily cleaned. When replacement is not possible, both vacuuming and wet-cleaning are recommended for carpets and upholstery. Studies have shown that wet-cleaning methods reduce asbestos fiber concentration in carpets by as much as 60%. However, it may be impractical to wet clean surfaces such as carpet or upholstery too frequently. While dry vacuuming does not significantly decrease or increase fiber concentration, vacuuming with a HEPA filtration system helps to reduce surface particles, such as dust and dirt clods, between wet cleanings.

- Remove mud and dirt clods before vacuuming to prevent release of fibers.
- Vacuum carpets in high traffic areas at least 2 to 3 times a week, using a vacuum cleaner with a HEPA filtration system. All other carpeted areas should be vacuumed weekly using a vacuum with a HEPA filtration system.

- Change vacuum filter bags outdoors whenever possible, using utmost care and handling to minimize releases and exposures. Place the removed filter bag immediately in a plastic trash bag, tied tightly before disposal.
- Wear a face-fitting dust mask when changing vacuum filter bags or emptying bagless vacuum cleaners.
- Wet-clean carpets in high traffic areas monthly, using water extraction. All carpeted areas should be wet-cleaned yearly.

c) Clean Floors

- Vacuum floors in high traffic areas daily, using a vacuum cleaner with a HEPA filtration system followed by wet mopping. All other floors should be vacuumed and wet mopped at least weekly. Change mop water frequently, e.g., at least in each classroom.

d) Clean Other Surfaces

- Vacuum and wet-wipe all other surfaces weekly, including areas commonly occupied by faculty, staff or students (e.g., desks, counter tops, and other horizontal surfaces), using a vacuum cleaner with a HEPA filtration system. Use a top down approach to cleaning, beginning with the highest surfaces and moving to the lowest surfaces.
- Use a wet rag to dust, as opposed to a feather duster; re-wet the rag frequently.

For More Information

Additional information about best practices for cleaning, team cleaning, and cleaning for health is available at:

- http://www.dtsc.ca.gov/Schools/upload/SMBRP_POL_Guidance_Schools_NOA.pdf
- <http://www.issa.com/knowledgecenter/index.jsp?cat1=-3&type=articles&id=1222>

- http://asumag.com/mag/university_keeping_clean/, http://www.carpet-rug.com/pdf_word_docs/NEA_CRI_improving_IAQ_in_schools.pdf
- http://www.epa.gov/wtc/confirmation_clean_study.htm and Project Summary: Evaluation of Three Cleaning Methods for Removing Asbestos from Carpet: Determination of Airborne Asbestos Concentrations Associated with Each Method, EPA/600/SR-93/155.

To learn more about the DTSC's school investigation and cleanup activities or to get more information about cleaning practices to prevent exposure to NOA, please contact the School Property Evaluation and Cleanup Division at:

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You are also welcome to contact the DTSC office nearest you, or call the Regional Public and Business Liaisons at (800) 72TOXIC (1-800-728-6942), or visit www.dtsc.ca.gov