



Indoor Air Quality Monitor

July 2001

 North Dakota Department of Health

Eye on Events

NEHA Asthma and IAQ Training

The National Environmental Health Association (NEHA) and the U.S. EPA, Indoor Environments Division, will hold an asthma and indoor air quality training opportunity for health professionals in Washington D.C., Oct. 31 to Nov. 2, 2001. Expenses will be paid by NEHA. For more information, contact Larry Marcum by phone at 303.756.9090 or by e-mail at

lmarcum@neha.org
Additional information is also available online at <http://www.neha.org>

Air Monitoring

Bismarck Fire and Inspections and the North Dakota Department of Health On-Site Safety and Health Consultation Program are offering an air monitoring methods training opportunity. The eight-hour course will be held in Bismarck, N.D. and can be taken on Aug. 8, 9 or 10, 2001. For more information, contact Mel Fischer at 701.258.2070.

IAQ Hazards in Remodeling Projects

Remodeling a home or a business can be an exciting time as the home or business owner awaits the finished product – a more attractive or functional building.

Remodeling can present inevitable frustrations as changes in routines must be made to deal with noise, dust, debris, the presence of workers, etc.

Indoor air quality (IAQ) contaminants associated with remodeling projects can be missed in the commotion. IAQ contaminants can come from old and new building materials, construction practices and various chemicals used before, during or after the project.

Two important contaminants associated with remodeling projects are asbestos and lead because they commonly have been used in and on a variety of



building materials.

Asbestos is a mineral fiber mined from the ground. Asbestos fibers have been added to building materials to improve resistance to wear, add strength, provide thermal and acoustical insulation and create surface texture.

Health risks from asbestos occur when the fibers from disturbed asbestos-containing materials are inhaled. The fibers become lodged in the lungs where they cause lung cancer, mesothelioma and

asbestosis.

The only reliable method of determining whether a product contains asbestos is through laboratory analysis. Asbestos is regulated by the North Dakota Department of Health. Any work with asbestos, including taking samples, should be done by a trained and certified person.

A naturally occurring heavy metal, lead from lead-based paint is a concern during remodeling activities. *(Remodeling ... cont. page 2)*

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The use of lead-based paint was especially common before 1950 until banned for use in house paints in 1978.

The greatest health risks from lead exposure are from inhalation or ingestion of lead-based paint dust. Children are particularly at risk because they often stick things, including their hands, into their mouths. Lead-based paint is linked to developmental problems with the brain and nervous system.

The only reliable method of determining if a product contains lead is by analysis with a field x-ray diffraction device or at a laboratory.

Other IAQ contaminants associated with a remodeling project include chemical vapors and odors. Vapors from volatile organic compounds (VOCs) can be potentially hazardous. VOCs may be found in cleaning agents, finish removers, adhesives, paints, varnishes and more. Chemicals used in the manufacture of new building materials also may

emit vapors and odors.

After a remodeling project is complete, VOC contaminant levels typically will diminish with time but can remain noxious until they adequately diminish.

For more information about asbestos, lead, VOCs or other IAQ contaminants, contact the North Dakota Department of Health (NDDoH) at 701.328.5188. Additional information is also available online at <http://www.health.state.nd.us/ndhd/environ/ee/>

ASHRAE Revises Ventilation Standards

American Society of Heating, Refrigerating, and Air-Conditioning Engineers (ASHRAE) ventilation standards specify ventilation rates for good indoor air quality. ASHRAE ventilation standards are voluntary and are enforceable only if adopted by a governing authority.

The first ventilation standard by ASHRAE was ASHRAE Standard 62-73, "Standards for Natural and Mechanical Ventilation." Since the first draft, the ventilation standard has been revised three times. The newest revision, ASHRAE Standard 62-1999, "Ventilation for Acceptable Indoor Air Quality," adopted in January 2001, incorporates four major changes to the previous standard.

Addendum 62c removes consideration of thermal comfort from the standard since ASHRAE Standard 55 already covers the subject of

thermal comfort. The inclusion of thermal consideration in Standard 62-1989 implied that thermal systems may have to be installed in all ventilated spaces, including naturally ventilated and unoccupied



spaces.

Addendum 62d adds caution to the scope, stating that compliance with the standard will not guarantee acceptable indoor air quality. This caution was added due to the complex nature of indoor environments. The use of ventilation alone will not

guarantee acceptable indoor air for all occupants under all circumstances.

Addendum 62e removes a statement that the ventilation rates will accommodate a moderate amount of smoking. The addendum defines

acceptable indoor air quality as "air in which there are no known contaminants at harmful concentrations as determined by cognizant authorities..." Since the publication of the standard in 1989, several authorities have determined that environmental tobacco smoke is harmful to human health.

Addendum 62f addresses a lack of clarity regarding the significance of indoor concentrations of carbon dioxide (CO₂). The previous wording led many to conclude that CO₂ was itself a comprehensive indicator of indoor air quality, rather than an indicator of the concentration of human bioeffluents.

Colleague of the Quarter



Jesse Green started working as the Indoor Air Quality Program coordinator at the North Dakota Department of Health in December 2000.

Jesse is from Great Falls, Mont. He met his wife, Chris, at Montana State University – Northern (MSUN), where he earned a bachelor's degree in biology and a master's degree in general science.

Previously, Jesse worked as a graduate assistant, a math/science tutor, and a research assistant at MSUN; a maintenance worker at Havre Public Schools and at Montana Power Company; and a sports editor at Havre Daily News.

Jesse recalls one of his least favorite duties: having to climb down a two-story ladder to work on the face of Ryan Dam near Great Falls.

"Ladders are not my favorite thing," Jesse said.

Jesse says he enjoys helping people, but the elusive nature of IAQ problems occasionally frustrates him.

Jesse enjoys spending time in the outdoors fishing, hunting, and shooting.

Tool Talk: Indoor Air Quality Equipment Review

One of the simplest yet most valuable tools in an indoor air quality investigation is an inexpensive smoke bottle.

Smoke bottles are valuable in identifying the direction of air flow at openings between rooms, wall and ceiling cavities, utility chases, attics, staircases and duct-work. This knowledge can reveal contaminant pathways in an indoor environment.

Although the concept for use of a smoke bottle is pretty simple, interpreting results

can be complex. Stack effect, wind pressure and the presence of windows, doors and air handlers all can affect air flow and pressure relationships.

A smoke bottle is a small bottle usually made of teflon or glass. The bottle is filled with a fiber and liquid titanium tetrachloride, which reacts with air to produce titanium dioxide (a white smoke). Hydrochloric acid fumes also are produced. The acid fumes may cause irritation of eyes, nose, throat and lungs if inhaled. In



The smoke from smoke bottles can reveal relative air pressures and contaminant pathways in an indoor environment.



A teflon bottle containing a few cotton balls and liquid titanium tetrachloride makes a great “smoke bottle.”

addition, the fumes can be corrosive. Avoid inhalation and follow the manufacturer’s guidelines for proper handling and storage.

For information about how to order a smoke bottle,

contact Professional Discount Supply by e-mail at pdsfm@att.net or by phone at 719.444.0646. You also may visit them online at:

www.radonpds.com.

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Robert Barnett, Interim State Health Officer
Fritz Schwindt, Chief, Environmental Health Section
Jeff Burgess, Director, Division of Air Quality
Ken Wangler, Manager, Indoor Air Quality Program
Editor: Jesse Green



North Dakota Department of Health
Division of Air Quality
1200 Missouri Ave., Box 5520
Bismarck, N.D. 58505
701.328.5188

Questions? Comments? Suggestions? Something to add to the next issue? Call Jesse Green at 701.328.5188