

February 6, 2001

Dear Member:

There is more news to report concerning asphalt fumes.

Last month, the National Institute for Occupational Safety and Health (NIOSH) issued "Hazard Review: Health Effects of Occupational Exposure to Asphalt." The document describes the history of the investigation into asphalt fumes and "asphalt paints," which may apply to some roof coatings, mastics and cements. The document cautions that additional studies are needed to "better characterize occupational exposures to asphalt fumes, vapors, and aerosols, and to further evaluate the risk of chronic disease, including lung cancer." However, the report does conclude that fumes from roofing asphalt and roofing paints are a "potential occupational carcinogen."

In the document, NIOSH leaves unchanged its 1977 recommended exposure limit (REL) for asphalt fumes, currently 5.0 milligrams per cubic meter, measured over any 15-minute period. Because there is no available method for measuring total particulate exposures over a 15-minute period, there are no data available that indicate whether current exposures adhere to the new REL.

By itself, the NIOSH report has no regulatory authority, nor do we expect it to trigger any new OSHA actions. The report, however, may be used by some state authorities as a justification for increased regulatory scrutiny of asphalt fumes and asphalt paints; in California, for example, roofing asphalt fumes may soon be listed as a carcinogen under the requirements of Proposition 65.

More troubling is the prospect that the NIOSH document may be mis-used within the roofing industry, or by some in the scientific community, and we are convinced that there is no good reason not to use roofing asphalt – of course with good work practices and with trained workers – on any type of home or building. Work practices that you might consider include such things as using kettles with engineering controls, using low-fuming asphalt, keeping kettles in open areas away from building air intakes, carefully monitoring heating temperatures and using insulated pipes.

To assist you in combating possible misinformation once the NIOSH document is more widely distributed, we have prepared an information piece that you may want to

consider using to communicate with home or building owners. That piece is enclosed, along with a checklist for roofing contractors to consider, prepared by our counsel, Stephen Phillips, applicable to roofing products that emit fumes.

It is important to remember, too, that there are a variety of roofing products – not just roofing asphalt – that emit fumes. The checklist applies to the use of solvents, adhesives, certain coatings, and coal tar products, to name just a few.

Copies of the NIOSH document are available from the NRCA office, or from NIOSH by calling 800/356-4674 and referring to Publication No. 2001-110.

As always, we hope you will feel free to call with your questions and comments.

Sincerely,

William A. Good, CAE  
Executive Vice President

## **Ten Steps Roofing Contractors Can Take To Manage Exposures Resulting from Emissions From Roofing Products**

In order to manage and reduce potential claims resulting from exposures to fumes, vapors or other emissions from roofing products, roofing contractors should consider taking the following steps:

- Prior to using a manufacturer's material, discuss with the manufacturer the potential emissions from the product, the appropriateness of the material for the contemplated use, and the procedures to be followed to manage and minimize emissions.
2. Take into account the potential emissions, fumes or vapors that could possibly arise when planning job and deciding what materials to use. Try to use materials that pose the least risk of emissions that could be the basis of a claim.
3. Make your customer aware, particularly in re-roofing and repair situations, of potential emissions and work with the customer in taking steps to reduce the likelihood of potential claims. For example, when working with hot asphalt, evaluate the feasibility of using kettles with engineering controls, fume recovery equipment, low-fuming asphalt, or other emission control methods, and discuss with your customer the additional costs associated with using such equipment or products. In addition, use good work practices, e.g., keeping the kettle away from building air intakes, doors and windows, to minimize the likelihood of emissions near the building.
4. Obtain, review and distribute material safety data sheets to all parties involved in a project well in advance of commencement of the project. If the material safety data sheet includes infeasible procedures, discuss alternative procedures with the manufacturer or switch to a different product.
5. Follow manufacturer's and project specifications.
6. Schedule the work in such a manner to minimize the likelihood that third parties might be exposed to fumes or vapors emitted from roofing products (e.g., re-roof schools during periods school is not in session, don't apply materials that have the greatest likelihood of creating potentially bothersome emissions when third parties are most likely to be in the area).
7. Consider shutting down all HVAC equipment, and close all points of ingress to minimize potential entry of emissions into the building's interior.

8. **Include a hold harmless and indemnification clause in approved applicator agreements with material manufacturers, stating that the manufacturer will hold harmless and indemnify the contractor against claims due to emissions from the manufacturer's products, provided the contractor has complied with the manufacturer's specifications and recommended procedures.**
9. **Include a hold harmless and indemnification clause in agreements with customers, stating that the customer will hold harmless and indemnify the contractor against claims due to emissions from specified products, provided the contractor has performed the work in accordance with the contract plans and specifications.**
10. **Check with your insurance advisor to be sure that you have insurance coverage to respond to this type of claim. General liability insurance policies will contain a pollution exclusion that the insurance carrier may state excludes coverage; if your insurance carrier takes this position, you will need to obtain an endorsement to your general liability policy or purchase a separate policy to obtain adequate coverage.**

## **FUMES FROM ROOFING ASPHALTS: INFORMATION FOR BUILDING OWNERS**

### **What are Asphalt Fumes?**

Asphalt is an extremely complex mixture of petroleum compounds. Some asphalt occurs in natural deposits in the earth. However, today nearly all asphalt is made by processing crude oils in petroleum refineries. When asphalt is heated, some of the asphalt turns into vapor and escapes into the air. When it mixes with the cooler air above a roofing kettle or tanker, some of the vapor cools back into liquid and forms a cloud of tiny droplets. Fumes are actually tiny droplets of airborne liquid asphalt. Exposure occurs when these droplets are inhaled or land on a person's skin.

Asphalt is used in a variety of roofing-related products, including shingles, built-up roofing and modified roofing felts, some single-ply membranes and flashing materials. Many of these products do not generate fumes in the field because they are not heated. Asphalt is also used in roof coatings, mastics and cements; these products release vapors that are different from asphalt fumes as they come from the petroleum solvent and not from the asphalt itself.

Asphalt fumes are created during the installation of hot-applied built-up roof systems as well as some modified bitumen and single-ply roofing membranes. Asphalt fumes are not created during the removal of these systems because the asphalt is not heated during a removal operation. As with any tear-off operation, particulates (dust) may become airborne, but there is no evidence that asphalt particulates pose a health risk to workers, beyond the possible effects of over-exposure to any general "nuisance" dust.

### **Safety Hazards**

Among the most serious hazard facing a roofing crew is the risk of getting burned by hot asphalt. Skin contact with hot asphalt, which may be heated in excess of 400 F, can lead to very serious burns. Your professional roofing contractor will work with you to be sure that no building occupants or passersby are exposed to the risk of spilled asphalt.

### **Health Hazards**

Fumes from asphalt can cause irritation of the eyes and mucous membranes of the nose and throat. Exposure to asphalt fumes may give some people headaches or make them nauseated. All of these effects typically go away once the person is no longer exposed to the fumes, and pose no known long-term health consequences.

Some scientists and advisory bodies, however, have expressed concern about whether exposure to asphalt fumes may pose a cancer risk to workers. Nonetheless, when all the evidence available today is considered as a whole, the prevailing view is that although the possibility of a cancer hazard cannot be ruled out scientifically, the current information is insufficient to conclude that asphalt fumes pose a cancer hazard to those who may be exposed to them. Several widely-respected scientific advisory bodies have concluded that asphalt fumes cannot be classified as a human carcinogen, and recently the National Institute for Occupational Safety and Health (NIOSH), while concluding that fumes from roofing asphalts are "possible occupational carcinogens," suggests that additional studies be conducted to "better characterize occupational exposures to asphalt fumes, vapors, and aerosols, and to further evaluate the risk of chronic disease, including lung cancer."

The NIOSH report recommends that workers using hot roofing asphalts have an exposure limit of 5.0 milligrams per cubic meter of air over any 15-minute time period. Because there is no available method for measuring total particulate exposure over a 15-minute period, there are no data available that indicate whether current exposures adhere to the REL.

### Reducing Exposures to Asphalt Fumes

Because exposure to fumes from roofing asphalts can be an irritant for some people, your professional roofing contractor will work with you to find the best ways to reduce the possibility of any discomfort for your employees. There are several things that your contractor can do:

- Be sure that all points of air intake into the building are closed to the extent possible.
- Keep the asphalt heating equipment in a position downwind from the building, and in an area that is acceptable for all parties in the roofing project, and restrict access to the equipment from anyone except the contractor's employees.
- Keep lids and covers on containers of hot asphalt (especially kettles) closed whenever possible.
- Use insulated pipes to transport hot asphalt from the ground to the roof, so that the temperature required to heat the asphalt can be kept to a minimum.
- Consider the use of kettles with engineering controls to reduce fume emission, or the use of fume recovery equipment.
  
- Consider the use of a low-fuming asphalt.
- Have a trained and skilled crew that is experienced in working with hot asphalt.

## **Sample Building Occupant Notification Letter**

**[Date]**

**Dear Occupant of [Building name and/or address]**

**[Your company name] has been hired to [repair/replace] the roof of [building name and address; specify units if a partial job] with a new asphalt roof [provide details if applicable]. For more than 100 years, asphalt's durability, value and superior water tightness have made it the leading choice for roofing applications. However, heating asphalt to the temperature required for roofing applications produces a fume that some people find to be unpleasant.**

**Asphalt fumes are known to irritate the eyes and mucous membranes of the nose and throat of some individuals. In addition, experience has shown that some individuals are much more sensitive to asphalt fume emissions, and you may wish to take extra measures to avoid fume exposure and minimize any discomfort for them.**

**Work is scheduled to begin [start date] and end [projected finish date]. During this time, [describe any applicable conditions, such as closure of entrances; or recommendations, such as keeping windows closed]. Throughout the course of the job, [your company name] will work closely with building management to ensure that disruption to building occupants is kept to a minimum.**

**Should you have any questions, please call us at [company phone number] from [company hours]. We apologize for any inconvenience you may experience while we apply your new asphalt roof system.**

**Sincerely,**

**[Your name]  
[Your company name]**

## Finally....

The most important thing a professional roofing contractor can do is work with his clients to be sure that everyone involved in the roofing project understands the scope of the job, the hazards that may be present, and the approach that the contractor intends to take. You should be sure you are comfortable that you know the contractor's game plan, and that you stay in constant communication with the contractor as your project is completed.

## For More Information

There are a number of industry sources that can provide more information about the proper use of roofing asphalts. These include:

National Roofing Contractors Association  
10255 W. Higgins Road  
Rosemont, IL 60018  
Phone: 847/299-9070

The Asphalt Institute  
2696 Research Park Drive  
Lexington, KY 40512  
Phone: 606/288-4960

United Union of Roofers, Waterproofers and Allied Workers  
1660 L Street, NW, Suite 800  
Washington, DC 20036  
Phone: 202/463-7663

Asphalt Roofing Manufacturers Association  
Center Park  
4041 Power Mill Road, Suite 404  
Calverton, MD 20705  
Phone: 301/348-2002