As discussed in a recent Professional Roofing article, “New findings are in,” February 2016, page 26, the health risks of working with asphalt during roofing work are insignificant if exposures are adequately controlled. For many years, NRCA has provided guidance regarding practical methods to limit asphalt exposure. In partnership with the Asphalt Roofing Manufacturers Association (ARMA), NRCA recently updated the following recommended practices.

**Temperature control**
As addressed in the article, a roofing worker’s exposure to asphalt fumes can be cut in half by reducing the temperature for hot asphalt applications by 50 degrees Fahrenheit. In NRCA Vice President of Technical Services Mark Graham’s Tech Today column, “An updated standard,” Professional Roofing, February 2015 issue, page 12, Graham discusses ASTM D312, “Standard Specification for Asphalt Used in Roofing,” has been revised to lower kettle and application temperatures in accordance with NRCA and ARMA recommendations.

In addition to selecting an asphalt that meets the most recent ASTM International standard (D312-15), NRCA encourages you to take a number of steps to ensure kettle temperatures are as low as possible and consistent with maintaining a recommended application temperature for good installation, such as the following:

- Make temperature management a priority on every project.
- Use crews that have been trained to identify temperature targets, take temperature readings regularly, communicate with each other and follow good work practices.
- Use kettles that are insulated and have working thermometers, thermostatic controls and automatic shutoff mechanisms.
- Make sure temperature-related equipment and devices are properly calibrated, frequently inspected and well-maintained.
- Minimize heat loss, which allows a kettle to be operated at a lower temperature while maintaining a proper temperature at the point of application:
  - Keep the lids on kettles and all rooftop containers closed as much as possible.
  - Insulate the hot pipe and use insulated rooftop containers.
  - Use kettles that have tight-fitting lids, capacities appropriate to the job to minimize refilling and higher pumping speeds.
  - Situate the kettle to minimize the distance to the point of application.

**Other available controls**
In addition to effective temperature management, other operational, work practice and engineering controls can further reduce asphalt exposures.

**Job setup**
- Place the kettle/tanker downwind from roofing work—locate the kettle so the inside of the kettle lid faces away from the building.
- Restrict access to the area surrounding the kettle/tanker.
- Work with building management to ensure appropriate measures are taken to prevent asphalt fumes from entering the building.

**Work practices**
In addition to observing proper guidelines for controlling temperatures and minimizing heat loss, kettle operators and roofing workers should work upwind of a kettle opening and other fume sources wherever possible.

**Engineering controls**
Engineering controls and product substitution can be considered where feasible, particularly on jobs involving potential exposure to building occupants, such as hospitals, schools and residential structures.

Alternative products include fume-suppressing asphalts and wax-modified asphalts formulated for application at lower temperatures. Kettle engineering controls include loading devices that allow the kettle to be refilled without opening the lid, and afterburner and filtration systems that burn or condense fumes.

**Jobs without hot asphalt**
Most asphalt roofing work in the current marketplace involves products that are cold-applied or installed using torches or hot-air welders,
but exposure to asphalt also can occur during tear-offs. On these jobs, NRCA recommends the following controls for inhalation exposures:

- **Wherever possible, work upwind during application and tear-off activities.**
- **During tear-off work, roofing materials should be removed in an intact state to the extent feasible.**
- **During tear-off projects that involve the use of aggressive tools or equipment that pulverize roofing materials, work with building management to ensure appropriate measures are taken to prevent dust from entering the building.**

### Clothing and equipment
NRCA recommends the following protective clothing and equipment measures during asphalt roofing applications or removal work to prevent eye and skin contact with asphalt fumes and particles, as well as burns:

- **Goggles or safety glasses with side shields should be used during applications that use hot asphalt or torches/hot-air welders, during spray applications of liquid products, and during tear-off projects that require aggressive tools or equipment. Kettle operators should wear full-face shields over their safety glasses.**
- **During asphalt applications and tear-off projects, workers should wear appropriate gloves: chemical-resistant gloves in the case of cold-applied liquid products, and cotton or leather gloves on other jobs.**
- **Hot asphalt roofing workers should wear nonskid shoes with leather uppers that cover the ankles, long pants without cuffs, and long-sleeved shirts made from cotton or other materials that will not melt.**

### Hygiene practices
NRCA recommends the following hygiene practices for all asphalt applications and tear-off work to further limit potential inhalation and dermal and ingestion exposures:

- **Wash with soap and water as soon as possible after each shift and, if possible, before eating, drinking or similar activities. Never wash with fuels, solvents or other industrial chemicals.**
- **Avoid eating, drinking and similar activities in areas where fumes, vapors, mists or dusts from application or tear-off operations are present or may have been deposited on surfaces.**
- **Work clothing soiled with these emissions should be removed as soon as possible after each workday, be kept separate from other clothing and not be reworn unless laundered.**

### The bottom line
These recommendations only are some highlights of the updated ARMA/NRCA recommendations. The specifics are essential and are detailed in *Recommended Practices for Controlling Asphalt Exposures during Tear-Offs of Asphalt Roofs; Recommended Practices for Controlling Asphalt Exposures during the Installation of Asphalt Products without Using Hot Liquid Asphalt; and Recommended Practices for Controlling Asphalt Fume Exposures during Hot Asphalt Roofing Jobs* available at www.nrca.net/asphalt. The guidelines address hot asphalt roofing work, other types of application such as adhesives and torches, and tear-off projects. For more information about the updated guidelines, contact Thomas R. Shanahan, CAE, NRCA’s vice president of enterprise risk management, at (847) 299-9070, ext. 7538 or tshanahan@nrca.net.

NRCA encourages you to download the guidelines and integrate the recommended practices into job planning, job supervision and worker training. Taking the recommended steps can prevent safety and health risks to roofing workers, improve working conditions, enhance the prospects for a quality roof installation, and minimize odor complaints from building occupants and others nearby.

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