The National Funeral Directors Association (NFDA) issued a new and groundbreaking report on ventilation in the preparation room, along with practical, cost-effective recommendations for removing formaldehyde vapors during embalming. The report, "Formaldehyde Vapor Reduction in the Funeral Home Preparation Room: Recommendations for Effective Preparation Room Ventilation," is based on a year-long study of funeral homes and their ventilation systems, and an evaluation of ventilation engineering practices for the control of formaldehyde.

International and domestic agencies recently have examined formaldehyde because of increasing concerns about its health effects. In 2004, the International Agency for Research in Cancer (IARC) found a link between formaldehyde and nasal cancer. In 2009, IARC found a link between formaldehyde and leukemia; IARC's findings were based, in part, on the National Cancer Institute's 20-year study of embalmers.

Ventilation has been found to be the single most effective way to control formaldehyde vapor levels – and thus, associated health risks – in the preparation room. Because there are no consensus ventilation standards that apply to funeral home preparation rooms, NFDA undertook this study to fill that void.

"NFDA's mission is to educate and protect funeral directors and make sure that they are informed about important issues affecting their health and safety," said NFDA President William C. Wappner, CFSP. "Whether formaldehyde is ultimately determined to cause cancer in funeral directors or not, there is no good reason for any person to be exposed to a toxic compound in the preparation room when simple, cost-effective measures can be taken to reduce that exposure."

Scope of the Study

The objective of the study was to identify those features of an effective ventilation system that would remove formaldehyde from the breathing zone of the embalmer.

The study was conducted by William Ridenhour, a leading HVAC (heating ventilating and air conditioning) consultant, whose experience includes designing and auditing laboratories for the federal government.

Using his HVAC experience and knowledge of formaldehyde and its properties, Ridenhour inspected funeral homes to examine their ventilation systems. He also conducted an extensive literature search to identify those preparation room activities that were shown to produce the most significant formaldehyde rates. This research enabled Ridenhour to assess how ventilation systems addressed formaldehyde vapors and what improvements could be made.
Key Findings

Several key findings emerged from Ridenhour's research:

- Air change rate alone, that is, the number of times per hour that fresh air enters the preparation room, does not guarantee effective formaldehyde removal. The study recommends no less than 15 air changes per hour, although attention needs to be given to other factors.
- The flow of air in the preparation room is key. Sources of air supply and grilles for air removal need to be located so that airflow is controlled and formaldehyde vapors do not reach the embalmer's breathing zone.
- A local exhaust ventilation (LEV) device should be evaluated as an addition to the ventilation system. An LEV, designed with a small hood attached to a flexible arm, located between the embalmer's breathing zone and the embalming table, can capture formaldehyde vapors at their source. LEVs have been used in many settings to remove toxic gases.
- A ventilation system needs to reflect the funeral home's business, including the number of embalming tables and whether they are in use at the same time; whether more than one embalming is performed daily; the percentage of autopsied and organ donor cases; and use of cavity fluid, osmotic gel and accessory compounds, which are considered to cause the highest formaldehyde generation rates.
- The report concludes that an effective ventilation system, designed, operated, and maintained to meet the criteria in the study, can be effective in removing formaldehyde vapors from the breathing zone of the embalmer in the preparation room and lowering overall levels of formaldehyde.
- The design, installation, maintenance and alteration of the preparation room ventilation system should always be in consultation with an HVAC professional to ensure the system is functioning effectively to reduce formaldehyde exposure to the greatest extent possible.

The study also includes a five-step guide which provides a cost-effective strategy to help funeral home owners assess and, where necessary, take action to improve the ventilation systems in their preparation rooms.

NFDA's OSHA General Counsel Edward Ranier and NFDA's Environmental General Counsel Carol Green will review the findings in the report at the 2010 NFDA International Convention & Expo during the workshop "Cancer and NFDA's Formaldehyde Best Management Practices" on October 11 at 8:45 a.m.

A guide to the NFDA ventilation study, which provides a brief overview of the report and its recommendations, is available to all funeral professionals who visit the NFDA website, [www.nfda.org/ventilation](http://www.nfda.org/ventilation). NFDA members may download the entire report from the website free-of-charge. Printed copies are available to NFDA members free-of-charge; nonmembers may order a printed copy of the study at a cost of $70. Funeral professionals should call NFDA at 800-228-6332 to request a printed copy of the study.