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NATIONAL ENERGY MANAGEMENT INSTITUTE

A Message from Donald Lahr, Administrator of NEMI



Donald L. Lahr, Administrator

successful projects continues to grow, the decline in energy costs has reduced the importance of energy management in many of our customers' eyes. As a result, we need to expand our products and services to match new market opportunities for our industry and its union workers.

Indoor Air Quality Presents Valuable New Market Opportunities

Indoor air pollution has become an area of increasing concern to office workers and building operators and owners. The majority of IAQ problems are related directly to the design, operation, maintenance or modification of a building's ventilation or air handling systems. A properly designed, operated and maintained air handling system can solve most IAQ problems without sacrificing energy efficiency.

With their expertise in these areas, many contractors are well suited to enter the market for indoor air quality services. With NEMI-provided training and a relatively small investment in new equipment, contractors will be able to take the logical step from providing total energy management services to providing total

IAQ management services as well. Many are already involved in IAQ through clean room or industrial experience. And, in accordance with NEMI's original goals, the program will provide an immediate increase in job opportunities for union contractors and sheet metal workers.

This newsletter presents some facts on IAQ issues and describes how NEMI can help you get involved.

More details will be provided in future publications. Frank Powell, P.E., our Director of Engineering, will be leading NEMI's indoor air quality activities. Please feel free to call him or me at (703) 739-7100 if we can be of assistance.

Best wishes from all of us at NEMI for a successful 1988.

*Sincerely,
Donald Lahr
Administrator*

We at the National Energy Management Institute (NEMI) are pleased to announce our latest venture — an indoor air quality management program. Beginning later in 1988, NEMI will offer a comprehensive indoor air quality (IAQ) training program to certify contractors and technicians as qualified to analyze building air quality and to perform all necessary retrofit work. Additionally, our regional NEMI offices and the national headquarters will provide marketing and sales support to help union contractors and technicians enter this rapidly expanding field.

While our energy program and the list of

Sick Building Syndrome

With the rise in energy efficient buildings, interior air quality has become an important and growing concern. The number of complaints related to "sick building syndrome" — buildings with poor indoor air quality that causes occupants to feel ill — has risen steadily during the past several years. All across the nation, building occupants, from high school students to federal government workers, are suffering from the effects of poor indoor air quality.

As of January, 1986, the National Institutes for Occupational Safety and Health (NIOSH) had investigated 356 buildings for sick building syndrome; more than 90 percent of those investigations occurred

after 1980. Of the 356 completed studies, more than half of the problems stemmed from inadequate air flow. Another survey of 1,100 workers showed that more than 75 percent had filed complaints directly related to poor indoor air quality. And, during the past several years, the Consumer Product Safety Commission has received more than 3,000 complaints about bad air, specifically, complaints about lack of adequate ventilation.

As concerns over the hazards of poor indoor air quality grow, it is especially important to balance the need for energy efficiency with the requirements for a healthy indoor environment. (Continued on page 4)

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SMACNA and NTF Training



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Contractors don't need to be health experts to perform IAQ services. In fact, the skills and training that most NEMI contractors already have will help in their IAQ work.

Later this year, NEMI will begin a training program which will prepare union contractors and sheet metal workers to perform high quality IAQ services. The program will build on the contractors' existing expertise and will be conducted by the Sheet Metal Workers and Air Conditioning Contractors' National Association (SMACNA) and the National Training Fund (NTF). After completing the comprehensive training program, contractors will be qualified to make preliminary IAQ checks. If the initial checks show IAQ problems, contractors will be prepared to perform basic tests and the tune-up and cleaning techniques necessary to improve IAQ levels. Some systems may require more extensive repair. In these cases, NEMI will match the contractor with an industrial hygienist who will consult and work with the contractor to obtain maximum energy efficiency and indoor air quality levels.

New Business Opportunities with Easy Marketing

As IAQ problems continue to move to the forefront of health issues, providing high-quality indoor air will become an increasingly im-

portant and lucrative responsibility for sheet metal workers and contractors working with air conditioning and ventilation.

Sheet metal technicians and contractors who have installed and repaired HVAC and ventilation systems in buildings are best qualified to clean and adjust existing systems to maximize both energy efficiency and indoor air quality.

Initial program promotion and marketing will be relatively easy. The first IAQ clients will be the building owners and managers for whom contractors have previously performed energy management services. As technicians and contractors are adjusting HVAC and ventilation systems, they can promote and offer their IAQ services.

Additional clients will arise as building managers

and owners rush to have their ventilation systems modernized to meet the recently updated minimum fresh outside air requirements proposed by the American Society of Heating, Refrigerating and Air-Conditioning Engineers (ASHRAE). This change means new retrofit and IAQ marketing opportunities for contractors and sheet metal workers. NEMI also will continue to provide national and regional marketing support that all NEMI technicians and contractors can use to attract new clients for both their energy and indoor air quality management services.

NEMI encourages sheet metal contractors and technicians to join this new venture. For more information, contact Frank L. Powell, Program Director.

IAQ Services Contractors Can Provide

Studies and Consulting Services

- Ventilation system assessment
- Ventilation system design or design review
- Indoor Air Quality (IAQ) testing and monitoring
- Air balance and air flow studies
- IAQ sampling and monitoring program design
- Surveys for compliance with statutory requirements
- Investigation of IAQ complaints

Construction

- Ventilation system modifications and improvements
- Maintenance contracts for IAQ and ventilation equipment
- IAQ equipment sales and/or installation

Other Services

- IAQ equipment parts, service and maintenance
- Asbestos abatement planning, surveys and/or removal

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National Energy Management Institute

The National Energy Management Institute (NEMI) is a national, non-profit corporation sponsored by the Sheet Metal Workers International Association, the Sheet Metal and Air Conditioning Contractors' National Association and their jointly administered National Training Fund. Its goal is to create new jobs for union contractors and sheet metal workers in the rapidly expanding energy and indoor air quality management fields. Headquartered in Washington, D.C., NEMI has state and regional offices

throughout the country. A labor-management venture, it is funded by an employer trust fund and several outside sources including government and foundations.

NEMI provides comprehensive training to instructors, union contractors and technicians to provide a full range of energy and indoor air quality management services. NEMI's total energy management program includes a complete audit of each aspect of the contracted building's energy-using system — lighting, heating, cooling and ventilation —

and performing the work needed to make the system energy efficient. NEMI also provides a warranty program which guarantees that energy-cost savings will be achieved.

NEMI's IAQ training program certifies union contractors and technicians as being qualified to analyze

the air quality of contracted buildings and to perform all necessary retrofit work. This indoor air quality management program provides the same marketing and sales support, warranty and high level of quality work that has given NEMI's energy management contractors an edge on the competition.

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INDUSTRY CURRENTS

ASHRAE Fresh Air Standards

In 1977, the American Society of Heating, Refrigerating & Air Conditioning Engineers (ASHRAE) responded to increasing concerns about energy efficiency by proposing ventilation system design and operational standards, and minimum fresh outside air (OA) requirements for the industry. ASHRAE recommended a minimum of 5 cubic feet per minute, per person in a typical open office setting with adequate air filtration and temperature controls. The standards were ratified in 1981 and many buildings constructed during the last six years were built or modified to meet these ventilation design criteria.

ASHRAE, however, has proposed raising the standard outside air levels to respond to new concerns about indoor air quality. In proposed standard 62-1981R, currently under review, the ASHRAE committee has recommended a minimum of 20 CFM OA per person - in offices (15 under certain conditions) - a fourfold increase in fresh air requirements over the 1977 standard. The purpose of the new proposed standard is to specify minimum ventilation rates and indoor air quality which will be acceptable to occupants and avoid adverse health effects. ASHRAE also has recommended that fresh air ventilation rates be measured on a regular basis to ensure they remain at optimal levels, and has proposed provisions for some averaging of ventilation flow rates when more than one room or zone is supplied from a common source. The proposed standard likely would result in increasing energy costs at many sites. Engineers and contractors will be challenged to design and install systems which provide acceptable IAQ without increasing energy costs.

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Sick Building Syndrome

(From page 1)

Because of their years of experience in the energy management field working with HVAC and ventilation systems, as well as their comprehensive training in both energy management and IAQ, NEMI contractors are uniquely qualified to do the work necessary to strike such a balance.

Ventilation Systems and Tight Buildings

The rise in sick building syndrome-related complaints is a direct result of inadequate ventilation in energy efficient, "tight" buildings. Almost all natural infiltration and exfiltration of air in these buildings has been eliminated to reduce heat gain and heat loss. Tightly closed windows and double-insulated walls and ceilings help keep the heat in, but do not allow for natural ventilation or the circulation of healthy amounts of fresh air. As a result, the majority of outside air supplied to these

buildings enters through recirculating air-conditioning systems.

Unfortunately, in both the new energy efficient buildings and in older buildings, managers and owners frequently do not provide for proper upkeep of the HVAC and ventilation systems. This lack of maintenance allows outside air pollutants to be drawn into and recirculated throughout the building. Additionally, contaminants that originate inside the building are not filtered out, but are recirculated and become health hazards.

Other products used or produced in the building can also cause health problems when there is inadequate ventilation. Dust, cleaning fluids, ozone from copy machines, methyl alcohol from duplicators and shampoo buildup in carpets can all lead to ill health effects when their spread is made easier by lack of fresh air and improperly maintained HVAC and ventilation systems.

Furthermore, the lack of maintenance of these systems allows microbes, insects, fungi and bacteria to accumulate within the systems and to be circulated throughout the building. High humidity compounds the problems by allowing fungi and bacteria inside the ductwork to grow more rapidly.

Several companies and local governments have pinned the blame for poor in-

terior air quality on occupant smoking. A 1984 NIOSH study of 203 buildings, however, attributed only 2 percent of indoor air quality complaints to smoking. Those who blame tobacco smoke actually cover up the real culprit — poor ventilation systems. Tobacco smoke is the most visible sign of an inadequately ventilated tight building; a building in need of NEMI's IAQ services.

Common Causes of IAQ Complaints

The most common causes of indoor air quality complaints reported to NIOSH - The National Institutes for Occupational Safety and Health *:

Ventilation System	48.3%
Inside Contamination (Other than smoking).....	17.7%
Contamination From Outside Sources.....	10.3%
Poor Humidity Control.....	4.4%
Contamination From Building Materials.....	3.4%
Hypersensitivity (Pneumonitis).....	3.0%
Cigarette Smoking.....	2.0%
Other or Unknown.....	10.9%

* *Policies and Procedures for Control of Indoor Air Quality Committee on Indoor Air Quality, Federal Construction Council, Building Research Board, Commission on Engineering and Technical Systems, National Research Council.*

In This Issue

- A Message from NEMI Administrator Donald Lahr introducing NEMI's new IAQ program
- A description of SMACNA and NTF's IAQ training program
- An introduction to "sick building syndrome"
- "Industry Currents": an update of ASHRAE Fresh Air Standards

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