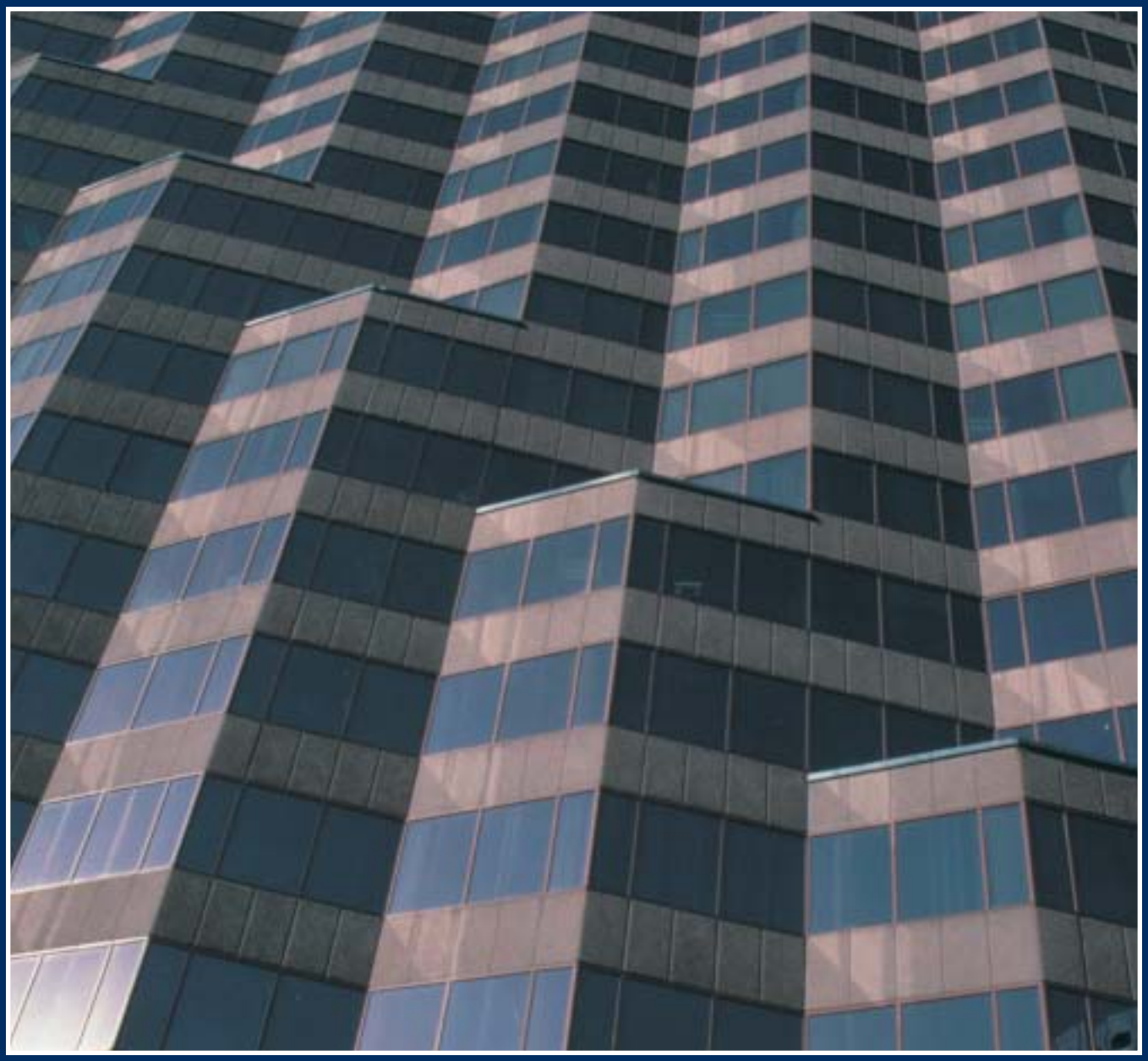


An Essential Component of Indoor Environmental Quality…

FIBER GLASS HVAC INSULATIONS

One of the most important components in any building is the HVAC system. The air handling duct system is one component of the HVAC system. Since fiber glass insulation products are used in the majority of duct systems installed in the United States, the North American Insulation Manufacturers Association (NAIMA) has prepared this booklet to give you a quick overview of how insulation fits into the overall indoor environmental picture.

Insulation Improves Quality of Indoor Environment

In recent years, there has been increased attention focused on the quality of indoor air. The fuel crisis of the 1970's signaled the need to conserve energy. Buildings became tighter and, while the amount of energy used dropped dramatically, the number of occupant complaints rose. Stories of "sick buildings" began to appear regularly in the popular press blaming everything from construction materials to interior furnishings to volatile organic compounds (VOCs).

The National Institute for Occupational Safety and Health (NIOSH) has identified inadequate ventilation as the major source of poor Indoor Environmental Quality (IEQ).[1] For this reason, whenever IEQ problems arise, the primary focus of attention is often on the HVAC system. Because fiber glass insulation is used as a component of the duct work in the majority of air handling systems installed today, it is sometimes targeted when IEQ complaints arise. However, the air being distributed through the ducts contains contaminates that are unrelated to the insulation. It is important to note that air handling systems have many other components besides duct work. These include heating units, air conditioners, vents, fans, fan/coil units, heating coils, filters, humidifiers, etc.

NIOSH IDENTIFIES INADEQUATE VENTILATION AS THE MAJOR SOURCE OF POOR IEQ

Faulty operation and maintenance of the HVAC system can be a cause of poor IEQ. Whether the duct work is bare sheet metal, sheet metal lined with fiber glass insulation, flexible ducts, or made with fiber glass duct board, dirt and moisture caused by inadequate filtration and lack of proper maintenance can lead to fungal growth in all types of ducts. Conversely, duct studies have shown that properly installed, operated and maintained fiber glass insulation materials do not support microbial growth.

PROPERLY INSTALLED AND MAINTAINED FIBER GLASS AIR HANDLING PRODUCTS IMPROVE THE OVERALL QUALITY OF THE INDOOR ENVIRONMENT

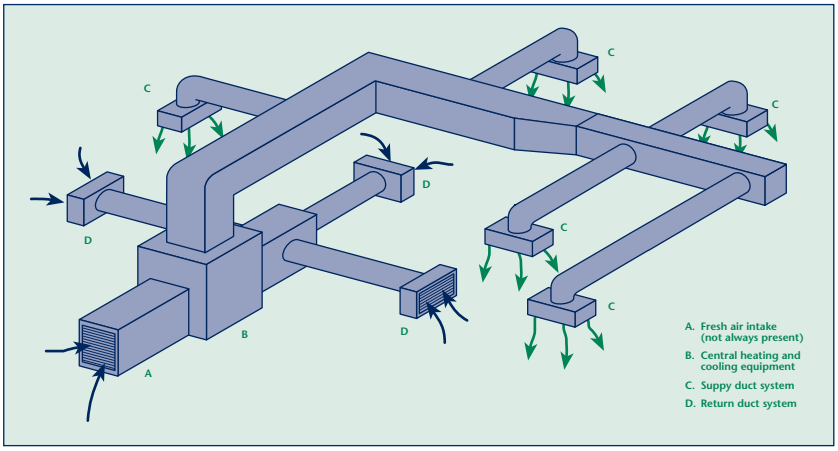
Formaldehyde gas is another potential source of poor IEQ. Like plywood, carpet fabrics and other materials used in buildings, fiber glass insulations are manufactured with a phenol formaldehyde resin. However, the resins used in the manufacture of fiber glass are cured and emit little formaldehyde. Fiber glass products give off an extremely low amount of formaldehyde gas (CH_2O)—usually too low (or too small) to be measured. In a study sponsored by the U.S. Consumer Product Safety Commission, researchers stated that "fibrous glass insulation…products appear to be weak CH_2O emitters with a minimal impact on indoor CH_2O concentrations."[2]

Another contributor to poor IEQ is the building occupants themselves who release cigarette smoke, perfume, human cells (skin, dandruff, etc.) and a variety of viruses and bacteria into the air on a daily basis. As air contaminants, these pollutants can severely compromise a person's health — especially in a poorly designed and unmonitored workplace or public area.

When fiber glass air handling products are installed and maintained according to specifications, they can, in fact, improve the overall quality of the indoor environment.

[1] Congressional testimony of J. Donald Miller, M.D., before the subcommittee on Superfund, Ocean, and Water Protection, NIOSH, May 26, 1989.

[2] Oak Ridge National Laboratory, Oak Ridge Tennessee. *Determination of Formaldehyde Emission Levels from Ceiling Tiles and Fibrous Glass Insulation Products.* September 1983.



Typical HVAC System Schematic

Fiber Glass and HVAC Systems

Occupant comfort, both thermal and acoustical is an essential component of IEQ. The key to a well designed system that delivers on both of these criteria is fiber glass. Fiber glass insulation products help maintain a consistent air temperature throughout the system, reduce condensation (and, consequently, the opportunity for microbial growth), absorb noise from the system's operation, and conserve energy.

FIBER GLASS INSULATIONS MAINTAIN CONSISTENT AIR TEMPERATURE, REDUCE CONDENSATION, ABSORB NOISE AND CONSERVE ENERGY

Traditional Benefits

Consistent Air Temperature

By reducing the heat transfer across the duct system, fiber glass insulation products allow a building's HVAC system to deliver conditioned air at design temperatures. Consistent air temperatures increase comfort while maintaining lower energy costs.

Noise Reduction

Without fiber glass insulation products, the acoustical environment of mechanically conditioned buildings can be greatly compromised, resulting in reduced productivity and a decrease in occupant comfort. Fiber glass duct liner and duct board greatly reduce the transmission of HVAC systems equipment and air flow generated noise through the duct system. The insulation also reduces cross-talk from one room to another through the ducts.

Condensation Reduction

Fiber glass duct liner, wrap and board reduce condensation on the duct surfaces, thus reducing the opportunity for microbial growth and amplification as well as other moisture-related building damage. Condensation will form on any duct surface with a temperature equal to, or lower than, the dew point temperature. The moisture may remain in place or drip, causing moisture damage and creating a potential for microbial contamination. Fiber glass duct liner, duct wrap, and duct board reduce the opportunity for condensation, thus eliminating the critical precondition for microbial growth.

Energy Conservation

The insulating role of fiber glass air handling products has become even more important because of the increased emphasis on ventilation as a critical element in indoor environmental quality. Increased ventilation requirements which call for specific ventilation levels in occupied spaces place more demands on the building's energy usage. Thus, the importance of energy efficiency and conservation is increasing from both the energy conservation standpoint and the impact of increased ventilation on the cost of operating a building. Duct systems have inherently low leakage. Air tightness is not an absolute requirement. Ducts should be sufficiently air-tight to ensure quiet, economical performance. Supply duct leakage reduces the delivered volumes of air at diffusers and registers, which must be compensated for by increasing the total quantity of supply air. Return duct leakage reduces system thermal efficiency and may draw air and contaminants into the system.

Added IEQ Benefits

In addition to the traditional benefits of fiber glass insulation, the products have added IEQ benefits:

Cleanability

Fiber glass duct liner and duct board products have surfaces that are resistant to the kind of abuse that occurs during duct cleaning. The industry has worked with the National Air Duct Cleaners Association and the U.S. Environmental Protection Agency (EPA) in developing guidelines for cleaning insulated duct work.

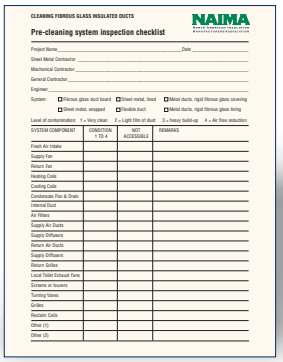
Integrated Anti-Microbial Protection

Fiber glass air handling products comply with stringent standards for resistance to mold and bacteria growth. Consequently, fiber glass duct liners and duct board do not promote or support microbial growth. To ensure that an HVAC system will continue to perform, a regular operation and maintenance schedule should be followed.

FIBER GLASS INSULATIONS KEEP HEATING AND COOLING COSTS UNDER CONTROL

Preventive Maintenance and Duct Cleaning

The best way to ensure that an HVAC system, whether bare metal or internally insulated, will continue to provide efficient, quiet air delivery, occupant comfort, and cost-effectiveness is by following a regular system operation and maintenance schedule. This, along with a high-efficiency filtration system, assures protection of both HVAC system components and building occupants. Maintenance procedures include inspection, detection and remediation of probable sources of airborne contaminants and moisture.


CLEANING FIBROUS GLASS INSULATED DUCTS

NAIMA

Pre-cleaning system inspection checklist

Project Name _____ Date _____

Sheet Metal Contractor _____

Mechanical Contractor _____

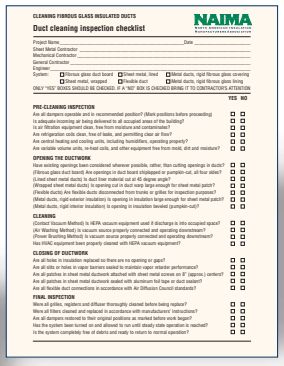
General Contractor _____

Engineer _____

System: ☐ Fibrous glass duct board ☐ Sheet metal, lined ☐ Metal ducts, rigid fibrous glass covering ☐ Sheet metal, wrapped ☐ Flexible duct ☐ Metal ducts, rigid fibrous glass lining

Level of contamination: 1 = Very clean 2 = Light film of dust 3 = Heavy build-up 4 = Air flow reduction

SYSTEM COMPONENT	CONDITION 1 TO 4	NOT ACCESSIBLE	REMARKS
Fresh Air Intake			
Supply Fan			
Return Fan			
Heating Coils			
Cooling Coils			
Condensate Pan & Drain			
Internal Duct			
Air Filters			
Supply Air Ducts			
Supply Diffusers			
Return Air Ducts			
Supply Diffusers			
Return Grilles			
Local Toilet Exhaust Fans			
Screens or Louvers			
Turning Vanes			
Grilles			
Reclaim Coils			
Other (1)			
Other (2)			


CLEANING FIBROUS GLASS INSULATED DUCTS

NAIMA

Duct cleaning inspection checklist

Project Name _____ Date _____

Sheet Metal Contractor _____

Mechanical Contractor _____

General Contractor _____

Engineer _____

System: ☐ Fibrous glass duct board ☐ Sheet metal, lined ☐ Metal ducts, rigid fibrous glass covering ☐ Sheet metal, wrapped ☐ Flexible duct ☐ Metal ducts, rigid fibrous glass lining

ONLY "YES" BOXES SHOULD BE CHECKED. IF A "NO" BOX IS CHECKED BRING IT TO CONTRACTOR'S ATTENTION

YES NO

PRE-CLEANING INSPECTION

Are all dampers operable and in recommended position? (Mark positions before proceeding) ☐ ☐
Is adequate incoming air being delivered to all occupied areas of the building? ☐ ☐
Is air filtration equipment clean, free from moisture and contaminates? ☐ ☐
Are refrigeration coils clean, free of leaks, and permitting clear air flow? ☐ ☐
Are control heating and cooling units, including humidifiers, operating properly? ☐ ☐
Are variable volume units, re-heat coils, and other equipment free from mold, dirt and moisture? ☐ ☐

OPENING THE DUCTWORK

Have existing openings been considered wherever possible, rather, than cutting openings in ducts? ☐ ☐
(Fibrous glass duct board) Are openings in duct board shallopped or pumpkin-cut, all four sides? ☐ ☐
(Lined sheet metal ducts) Is duct liner material cut at 45 degree angle? ☐ ☐
(Wrapped sheet metal ducts) Is opening cut in duct warp large enough for sheet metal patch? ☐ ☐
(Flexible ducts) Are flexible ducts disconnected from trunks or grilles for inspection purposes? ☐ ☐
(Metal ducts, rigid exterior insulation) Is opening in insulation large enough for sheet metal patch? ☐ ☐
(Metal ducts, rigid interior insulation) Is opening in insulation beveled (pumpkin-cut)? ☐ ☐

CLEANING

(Contact Vacuum Method) Is HEPA vacuum equipment used if discharge is into occupied space? ☐ ☐
(Air Washing Method) Is vacuum source properly connected and operating downstream? ☐ ☐
(Power Brushing Method) Is vacuum source properly connected and operating downstream? ☐ ☐
Has HVAC equipment been properly cleaned with HEPA vacuum equipment? ☐ ☐

CLOSING UP DUCTWORK

Are all holes in insulation replaced so there are no opening or gaps? ☐ ☐
Are all slits or holes in vapor barriers sealed to maintain vapor retarder performance? ☐ ☐
Are all patches in sheet metal ductwork attached with sheet metal screws on 8" (approx.) centers? ☐ ☐
Are all patches in sheet metal ductwork sealed with aluminum foil tape or duct sealant? ☐ ☐
Are all flexible duct connections in accordance with Air Diffusion Council standards? ☐ ☐

FINAL INSPECTION

Were all grilles, registers and diffuser thoroughly cleaned before being replace? ☐ ☐
Were all filters cleaned and replaced in accordance with manufacturers' instructions? ☐ ☐
Are all dampers restored to their original positions as marked before work began? ☐ ☐
Has the system been turned on and allowed to run until steady state operation is reached? ☐ ☐
Is the system completely free of debris and ready to return to normal operation? ☐ ☐

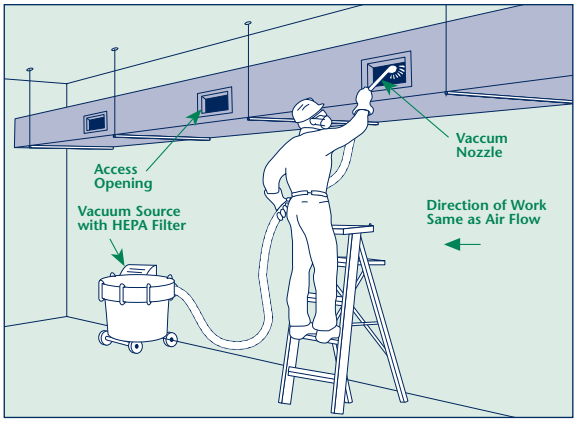
Before a decision is reached to clean the ducts, all potential causes of the air quality problem should be thoroughly investigated in a total indoor environmental "check-up." NAIMA offers checklists to serve as guides.

As always, prevention is the most desirable solution. However, in some cases, it may be too late for prevention, and system cleaning is necessary. If duct cleaning is necessary, it is important that the cleaning professionals be familiar with both the NAIMA and NADCA (National Air Duct Cleaning Association) guidelines. Today's air duct insulations are designed to withstand the rigors of cleaning.

When the decision is made to clean the ducts, care should be taken in the selection and application of any cleaning process. Currently, there are several methods available. The three most commonly used are:

- Contact vacuuming
- Air washing
- Power brushing

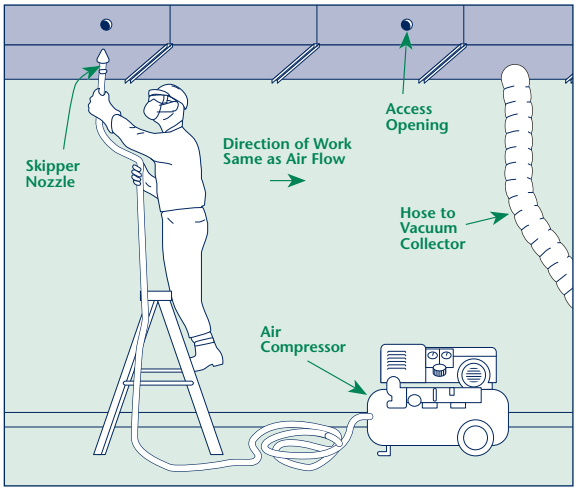
INADEQUATE OPERATION, MAINTENANCE AND/OR INADEQUATE FILTRATION WILL ALLOW DIRT AND MOISTURE TO ACCUMULATE IN DUCTS



Contact Vacuuming Method

Contact Vacuuming

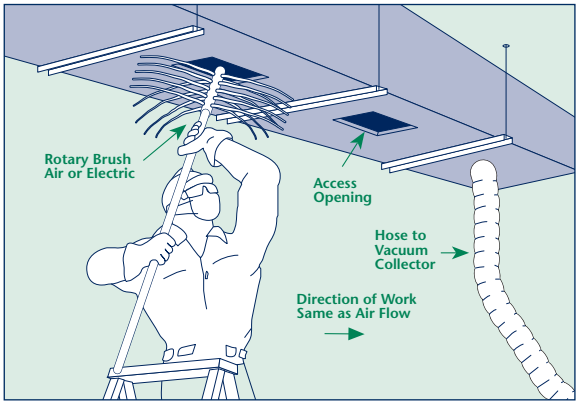
This method involves the use of a portable vacuum with High-Efficiency Particulate Air (HEPA) filtration. There is direct contact between the brush head and the interior of duct surfaces to dislodge and remove dirt and debris.



Air Washing Method

Air Washing

This method introduces compressed air into the duct through a hose terminated with a "skipper" nozzle (while the duct system is under negative pressure). This nozzle is designed so that the compressed air propels it inside the duct while dislodging dirt and debris. The dislodged dirt and debris become airborne, and are drawn downstream through the duct and out of the system by the vacuum collection equipment.



Power Brushing Method

Power Brushing

This method involves the use of pneumatically or electrically powered rotation bristle brushes to loosen dirt and debris which are drawn downstream into a vacuum collector. Care should be taken not to damage the duct walls or insulation surfaces. Only flexible bristle brushes should be used.

Mold Growth and the Use of Sealants

Mold growth is not surface specific. Given the presence of dirt and water, mold can grow on any surface within the HVAC system, whether it is bare sheet metal or fiber glass insulation. According to a Duke University study, mold growth was linked to dew-point conditions rather than high humidity. Researchers found that sustained mold growth could occur only when wet conditions were produced through condensation, as the air is cooled below its dew point. Wherever moisture was available, microbial growth could be found on any exposed surface of the HVAC system, including spiral sheet metal duct, the flat surfaces of metal ducts, plastic-lined flex duct, caulks and sealants, conditioning coils, metal sound attenuators, mixing box dampers and internal duct liners. The researchers noted that preventing water accumulation will minimize conditions that can result in sustained microbial growth.

HIGH HUMIDITY ALONE WILL NOT SUPPORT MOLD GROWTH IN A DYNAMIC, CONSTANT-VOLUME HVAC SYSTEM

Mold does not grow any better on lined surfaces than unlined surfaces. According to a 1996 study by researchers at the University of Nevada Las Vegas (UNLV) mold grows at the same rate on lined sheet metal, duct board or bare metal.

Duct surface makes no difference in the dispersal rate of mold spores. The UNLV study also addressed the question, "Does the type of duct surface make a difference in the way spores are dispersed?" The researchers tested a system with contaminated bare sheet metal, fiber glass duct board and fiber glass duct liner and concluded that the duct surface makes no difference in the dispersal rate of mold spores.

Preventing Mold Growth

The conditions which promote mold growth — the presence of dust and dirt combined with water — do not normally occur in properly designed, installed, operated and maintained systems. However, in instances where water is allowed to accumulate in the system, conditions can occur which allow mold growth in the air handling system, whether insulated or not.

Remediation

HVAC systems are often a focal point in the investigation of buildings with IEQ problems. In such cases, an assessment is made of the performance and condition of all HVAC system components including the materials that are exposed to the airstream. An assessment may find physical damage or excessive contamination present on the airstream surface of the fiber glass duct liner or duct board. If this is the case, then remediation is required.

Keep in mind that duct liner or duct board materials as supplied by the manufacturer meet strict UL, NFPA and ASTM standards and do not require an additional field-applied sealant or encapsulants other than those recommended by the manufacturers. As a result, these materials are not required to have field-applied sealants or encapsulants applied to the airstream surface by either fabricators or installers.

CHEMICAL BIOCIDES ARE REGULATED BY U.S. EPA UNDER FEDERAL PESTICIDE LAW

During remediation, a sealant should only be used if the damage to the airstream surface is small and localized. If it has been determined that the damage or contaminated surface can be remediated by the application of a sealant, care should be taken to assure that the sealant is compatible with the coating or facing materials used by the manufacturers to protect the airstream surface of the duct liner or duct board materials. Consult the insulation manufacturer to assure that the sealant is compatible with the insulation material.

Also, the selected sealant needs to meet the building code requirements and be handled and installed following the application and safety recommendation provided by the manufacturer. Other important information, such as long-term durability, should be addressed with the sealant manufacturer.

Installation and Application

For a sealant to be effective, it is important that it be applied correctly. The manufacturer of the sealant should be consulted for installation recommendations. The information should include the application steps required to achieve the coverage needed for the sealant to be effective.

Direct application of the sealant to the damaged surface has been determined to be the only effective way to achieve complete coverage of the damaged area. Spraying a sealant into the airstream will not provide the needed coverage to the damaged surface.

Regulation of Sanitizers and Biocides

The U.S. Environmental Protection Agency (EPA) regulates the use of sanitizers or biocides inside ducts that either kill or inhibit microbial growth. The EPA has recommended that disinfectant, sanitizer, or other antimicrobial products not be applied to HVAC systems if such product does not include specific directions for HVAC use. The EPA noted that even where labels do list HVAC systems as a possible use, they are concerned that the risks of these uses have not been fully evaluated. In addition, they warn that users of these products cannot assume that EPA registration of these products reflects any conclusion about their safety or effectiveness in HVAC systems.

NAIMA recommends that building owners or managers who are considering the application of sanitizers or biocides be aware of a number of issues related to their use in HVAC systems. Some manufacturers of these products may be required to make Material Safety Data Sheets (MSDS) available upon request. If applicable, you should review the MSDSs for health and safety information related to these products. Additional information on the use of biocides and sanitizers is also available on the EPA website at: www.epa.gov/iaq/pubs/airduct.html.

DIRECT APPLICATION OF THE SEALANT TO THE DAMAGED SURFACE HAS BEEN DETERMINED TO BE THE ONLY EFFECTIVE WAY TO ACHIEVE COMPLETE COVERAGE OF THE DAMAGED AREA

Facts on Fibrous Glass Duct Insulation

Fiber glass has been commercially manufactured for more than 75 years. Today, fiber glass is an important component of the nation's economy, providing energy-conserving products that help reduce pollution and preserve the environment.

One of the world's most useful materials, fiber glass can absorb sound, help control heat flow, diminish impurities from liquids and gases, reinforce other materials and, with a vapor retarder, help control condensation. Fiber glass duct insulation will not support the growth of mold when tested in accordance with specifications of the American Society for Testing and Materials (ASTM C 1338) or Underwriters Laboratories Inc. UL 181. In addition, fiber glass duct insulation materials installed internal to the duct system are tested per ASTM G21 and G22 for mold and bacteria.

Commitment to Product Stewardship

In May 1999, the North American Insulation Manufacturers Association (NAIMA) began implementing a comprehensive voluntary work practice partnership with the U. S. Occupational Safety & Health Administration (OSHA). This Health and Safety Partnership Program (HSPP) will train workers to keep airborne exposures below 1 fiber-per-cubic-centimeter (1 f/cc). The HSPP is also supported by the Insulation Contractors Association of America (ICAA) and the National Insulation Association (NIA).

NAIMA has produced a pamphlet entitled, "*Working with Fiber Glass, Rock Wool and Slag Wool Products*," that describes the recommended work practices. Included in the pamphlet are recommendations for minimizing dust generation, maintaining adequate ventilation, wearing appropriate clothing and personal protective equipment, and removing fibers from skin and eyes. It also details specific work practices for blowing insulation in attics, installing cavity fill, batt, blanket and roll insulation, fabricating pipe and board, installing ceiling tiles and spray applied fireproofing and handling bulk unbonded products, and removing previously installed products. These recommendations are supported by OSHA as part of the HSPP. The pamphlet, along with a video describing the work practice recommendations, is available free by contacting NAIMA or visiting the NAIMA web site at www.naima.org.

> "Studies...provide no evidence of increased risks of lung cancer or mesothelioma...from occupational exposures during manufacture of these materials, and inadequate evidence overall of any cancer risk."

Health and Safety

NAIMA and its member companies are committed to ensuring that fiber glass products can be safely manufactured, installed and used. NAIMA member companies have funded tens of millions of dollars of research at leading independent laboratories and universities in the United States and abroad. The weight of the scientific research shows no association between exposure to glass fibers and respiratory disease or cancer in humans.

In October 2001, an international expert review by the International Agency for Research on Cancer (IARC) re-evaluated the 1988 IARC assessment of glass fibers and removed glass wools from its list of possible carcinogens by downgrading the classification of these fibers from Group 2B (possible carcinogen) to Group 3 (not classifiable as to carcinogenicity in humans). All fiber glass wools that are commonly used for thermal and acoustical insulation are included in this classification. IARC noted specifically:

"Epidemiologic studies published during the 15 years since the previous IARC Monographs review of these fibers in 1988 provide no evidence of increased risks of lung cancer or mesothelioma (cancer of the lining of the body cavities) from occupational exposures during manufacture of these materials, and inadequate evidence overall of any cancer risk."

IARC retained its Group 3 classification for continuous glass filaments and the Group 2B "possible carcinogen" classification for certain special purpose glass fibers.

The IARC downgrade is consistent with the conclusion reached by the U.S. National Academy of

Sciences, which in 2000 found "no significant association between fiber exposure and lung cancer or nonmalignant respiratory disease in the MVF [man-made vitreous fiber] manufacturing environment."

IARC's comprehensive review of the extensive studies developed over the past 15 years indicates that some of the prior reviews now need to be updated. Many of these earlier reviews do not account for the new science. For example, the U.S. Department of Health and Human Service (HHS, Shalala 1994) included fiber glass on its list of potential carcinogens based primarily on the 1988 IARC classification. Similarly, the California listing of fiber glass as "known to the state to cause cancer" was based principally on the old IARC classification.

Fiber glass is now the most thoroughly evaluated insulation material in the market. The data from these evaluations demonstrate that:

1. No causal association has been found between either cancer or non-malignant pulmonary disease and human exposure to glass fibers.
2. Inhalation exposures of animals to massive amounts of biosoluble glass wool fibers, hundreds and even thousands of times greater than human exposures, have not shown a relationship between glass wool fibers and disease.
3. Glass wool fibers are biosoluble and therefore dissolve more rapidly in body fluids than other fibers that have been associated with human disease.
4. Workplace levels of respirable glass fibers in most settings are less than 1 fiber/cc; and airborne levels in insulated buildings are not significantly different than levels outside or in uninsulated buildings.

NAIMA member companies continue to support ongoing scientific investigations into the health and safety aspects of glass wools as part of their comprehensive product stewardship program. NAIMA is dedicated to providing up-to-date information on the results of these studies as they become available.

Safety of In-Place Duct Products

When properly designed and installed, fiber glass products for air handling systems improve the indoor environment by controlling heat loss or gain, while reducing condensation and providing acoustical insulation.

The results of several more recent scientific studies demonstrate that fiber glass insulated HVAC systems have no adverse effects on indoor environmental quality.

- The IPCS Environmental Health Criteria 77 on man–made mineral fibers has stated: "…it has generally been concluded that the contribution of fibrous glass lined air transmission systems to the fibre content of indoor air is insignificant."
- Duke University – A 1997 study showed that mold is no more likely to grow on fiber glass than on any other surface in the duct system. Mold grows in the presence of water. By helping to reduce condensation, fiber glass insulated ducts actually help minimize microbial growth.
- University of Nevada Las Vegas – A 1996 study confirmed the results of numerous earlier studies showing that fiber content in the indoor air from fiber glass lined systems is insignificant and does not adversely affect the health of building occupants.

Conclusion

NAIMA members believe fiber glass is safe to manufacture, install and use when recommended work practices are followed. Complete details on work practices and exposure guidelines are contained in NAIMA's Health and Safety Partnership Program and can be obtained in written or video form by contacting NAIMA.

When properly designed and installed, fiber glass products for air handling systems improve the indoor environment by controlling heat loss or gain while reducing condensation and providing acoustical insulation

NAIMA — The Industry Information Resource

NAIMA members manufacture the vast majority of fiber glass, rock and slag wool insulations produced and used in North America. Over 60 years of active industry participation positions NAIMA as the industry resource for architects and builders; design, process and maintenance engineers; contractors; codes and standards organizations; government agencies; and home and building owners. NAIMA activities include:

- Providing information on the application of fiber glass, rock and slag wool insulation products for thermal efficiency, sound control, condensation control and fire safety.
- Maintaining working relationships with government bodies to improve their knowledge of the economic, energy-saving and environmental benefits of insulation products.
- Providing testimony on important issues before federal, state and local governments and regularly updating members and customers on legislation and regulations that affect the industry.
- Providing technical input and guidance to standards-setting organizations that are of critical importance to energy-efficient building design and maintenance.
- Working with allied trade associations and labor organizations throughout the world in communicating the economic, energy-saving and environmental benefits of insulation.
- Encouraging medical and scientific research on the health and safety of glass, rock and slag fibers, and disseminating the results to government agencies, industry, customers, employees and the general public.
- Providing strong outreach support, including industry and issue-oriented presentations, participating in industry forums and co-sponsoring educational training programs.
- Supporting the use of environmentally sound products and packaging through the use of recycled materials, and advocating specifications for recycled content.

As an association, NAIMA publishes literature on product performance characteristics, installation guidelines, energy-saving tips, building code guidance, standards and specifications, sound control recommendations, use of vapor retarders and condensation control, insulation and fire safety, thickness recommendations, energy audit procedures, general health and safety information including the new Health and Safety Partnership Program (HSPP), and much more.

About NAIMA

NAIMA is the association for North American manufacturers of fiber glass, rock wool, and slag wool insulation products. Its role is to promote energy efficiency and environmental preservation through the use of fiber glass, rock wool, and slag wool insulation, and to encourage the safe production and use of these materials.

For More Information, Contact:

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Phone: 703-684-0084
Fax: 703-684-0427
E-mail: insulation@naima.org
Website: http://www.naima.org

NAIMA AIR HANDLING COMMITTEE MEMBERS:

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P.O. Box 860
Valley Forge, PA 19482
800-233-8990

Johns Manville Corp.
P.O. Box 5108
Denver, CO 80217
800-654-3103

Knauf Fiber Glass
One Knauf Drive
Shelbyville, IN 46176
800-825-4434

Owens Corning
One Owens Corning Parkway
Toledo, OH 43659
800-GET-PINK

NAIMA Members

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Valley Forge, PA

Evanite Fiber Corp.
Corvallis, OR

Fibrex Insulations, Inc.
Sarnia, Ontario

Isolatek International
Stanhope, NJ

Johns Manville Corp.
Denver, CO

Knauf Fiber Glass
Shelbyville, IN

Owens Corning
Toledo, OH

Rock Wool Manufacturing Co.
Leeds, AL

Roxul, Inc./Roxul (West) Inc.
Milton, Ontario

Sloss Industries Corp.
Birmingham, AL

Thermafiber, Inc.
Wabash, IN

USG Interiors, Inc.
Chicago, IL

NAIMA Member Companies produce the vast majority of fiber glass, rock and slag wool insulations in approximately 50 locations in North America.

Product Descriptions

Fiber Glass Duct Board

Fiber glass duct board is 1″, 1-1/2″ or 2″ thick rigid boards of insulation manufactured from resin bonded inorganic glass fibers. This bonding keeps the fibers in place throughout the life of the installation. The outside surface of the boards incorporate a factory-applied reinforced aluminum air barrier and water vapor retarder. These boards are fabricated into ducts in the contractor's shop or at the jobsite. Fiber glass ducts are widely used in residential and light commercial HVAC systems.

Fiber Glass Duct Liner

Fiber glass duct liner is a thermal and acoustical insulation applied to the inside of a sheet metal duct. These insulation products have coated or mat-faced airstream surfaces designed to resist damage during installation, in service and cleaning. The liner is applied to the interiors of rectangular sheet metal ductwork with metal fasteners and adhesives. They've been used successfully for over 40 years in residential, commercial and institutional systems. Today's duct liners have been engineered with surface treatments to handle HVAC cleaning and maintenance.

Fiber Glass Duct Wrap

Fiber glass duct wrap is a flexible, resilient blanket which is applied to the exterior of sheet metal ducts. It can be easily cut and fitted to achieve a neat, thermally effective exterior insulation blanket over rectangular, round, oval, or irregularly shaped duct surfaces. Duct wrap is factory-laminated to a vapor retarder facing and is available in various thicknesses and densities.

For More Information, Contact

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