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Richard Beyer  
8 York Ave., Niantic, CT 06357  
Ph. 860-460-5434

General Law Committee

2/21/2013

Bill 5908 Testimony

I am here today to testify before this general law committee. There is an immediate need for mandated **training and licensing** for the installers and companies which provide **"Spray Polyurethane Foam Insulation"** to the public. Public safety is at risk and I say this respectfully, as law makers you have a responsibility to protect the public from the hazards these products pose to occupants of homes across this state.

People are unknowingly being exposed to the toxic chemicals of spray foam while the product is being installed on construction sites, in office buildings and most importantly in the private residence.

My story begins here,

During September of 2010, I hired Anchor Insulation, Inc. (headquartered out of Rhode Island with offices throughout Connecticut) to install spray polyurethane foam insulation inside of my family home to save on heating and cooling costs. I trusted this company could perform the job with ease based on conversations I had in passing with the company Vice President, Eric Fiske and considering the number of people they employed. (@ 130-140 men and women)

My family home was constructed in 1890. I researched these products and found nothing in relation to its hazards. All I could find was the positives on how much energy you could save, how "Green" the product is and how it was promoted over the years on TV shows such as This Old House. Today these products are shown on almost every HGTV show including Holmes on Homes and the demand for the product has skyrocketed. They all promote the benefits of the product. This is what the homeowner see's and most all believe, **"How Green and Great the product is"**.

Today the business of Spray Polyurethane Foam Insulation is experiencing a real boom in business due to the current government "Green Energy" movement. Almost anyone with credit or \$30,000-\$40,000 cash can become a spray foam installer, with little to no training at all. Most homeowners who can afford these insulation products are having them installed because of their tremendous energy saving

benefits. Today I ask, at what cost is your health really worth? Is it worth the advantages of saving on fuel when these products are installed by amateurs or by non-trained companies?

There appears to be a significant health issue with spray foam insulation. No wonder the EPA is looking at potentially banning this practice: <http://www.eia-netwatch.com/can/nor2011/2011-04-16-noa.html> and the CDC is investigating these products. (See exhibit A)

The insulation company I hired applied spray foam into my home during October of 2010 and it failed badly. The products installed emitted noxious odors, gases, shrunk, cracked, disappeared and literally exploded in the middle of the night. I reported all these failures to this company immediately after the installation. My first email, in November of 2010 stated, "Something strange is happening with the foam application on the second floor. It appears as though the 2lb foam is shrinking and opening up to where you can see dark holes, gaps and what appear to be tears in the foam. Between the roof framing the foam is curving toward the roof where it was even at one point."

They came out immediately and did not give any indication verbally or in writing that the product was hazardous or harmful in any way to my family. When asked the question the question was diverted to another topic. (The noxious odor was the strongest in our master bedroom. My skin felt like it was on fire, my eyes burned and I suffered major headaches, heart palpitations and breathing problems. My wife had to stop exercising in our home because her lungs hurt after the insulation was installed.) We never contributed these symptoms to the foam insulation due to the flu-like symptoms and our age. I found myself on a Benadryl diet so I could sleep at night.

They told me they would return to fill in the significant voids that began to appear shortly after installation. I suggested that maybe we should wait until the stuff finishes what it is doing before I cover it up with drywall. The only problem was it never stopped splitting, shrinking and off-gassing. When it heated up it stunk. When it cooled down it split open and exploded.

Finally, I had enough and told them they had to get this stuff out of our home!

This is where the problems escalated from bad to worse. The company brought their men in and started the removal process. Dust and stink was everywhere in my home. Friends would visit and ask if they were installing the new product? This was due to the odor from the removal process. (See attached picture) The trapped gases were emitting into the air of my home once again. During this time frame my pets and I were in the home. This company never stated the product was emitting toxic chemicals. By industry standard it should not have if it was installed correctly. By industry standard the product is supposed to become "inert" after installation. This obviously was not the issue in my home. (See attached pictures)

After months of delays and runarounds by this company and their chemical suppliers Johns Manville and Icynene, I started investigating the products more. What I found was extremely disturbing. "There are No Published Standards for the home, only the workplace."

Johns Manville later had their attorney and in house scientist issue a letter to me that the product was not theirs and that the finished product was contaminated by the installer. (See exhibit B)

Icynene to date has avoided answering any of my health questions. They claim in a most recent communication that their product was installed correctly. They will not explain why the foam stunk so badly and why the color (Mint Green) of the foam does not match up to the published color (Platinum) on their Material Safety Data Sheets (MSDS). The COO of Icynene recently stated in an email, they are still investigating the problem. This is 2-1/2 years later. In the meantime, the areas of my home are still sealed off and unusable. Once again, there are no published standards for what constitutes safe remediation practices and indoor air quality.

I contacted the installation company and informed them, they need to contact their insurance and the manufacturers to clean up this mess. I was told there was no need to they would take care of this issue. "Taken care of" boiled down to the workmen destroying my property in what seemed like deliberately sloppy and destructive work practices in my home. (See exhibit C)

Being aware that this company has already installed these Johns Manville Corbond III insulation chemicals (2010 and prior) within numerous homes, small commercial public places and churches through their installers, I am very concerned for those property owners and their health. I learned through the Northeast territory manager of Johns Manville that they terminated their relationship with the installation company due in part to many disagreements over how the products are to be installed. JM claimed they had no knowledge the products were installed in my home because they were looking for the balance chemicals they were never paid for.

After the runaround and finger pointing, I had enough.

I filed complaints with the Department of Consumer Protection and they sent me to the Consumer Products Safety Council. CPSC sent me to OSHA. OSHA sent me to the EPA. EPA sent me to the Consumer Protection. Consumer Protection sent me to my town building department. Town Building sent me to the Department of Public Health. Department of Public Health sent me to the Consumer Protection Agency. Consumer Protection sent me to the State Building Official. State Building Official sent me back to the town building official. Finally I filed a complaint with the insurance commissioner regarding the treatment received by my installer's insurer. Colony Insurance estimated to bring the house back to post installation status would cost an estimated \$150,000.00.

As you can see, not one agency knows who does what or what to do when problems arise from failed spray polyurethane foam insulation. All of the written complaints I filed with these agencies were closed and I was left with the mess to clean up.

This may explain why Spray Polyurethane Foam Alliance (aka, SPFA), Kurt Reisenberg could make a claim to Representative Jutila that the "failure rate of Spray Foam Insulation is less than 1/10<sup>th</sup> of 1 percent." Mr. Reisenberg claims this rate was established through an informal polling amongst industry manufactures and installers. He also claims of the one million installations completed, only 6 or 7 made

it to the courts. (See exhibit G) This is not an acceptable answer when we speak about chemicals and public safety!

Now you can see why. No one knows what to do in government when Spray Foam Insulation becomes an issue.

In one telephone conversation I had with Marian Heyman from the Connecticut Department of Public Health, she instructed me to "go to the Home Depot and purchase a five gallon bucket, scrub brush and some detergent and to scrub the foam off my walls." I could not believe what I was hearing. I asked Marian Heyman how many failures they have on file. She stated that she could not tell me the names of the people, only the manufacturers which were complained about from the homeowners she does have on file. I never heard from her again. She never provided me anything even when I issued a FOI request to DPH. What I did find in the FOI was a statement made about me that said,

"these complaints will never materialize into an investigation."

So here I am today, to report to you what I found out about this industry and why citizens of Connecticut and across this country need our government to step up and stop these chemical companies from poisoning our families in the name of the dollar. These chemical companies claim through the American Chemistry Council web site that the chemicals used in spray foam insulation are heavily regulated by OSHA and the EPA. I am here to report to you this is simply not the case when we speak about your home and the air quality that is created after the products are installed.

I will make this as clear as I can. The installer is the scientist who mixes two different chemicals onsite (Part A and B) to create polyurethane foam insulation in your home. Dow chemical does this same process in a laboratory in Gales Ferry, CT. The difference is Dow operates in a controlled setting with real labs and scientist. You may get a man with training or a man who learned from watching or a man who just started work that day with no training at all or better, the helper from the day prior.

Spray Polyurethane Foam Alliance and the American Chemistry Council agree training is needed. What they do not want are laws mandating this. SPFA has a very real financial stake in this error of industry by keeping it on a volunteer basis. They make big money from training and industry through membership. The homeowner is not of their concern.

What this government needs to clearly understand, these are real chemicals and when installed incorrectly they do cause real life health problems to occupants and the installers. These installers also need you to protect them from unscrupulous employers who refuse to provide them with the proper protections. Mandating licensing and training by the means of law is real protection for public safety. Not, lip service!

In fact, as reported on [www.sprayfoam.com](http://www.sprayfoam.com) **"like any building services trade, if you do not chose a skilled applicator with proper training and quality control experience issues with poor quality and future performance occur. (See exhibit H)** These are chemicals which contain chemicals of concern!

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**This is the ONLY building product where your home is the chemical manufacturing site!**

Every other building product in your home was manufactured in a controlled factory setting. If these products are not mixed properly, they will fail. It's not if, it's when. Is your health worth the risk? (See exhibit I)

To date, there are no published health studies regarding consumers living with spray polyurethane foam insulation. There's no published scientific data which prove these insulation products are "Safe" when installed onsite. There are no mandated licensing or training procedures. There are no air quality standards for the home. (See exhibit J)

Everything industry related is strictly volunteer. Current training is 3 to 5 business days for installers who wish to attend. Chemical manufacturers training is 3 to 5 business days.

SPFA recently developed a more complicated long term training program, but this too is on a volunteer basis for a fee and is in its infancy stage.

As law makers, I say this with great respect, you have a duty to act. Please protect the citizens of Connecticut from the known hazards these chemicals pose to human health and industry installers.

Please make training and licensing law, this will be a true benefit to public safety.

Sincerely,

Richard Beyer

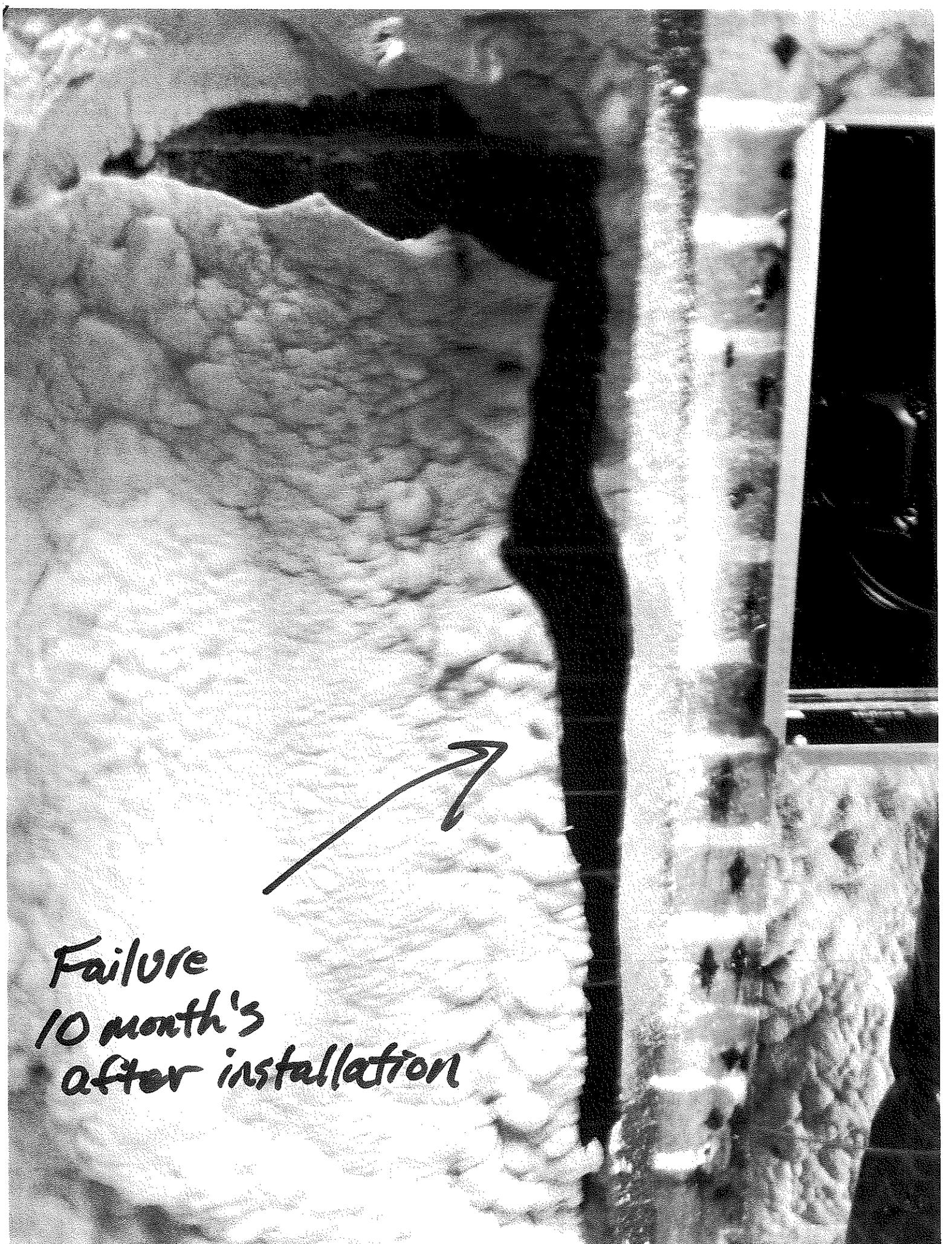


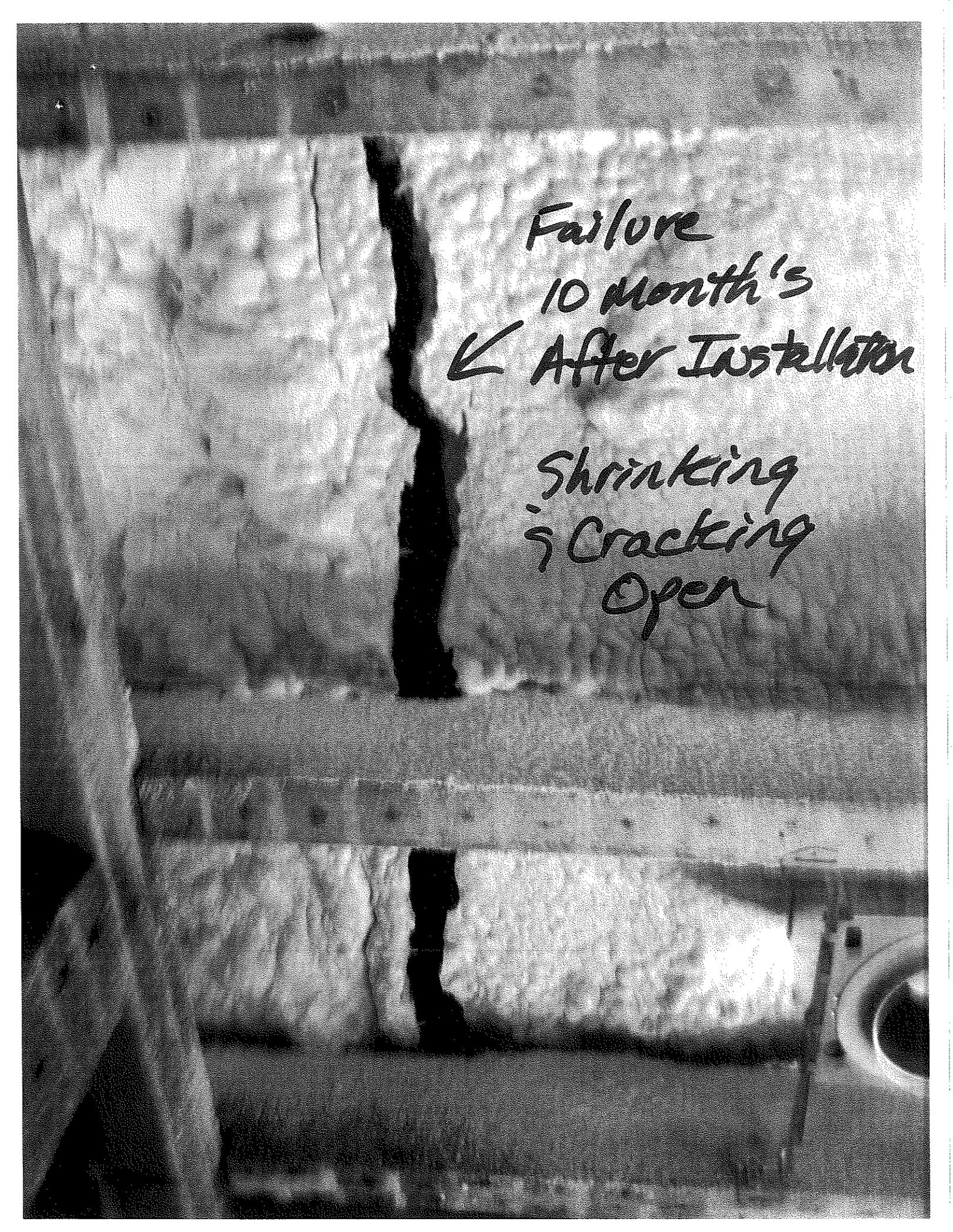


Taken right after spraying" Oct. 2010  
James Mann VI &  
Corbond III



Failure  
10 month's  
after installation

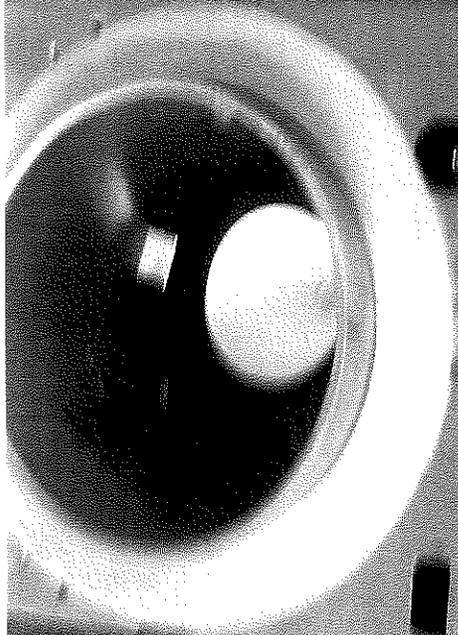




Failure  
10 month's  
← After Installation

Shrinking  
& Cracking  
Open

Shrinkling  
Foam  
Insulation



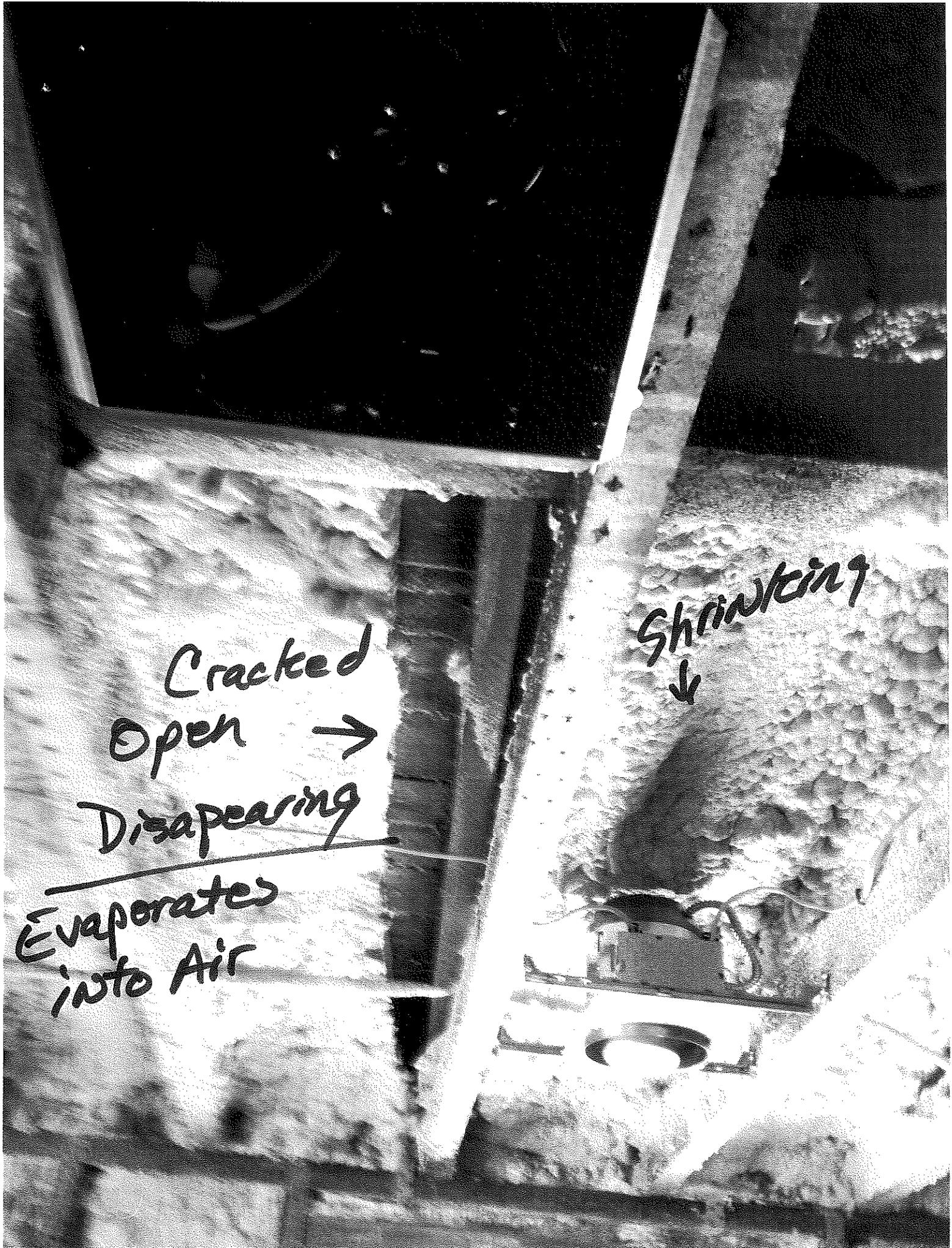
Cracked  
Open →

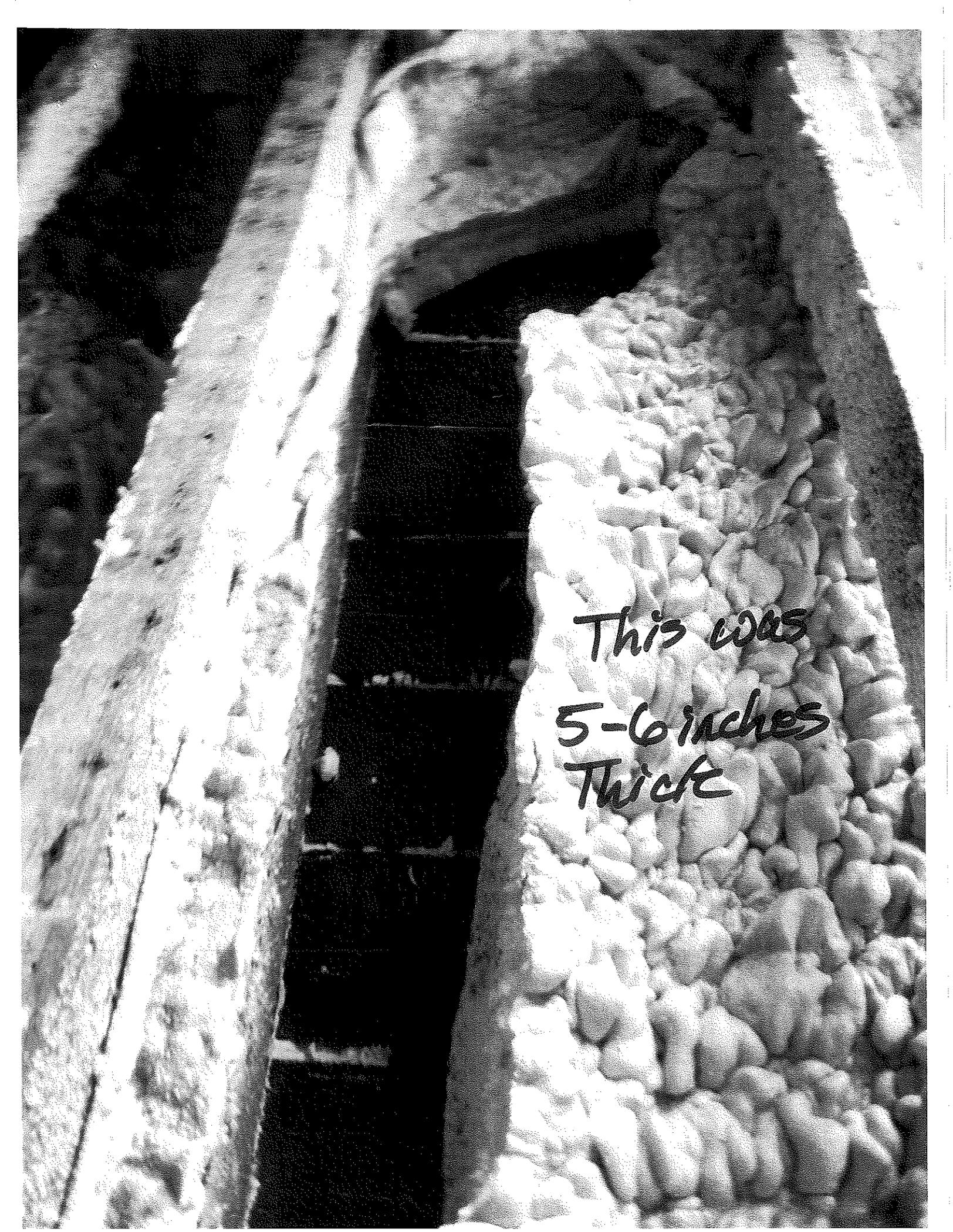
Disappearing

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Evaporates  
into Air

Shrinking  
↓



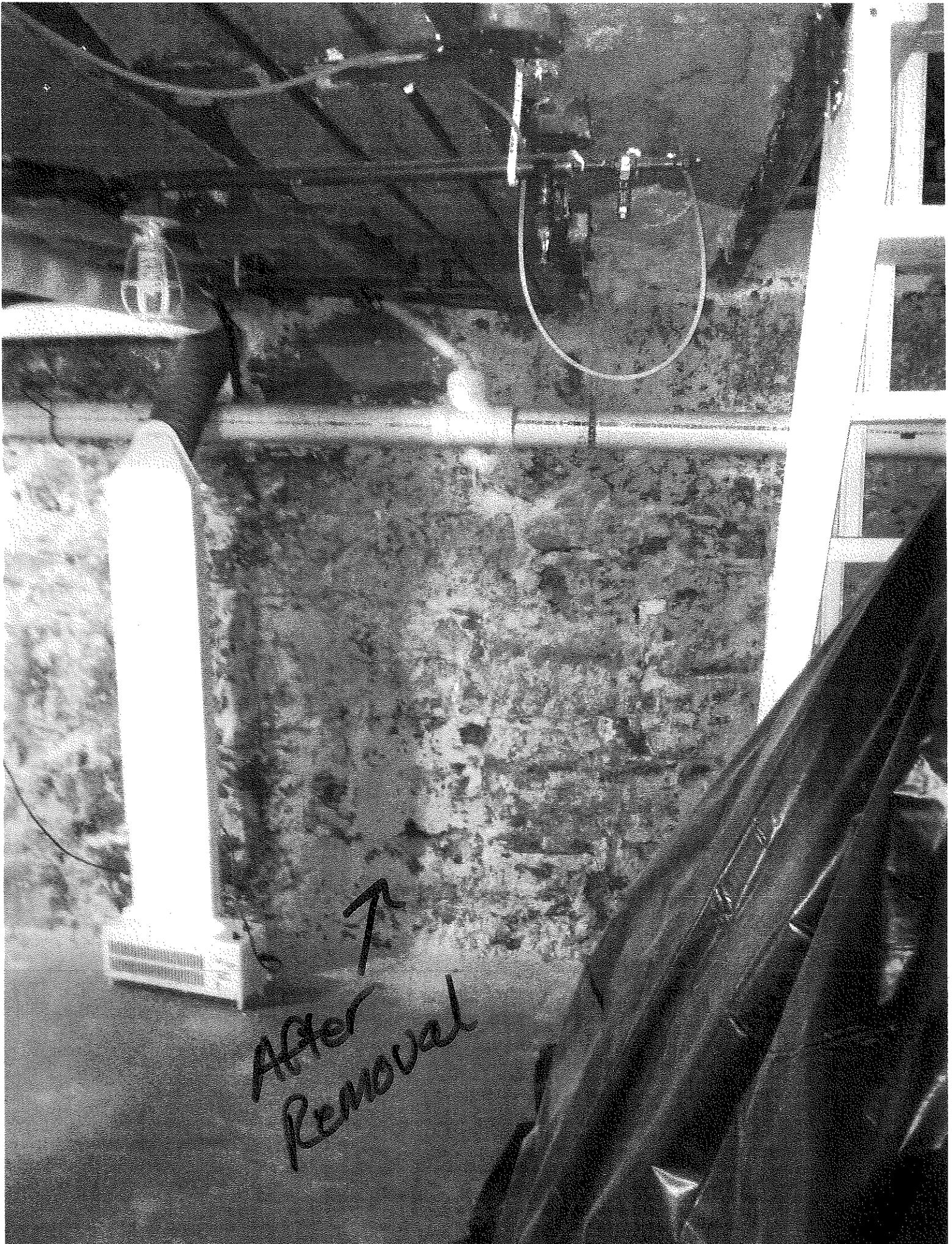


This was  
5-6 inches  
Thick

Good Foam over Bad Foam

↑ Chemically Wrong

The top layer clearly shows what the product is suppose to look like finished and what Anchor covered up with an unknown chemical which the manufacturer (JM) stated is clearly a non-JM product.



After  
Removal

(A)

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### EPA Considers Ban on Dangerous Chemicals in Spray Foam Insulation

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WASHINGTON, DC, April 16, 2011 (ENS) - The U.S. EPA is considering a ban or restriction on consumer insulation and sealant products containing a family of chemicals known as diisocyanates.

The chemicals are found in spray polyurethane foam, an effective and widely used insulation and air sealant material for insulating walls, sealing concrete or finishing floors.

Exposures to isocyanates such as methylene diphenyl diisocyanate, or MDI, and other SPF chemicals in vapors, aerosols, and dust during and after installation can cause adverse health effects, the agency warns.

"There has been an increase in recent years in promoting the use of foams and sealants by do-it-yourself energy-conscious homeowners, and many people may now be unknowingly exposed to risks from these chemicals," said Steve Owens, assistant administrator for EPA's Office of Chemical Safety and Pollution Prevention.

Diisocyanates are known to cause severe skin and breathing responses in workers who have been repeatedly exposed to them. The chemicals have been documented as a leading cause of work-related asthma, and in severe cases, fatal reactions have occurred, the EPA says.

The EPA Wednesday released action plans identifying a range of actions the agency is considering under the authority of the Toxic Substances Control Act to address the health risks, including a possible ban on the "uncured" type of diisocyanates.

The agency also is considering issuing rules to call in data on any past allegations of significant adverse effects, obtaining unpublished health and safety data from industry sources, and requiring exposure monitoring studies for consumer products.

"EPA is working to protect the health of the American people and the environment," Owens said.



In a protective suit, a worker sprays polyurethane foam insulation on a wall. (Photo courtesy EPA)

Such products, however, such as adhesives, coatings, and spray foam, continue to react while in use, and

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may contain "uncured" diisocyanates to which people may be exposed, Owens said.

To protect worker health, the Occupational Safety and Health Administration regulates workplace exposures through permissible exposure limits.

But there is very limited information available about the use and exposure patterns of consumers to products that contain uncured diisocyanates.

Owens says the EPA will continue to work with other federal agencies, the polyurethanes industry, and others to ensure improved labeling and provide comprehensive product safety information for polyurethane products containing uncured compounds, especially in consumer products.

The EPA gives some quick safety tips for spray polyurethane foam exposure. Whether you are an applicator, helper, or building occupant where this product is applied, the agency says follow these tips:

- Review label and product information for ingredients, hazards, directions, safe work practices, and precautions
- Ensure health and safety training is completed and safe work practices are followed to prevent eye, skin, and inhalation exposures during and after SPF installation
- Exercise caution when determining a safe re-entry time for unprotected occupants and workers based on the manufacturer recommendation
- If you experience breathing problems or other adverse health effects from weatherizing with SPF, seek immediate medical attention.
- Use the appropriate protection and best practices suited for each type of SPF product.
- Only workers wearing appropriate personal protective equipment should be present during SPF application.

The EPA says, "It is not clear how much time is needed before it is safe for unprotected workers or building/home occupants to re-enter. Re-entry time is dependent on product formulation and other factors that affect the foam curing time."

"Some manufacturers estimate that it can take approximately 23-72 hours after application for the foam to fully cure for the two-component high pressure 'professional' SPF system, and approximately 8 to 24 hours to cure for one component foam, typically available in 12 oz. to 24 oz. cans," but the agency says more research is needed to account for the potential variability of curing rates.

Click [here](#) for a detailed EPA fact sheet on diisocyanates.

Click [here](#) for more information on these and other chemical action plans.

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(B)

**From:** Sandin, Kelly (Kelly.Sandin@jm.com)  
**To:** patayastonellc@prodigy.net;  
**Date:** Tue, December 20, 2011 12:56:03 PM  
**Cc:** Brian.Zall@jm.com; Geoffrey.Stephenson@jm.com;  
**Subject:** Re: Insulation

Dear Mr. Beyer:

Thank you for your e-mail response. Johns Manville (JM), however, respectfully disagrees with your continued assertion that Corbond®III Product was installed in your home. Per your request, JM provided the complete laboratory report in the packet you received on December 15, 2011. As we've explained to you repeatedly, our results indicate the presence of an unauthorized mixture/chemical - rendering it a non-JM finished product. Accordingly, JM has completed its response in this matter and is unable to comment further.

Please direct further inquiries to the Original Installer, a Certified Indoor Air Quality Expert, or to the Center for Polyurethanes Industry, (website: [http://www.polyurethane.org/s\\_api/index.asp](http://www.polyurethane.org/s_api/index.asp)).

Sincerely,

Kelly Sandin, MPH, CIH  
Johns Manville

(C)

GRANCE DEPARTMENT  
OF CONNECTICUT

2012 AUG -3 A 8: 05

August 1, 2012

State of Connecticut  
Consumer Services Division  
P.O. Box 816  
Hartford, CT 06142-0816

Re: Complainant: Byrnes Agency, Inc O/B/O Richard and Monica Beyer  
Dept. File #: 203185✓  
Insured: Anchor Insulation Co., Inc.  
Our File #: CU001360-01  
D/O/L: 8/10/11

Att: Carol A. Sarabia, Associate Examiner

Dear Ms Sarabia,

This acknowledges receipt of the above captioned complaint. Please be advised that this complaint is directed against Merchants Mutual Insurance Company (NAIC# 23329) under a commercial umbrella policy.

This loss was reported to Merchants on 5/2/12 by the claimant's agent. Merchants is the excess/umbrella carrier for Anchor Insulation Co. Inc. Upon receipt of the claim notification Merchants made immediate attempts to contact the underlying carrier, Colony Specialty. Merchants policy has a follow form endorsement which limits its excess coverage only to those damages that are covered by underlying insurance. Therefore, Merchants required copies of Colony's investigation and coverage position in order to provide our coverage determination. After many attempts, Merchants was provided with the underlying carrier's initial investigation and coverage position. Colony's investigation revealed that the claimants hired our insured to provide sprayed insulation throughout their home. The insulation product apparently failed due to improperly mixing it. The insured was asked by the claimant to remove the failed insulation from their home. The insured attempted to to so but was unable to completely remove it and in the process damaged sheathing, wires, plumbing and foundation walls. The underlying carrier determined that the cost to complete the removal of the insulation and restore the property to it's pre-application condition would be approximately \$150,000.

Colony agreed to continue it's investigation under a reservation of rights and partial disclaimer of coverage. Neither the primary policy nor the Merchants policy cover the insured's work or work product, lead or pollution. Resulting damage would be the only potentially covered damages and they are well below the underlying carrier's policy limit of \$1,000,000, as are the total of all damages.

Based on the information provided by Colony, Merchants issued it's own disclaimer of coverage and have closed our file as there is no exposure to our excess policy.

Merchants feels that this complaint is not justified as we are an excess carrier in this matter and have diligently pursued the underlying carrier's investigation and coverage position in order to establish

(c)

**M** **MERCHANTS**  
INSURANCE GROUP  
*Earning Your Business Every Day*

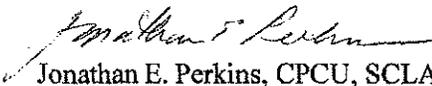
PO Box 78 250 Main Street Buffalo NY, 14240

800-462-1077 Ext. 3250

our exposure and independent coverage position. Merchants has properly disclaimed coverage and determined that there is no exposure to our policy coverage and have closed our file. Attached are pertinent documents in support of our position. Should you have any questions, please contact the undersigned. Also, please note that this is a Rhode Island insured and the policy was written in New York. Merchants has had no direct contact with the claimant located in Connecticut.

Thank you for your consideration.

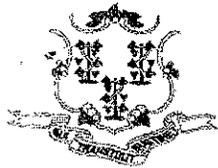
Sincerely,



Jonathan E. Perkins, CPCU, SCLA, AIM  
Claim Manager  
716-849-3250

Cc: Robert Fagerburg

(C)



# STATE OF CONNECTICUT

## INSURANCE DEPARTMENT

*Consumer Services Division*  
*Phone: 860.297.3900, Ext. 3885*  
*Fax: 860.297.3872*  
*Carol.Sarabia@ct.gov*

August 6, 2012

Alexis Margerelli-Hussey  
Byrnes Agency, Inc.  
6 Consumers Avenue  
Norwich, CT 06360

**Re: *Our File # 203185***  
***Richard and Monica Beyer***

Dear Mrs. Margerelli-Hussey:

The enclosed letter was submitted by the insurance company in response to our inquiry.

Based on all available information that was provided, our analysis determined that there has been no violation of Connecticut Insurance statutes or regulations in your case. In addition the insurance company has acted within the provisions of the contract as follows:

Colony Insurance Company is currently investigating under a reservation of rights based on the existence of potential coverage limitations under this professional liability policy. On 7/10/12 the company wrote to the claimants requesting they provide the identity of each type of bodily injury and property damage and the estimate of such damages. Upon receipt of these documents, the company will try to settle these claims.

Merchants Mutual Ins. Co. insures this risk under a commercial risk policy. Neither company covers the insured's work or work product, lead or pollution. It appears the resulting damage would be the only potentially covered damages and they are well below the underlying carrier's policy limit of \$1,000,000 as are the total of all damages. This company has issued a disclaimer of coverage as there is no exposure to the excess policy.

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This Department has no authority to decide a case of disputed liability or the amount of a loss. The proper authority would be the courts. It would be helpful if your insureds notify us of the outcome of the litigation to assist us in monitoring adverse trends in the marketplace.

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If you wish to write to us again regarding this matter, please include our file number on all correspondence and direct it to the attention of the examiner noted below. Thank you for bringing this matter to our attention.

6

(c)

Sincerely,

*Carol A. Sarabia*

Carol A. Sarabia  
Associate Examiner

Enclosure(s)



STATE OF CONNECTICUT

DEPARTMENT OF CONSUMER PROTECTION

January 26, 2012

(D)

RICHARD BEYER  
8 YORK AVE  
NIANTIC, CT 06357-3216

File #: 2012-40  
Re: ANCHOR INSULATON CO INC

Dear RICHARD BEYER:

Thank you for bringing your consumer complaint to the attention of Consumer Protection Commissioner William M. Rubenstein, and his staff. Often it is only through letters from concerned individuals that we become aware of consumer problems.

Complaints are used to develop information about patterns of business activities that may indicate the need for formal investigation. Complaints often bring early warning of a pervasive scam. Once a pattern is discovered, what originated as a private dispute between consumer and contractor may become a matter of broad public interest and warrant intervention under the state's consumer protection laws.

Our staff reviews each written consumer complaint received by this office. In instances where there is evidence of a contractor's pattern of repeated or persistent fraud or illegality, we review the situation and may initiate action against that contractor. We must restrict our investigative activities to those complaints which indicate a pattern of unfairness or deception, substantially affecting public interest.

Although we have closed your complaint, if a pattern emerges and formal action is taken or culminates in restitution, we have your name and address in our files and will be able to contact you. We may also take our own administrative action against a contractor as a result of the material provided in your complaint. The contractor will be notified of your complaint.

While we are not able to offer direct personal assistance with your problem, we sincerely appreciate your providing us with the information contained in your complaint. You may wish to try to deal with the contractor directly, use the small claims court system for matters of \$5,000 or less, or seek private legal counsel to resolve your situation. Please visit our website at [www.ct.gov/dcp](http://www.ct.gov/dcp) to obtain the application for the Home Improvement Guaranty Fund.

You can locate court information at the Judicial web site; [www.jud.state.ct.us](http://www.jud.state.ct.us) or your area Small Claims/Superior Court phone number in your phone directory under State of Connecticut/Judicial Branch.

Should you have any questions please contact me at (860) 713-6198.

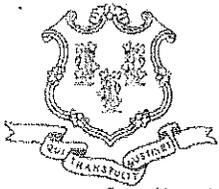
Sincerely yours,

Angie Martinez  
Consumer Information Representative  
Trade Practices Division

165 Capitol Avenue, Hartford, Connecticut 06106-1630  
General Information (860) 713-6100  
TDD (Telecommunications Device for the Deaf): (860) 713-7240  
Internet Web Site: <http://www.ct.gov/dcp>  
*An Affirmative Action/Equal Opportunity Employer*

8

(E)



**STATE OF CONNECTICUT**  
**DEPARTMENT OF ENVIRONMENTAL PROTECTION**  
**Emergency Response and Spill Prevention Division**  
**Emergency Incident Report**



Case No.: 2012-00051  
Staff Receiving Call: 951 GUZMAN, CARLOS                      Assigned To: 929 SHULER, ROBERT  
Date Reported: 01/04/2012                      Time Reported: 12:42  
Date of Release: 01/04/2012                      Time of Release: UNKNOWN  
Town of Release: EAST LYME                      State of Release: CT  
Location of Reported Release: 34 INDUSTRIAL PARK ROAD, NIAN TIC  
Reported By: RICHARD BEYER                      Phone: (860) 460-5434  
Representing: SELF  
Responsible Party: ANCHOR INSULATION                      Phone:  
Street Address: 34 INDUSTRIAL PARK ROAD, NIAN TIC  
Town:                      State:                      Zip Code:  
Does the Responsible Party Accept Financial Responsibility?  
Release Type: PETROLEUM                      CHEMICAL  
HAZARDOUS WASTE                      GAS EMISSION  
Release Substance: ICYNENE  
Media: GROUND SURFACE  
Total Quantity:                      0 Gallons                      0 Cubic Yards                      0 Cubic Feet                      0 Drums                      0 Pounds  
Emergency Measures: Investigated, per 937 create DEP sils no# and assigned to 929.  
Has the Release Been Terminated?:  
Type of Waterbody Affected: UNKNOWN  
Name of Waterbody Affected: UNKNOWN  
Total Quantity Recovered: 0                      Total Quantity in Water: 0  
Corrective Actions Taken: INVESTIGATED

Discharge Class: COMMERCIAL  
Cause of Incident: SLOOPY HOUSEKEEPING  
Agencies Notified: BUREAU OF WASTE MANAGEMENT - EMERGENCY RESPONSE UNIT  
Status: CLOSED

(F)

U.S. Department of Labor

Occupational Safety and Health Administration  
450 Main Street, Room 613  
Hartford, Connecticut 06103

(860) 240-3152  
(860) 240-3155 (FAX)



April 11, 2012

Richard Beyer  
8 York Avenue  
Niantic, CT 06357

Re: Complaint #207708777

Dear Mr. Beyer:

We have received your notice of alleged hazards against Anchor Insulation. After review of your complaint items, we have decided not to re-open our complaint or conduct an inspection. The items in your letter address hazards to you and your family and problems with the quality of the product used.

OSHA's jurisdiction covers the employer/employee relationship, and the original response we received was determined to be satisfactory. The State of Connecticut Department of Public Health and the Consumer Product Safety Commission ([www.cpsc.gov](http://www.cpsc.gov)) may be other avenues to pursue with regard to your concerns.

If you do not agree with this decision, you may contact me for a clarification of the matter. You also have the right to an informal review by the OSHA Regional Administrator, who may be contacted at the following location:

Marthe Kent, Regional Administrator  
Occupational Safety and Health Administration  
U.S. Department of Labor  
J.F.K. Federal Building, Room E-340  
Boston, Massachusetts 02203  
Phone: (617) 565-9860

This review may be obtained by submitting a written statement of your position to the Regional Administrator. The Regional Administrator will provide the employer with a copy of your statement by certified mail. Your identity will be withheld unless you explicitly request that it be revealed.

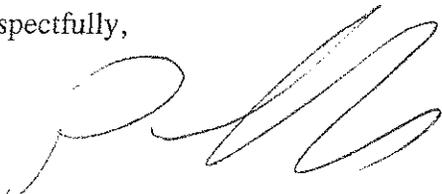
Section 11(c) of the OSH Act provides protection for employees against discrimination because of their involvement in protected safety and health related activity. If you believe you are being treated differently or action is being taken against you because of your safety or health activity,

you may file a complaint with OSHA. You should file this complaint as soon as possible, since OSHA normally can accept only those complaints filed within 30 days of the alleged discriminatory action.

Your interest in workplace health and safety is appreciated.

(F)

Respectfully,



PAUL MANGIAFICO  
Area Director

(G)

**December 12, 2012  
11 AM, Legislative Office Building  
Meeting with Anchor Insulation**

**In Attendance:**

Kurt Riesenber, Spray Polyurethane Foam Alliance, SPFA  
Paul Duffy, Vice President of Engineering, Icynene Inc.  
Eric Fiske, Vice President, Anchor Insulation  
Tyler Fiske, Spray Foam Manager, Anchor Insulation  
Representative Ed Jutila, 37th District  
Jason Knight, Legislative Aide

**Meeting Summary:**

**Anchor Insulation Company Background:**

Eric Fiske (EF)

- Been in business since 1980
- 130-140 Employees
- Have seen growth in business as more and more building codes require higher energy efficiency standards.
- Is a member of SPFA and the American Chemistry Council
- Have worked with Yale University in developing safety and technology standards for the industry Tyler Fiske (TF)

**Icynene Company Background:**

Paul Duffy (PD)

- There have been a lot of changes in the industry, moving away from the old Urea-Formaldehyde process of mixing A and B side ratios.
- With the Icynene product there is now a fixed proportion of systems
- Routine maintenance of equipment and replacement of parts is still essential for guaranteeing the installation of a safe and effective product
- Icynene requires that anyone who installs the product receives training and has an understanding of the product before using (minimum standards for online training covers using equipment, handling drums and how to deal with spills).
- Only sell product to licensed Contractors who have received this training
- Icynene, Inc. is ISO 9000 certified, ICC ESR (Product and Plant certified)

(G)

Kurt Riesenber (KR)

- Encourages foam insulation companies to be members of SPFA and CUFCACanadian Urethane Foam Contractors Association.
- \* • Industry statistic: less than 1/10 of 1 percent of projects cause problems \*

**Subject to:**

- Material Installation - Standard 3rd Party Inspection
- ICC quality assurance by ICC Evaluation Service, LLC (ICC-ES),
- Audits on Raw Materials  
(Although there is currently no National requirement for training certification with SPFA)
- EPA/CPSC/OSHA have formed a Federal Interagency task force that has developed ISO Certified Standards that will be available in 2013 (includes Testing and Field Exams that establish minimum qualifications)
- Focuses on Health and Safety as well as performance and proper installation

**Health and Safety Concerns:**

- MDI chemical has short life and after installed is virtually undetectable
- Proper precautions should be taken for workers when installing and mixing chemicals (masks, suits, etc.)

**Moving Forward:**

- If the State would look at requiring certification for State and Municipal projects they would not object to training standards too (because it is something they already do).
- Would be receptive to working with State Utilities (to create energy efficiency standards for installation of products)
- Require Evaluation Service Reports (with support of building officials)

**Other Areas for exploration:**

- Creating a help desk line for answering questions and rectifying disputes when problems arise similar to what the California Energy Commission has. (SPFA Conflict Resolution Training is already offered)
- Possibly require Property Accreditation/Certification to approve work that is done similar to what is done in Louisiana.

(G)

**Reasons stated by Anchor for Product Issues at Beyer home**

Tyler Fiske (TF)

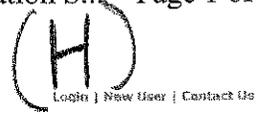
- (1) Too humid in the basement
- (2) Two different types of manufactured products were mixed together

**Follow up by the company to address the problem:**

- Conducted air quality inspection at the expense of Anchor Insulation (test passed)
- Tech. Rep. gave the work upstairs passing inspection.
- 400 man hours spent removing product from the home (including upstairs where they did not see any product failure.)

Work on a National Certification program has been in process for 13 months. Voluntary standards are expected to take effect in February of 2013. EPA, OSHA, etc. have been promoting the national certification program.

*Note: This summary is based on notes taken during the meeting and is not a verbatim transcript. This summary should not be considered a completely full or accurate accounting of the meeting and should not be used for those purposes.*



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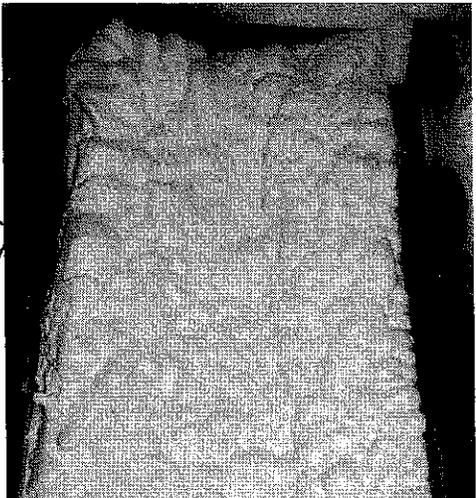
[News Archives](#) » [Foam Spray Application](#)

**Foam Spray Application**

**Testing for Quality Foam Insulation During Field Application**  
**Quality Control Test Procedures for SPF Applicators**

By Mason Knowles

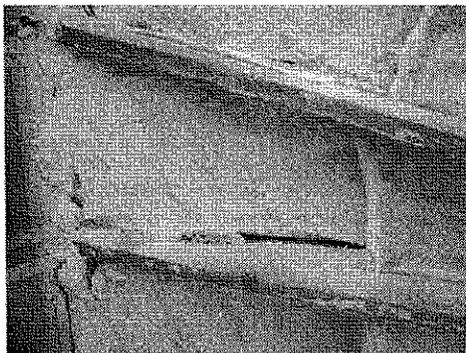
Most sprayfoam applicators do a great job installing good quality polyurethane foam. With quality installation and a great product the SPF industry continues to grow despite a down economy and construction industry. However, like any building services trade, if you do not choose a skilled applicator with proper training and quality control experience, issues with poor quality and future performance can occur. For example, improperly installed off-ratio and off-spec foam can result in foam shrinkage and cracking.



This is in no way a negative aspect of spray foam. SPF is indeed a superior green building and insulating material. It is purely a message to both the consumer and the future installers of our industry that just because a company has purchased equipment and claims to be a spray foam installer does not mean they are any good at it.

This is purely a matter of selecting good quality foam contractors and installers, checking references and making sure they are properly trained and experienced at the work they are doing. Similar performance issues commonly occur with the poor installation of any building material and alternative insulation products such as fiberglass insulation, and Tyvek® housewraps. If they are not installed by trained professionals, they are probably not going to perform as well as they should, or could.

I have visited two job sites in the last 3 months where the foam has shrunk back away from the studs - more than 3 inches and has cracked along in other areas. The applicators tell me they installed the foam according to manufacturer's instructions and it looked fine to them. Within a few days or weeks however, the foam started to shrink and crack.



*Shrinking SPF pulling away from studs*

**So what is going on and how does a contractor know if a seemingly good looking foam job will potentially go bad?**

In order to understand how to tell good foam from off-spec foam the contractor needs to have an understanding of the physical properties for the different types of SPF. SPF manufacturers test their products in laboratories to obtain physical properties that are then reported on their data sheets such as (but not limited to) density, compressive strength, R value, dimensional stability, permeance, water absorption, adhesion, etc.

Standards developed by the SPF industry, code bodies and standards organizations (such as ASTM) describe the physical properties required for different SPF types and applications.

For example, the following table from ASTM C 1029 provides physical properties required for 4 types of

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SPF products also contain other complex and often proprietary ingredients, such as amine catalysts, flame retardants, blowing agents, surfactants, and other chemical additives.

Review label and product information for hazards and precautions.

Exercise caution when determining a safe re-occupancy time for unprotected workers and occupants.

Ensure safe work practices are followed:

- Communicate hazards to building occupants/owners and residents
- Isolate the work area: provide access only for protected workers
- Wear protective equipment
- Ventilate the work area  
(<http://www.epa.gov/dfe/pubs/projects/spf/spf-ventilation.pdf>)

Look for information about SPF at:  
[http://www.epa.gov/dfe/pubs/projects/spf/spray\\_polyurethane\\_foam.html](http://www.epa.gov/dfe/pubs/projects/spf/spray_polyurethane_foam.html)

Or search on: EPA SPF

 United States Environmental Protection Agency

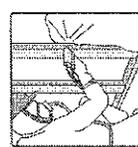
April 2012  
Check EPA's website for the latest information.

Spray Polyurethane Foam is an effective insulation and air sealant material, but exposures to key ingredients, diisocyanates, can cause:

- Asthma
- Sensitization, leading to asthma
- Lung damage or other respiratory problems
- Skin, eye, nose, or throat irritation

Vapors, aerosols, or dust can be found during and for a period of time after installation.

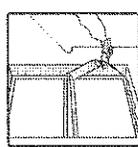
If you experience breathing problems or other adverse health effects, seek immediate medical attention.



Two-Component High Pressure SPF



Two-Component Low Pressure SPF



One-Component Foam



April 2012  
Check EPA's website for the latest information.

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## Health Consequences of Exposure to "Green" Polyurethane Spray Foam

Download: PDF

**Summary Statement:** This PowerPoint from a presentation at a 2012 CPWR meeting by Carrie Redlich MD reviews the main findings of a NIOSH-funded study looking at health effects from exposure to spray polyurethane foam as part of green construction. The results point out the strong relationship between this work and occupational asthma and addresses the medical evaluations needed. Case studies are presented of workers who developed sensitivity, March 27, 2012

### Exposure to "Green" Polyurethane Spray Foam

- What's in it
- Potential health effects - isocyanate asthma
- Challenges
- Biomonitoring - Isocyanate-specific IgG / IgE
- CPWR study - preliminary data
- Questions

### Chemical Composition of SPF

Part A - Isocyanates

- **Methylene diphenyl diisocyanate (MDI) /pMDI**

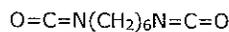
Part B - variable / proprietary

- Polyols (petroleum or soy based)
- **Amine catalysts**
- Flame retardants
- Blowing agents
- Surfactants

**Mix A + B = POLYURETHANE FOAM  
(exothermic reaction)**

### Major Commercial Isocyanates

**HDI - hexamethylene**



Paints, Coatings Light resistant

**TDI - toluene**

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### Research Reports

Green & Healthy Jobs

Green Jobs: Safety & Health Outlook for Workers - A view from under the Hard Hat

### Presentations / Powerpoints

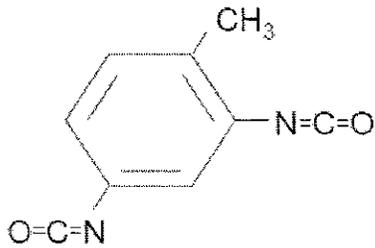
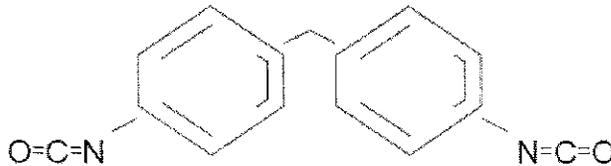
Green and Healthy Jobs - A Presentation based on a report of the same name by Helen Chen

### Related Links



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**MDI - diphenylmethane or methylene diphenyl****Less volatile - "safe"**

Foams, adhesives Coatings, wood products

**Uses Isocyanates / Polyurethanes in Construction - Growing**

- Foams - soft / hard
  - *Insulation - spray foam*
  - Simulated wood - doors, posts
- Adhesives
- Roofing materials
- Caulking
- Sealants
- Elastomers / coatings
- Woodbinder - composite wood

**Health Effects Isocyanates**

- Potent sensitizer / allergen
- **Occupational asthma**
- One of the most commonly identified causes of occupational asthma
- Rash / skin irritation - less common, but occurs
- Hypersensitivity pneumonitis - less common.

**Isocyanate asthma - key features**

- Clinically similar to "ordinary" asthma
- Timing- onset months to years after onset exposure
  - Delayed symptoms 6-8 hours after exposure
- Once sensitized, exposures to very low levels trigger asthma
- Diagnosis can be missed - (by patient and doctor)
- Asthma commonly persists after away from exposure
- Poor socioeconomic outcomes - unemployment, reduced income
- Extent problem unknown - especially in end-user settings

**Health effects from exposure to other components PU Foam ?**

- **Amine catalysts**
  - Sensitizers, irritants - asthma, rash
  - **Blurry vision (halo vision)**
- Flame retardants
- VOCs
- Blowing agents
- Polyols

**Routes of exposure / forms**

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- **Inhalation**
- **Skin** – likely contributes to sensitization and asthma
- Liquid, aerosol, vapor
- Exothermic reaction
- Cut & shave foam → dust, particulates

#### Case

Healthy 36 y/old construction worker / insulator 1 yr ago started use PU spray foam. Past 5 months -- cough after work / evening – wife concerned. Chest tightness, SOB, wheeze. Better on weekends. Symptoms progress – goes to ER.

#### Initial Medical evaluation

No h/o asthma, allergies. Improves with asthma inhalers. Continues to work, wears PPE, but progressive symptoms.

#### Further work-up

Spirometry – airflow obstruction – positive BD response MDI-IgG, MDI-IgE positive. Told to avoid isocyanates.

#### Health Effects of Exposure to "Green" Polyurethane Spray Foam

- What's in it
- Potential health effects - isocyanate asthma
- **Major challenges**
- **Biomonitoring - Isocyanate -specific IgG / IgE**
- CPWR study – preliminary data
- Questions

#### Limitations isocyanate exposure assessment and regulation

- Multiple formulations and forms– vapor / aerosol / particulates
- Sampling and laboratory analysis can be challenging
- All methods depend on free NCO – timing critical
- "Snapshot" of exposure - end-user settings esp problematic
- Air sampling does not assess effectiveness personal protective equipment (gloves, respirator)
- Skin exposure assessment methods limited
- Current OELs – Not protective

#### Limitations diagnosis isocyanate asthma

- Asthma common condition - connection to work frequently missed – especially once asthma more chronic.
- No simple specific test for isocyanate asthma. Frequently other work (and environmental) triggers.
- Most clinicians focus on treatment more than cause / prevention
- Worker may leave causative job / work before diagnosis made, but asthma frequently persists.
- No mandatory medical surveillance or reporting for isocyanate asthma

#### Biomonitoring Approaches

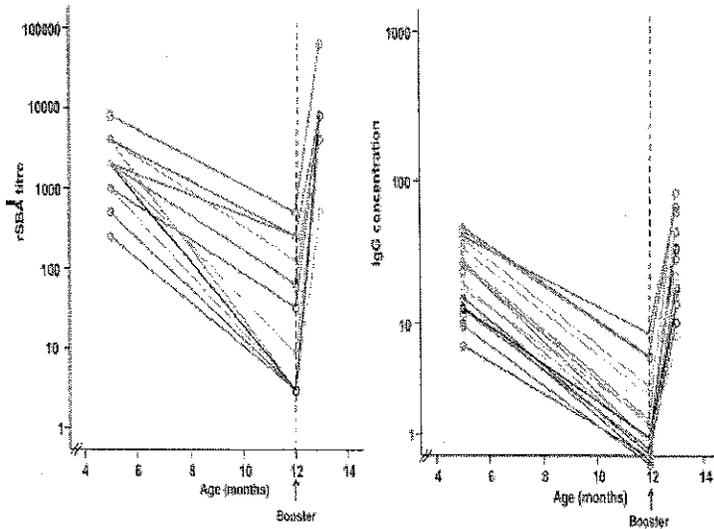
- Direct measurements of isocyanate derivative or metabolite in urine - *currently not useful*
- **Measurements of physiologic response to exposure (antibodies in blood)**

#### Principles Guiding Isocyanate Serology

Isocyanate chemicals are "man-made" – don't exist naturally.

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Humans don't normally make antibodies to isocyanate modified albumin; they are triggered by exposure.



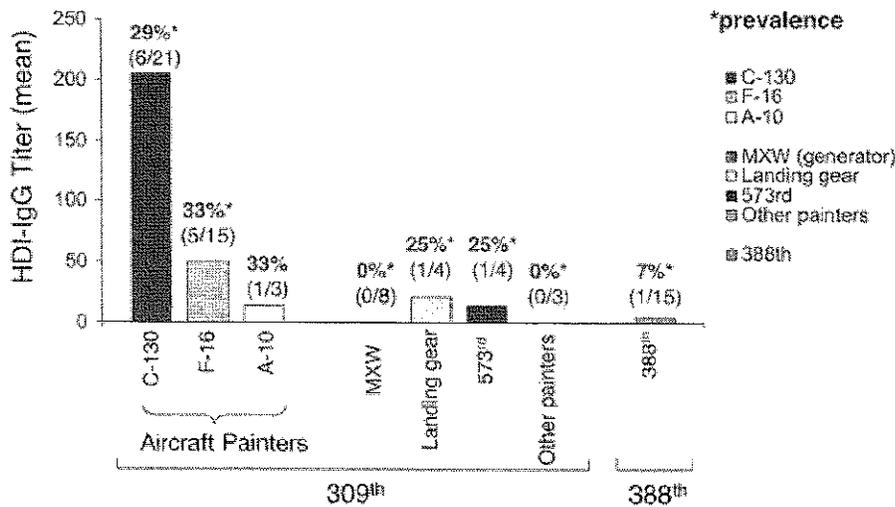
Without ongoing exposure, specific antibodies are cleared from blood in a time dependent manner.

**Isocyanate Immunoassays**

Measures human response to exposure

- Detect in human serum
- Isocyanate-specific IgG and IgE responses
- Integrated measurement over time
  - IgG serum 1/2 life = 30 days
  - IgE serum 1/2 life ~ 2 days
- Response highly specific for isocyanate
- Can vary depending upon form of isocyanate used as the "antigen"

**Biomonitoring hexamethylene diisocyanate (HDI) exposure based on serum levels of HDI-specific IgG**

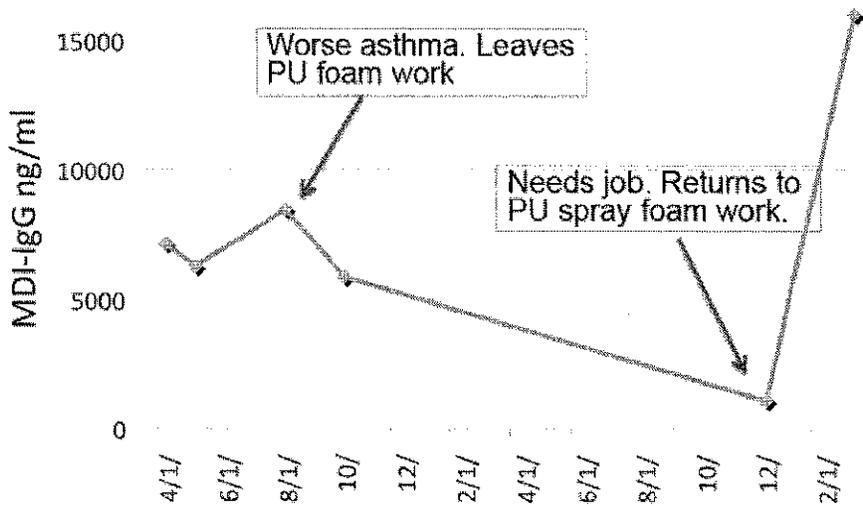


Wisnewski. Ann Occup Hyg 2012; 10: 1-10

Case: PU spray foam sprayer MDI-IgG over time

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**Assessment and Prevention of Isocyanate Exposures in the Construction Industry Funded by NIOSH / CPWR**

Aim 1) Assess respiratory and skin isocyanate exposures in the construction industry

**Aim 2) Implement a surveillance program for construction workers who work with or around PU products.**

Aim 3) implement an intervention program to reduce isocyanate exposures in construction workers.

**Characteristics Construction Workers Recruited who use Isocyanate Products (n= 60) Preliminary Data**

Gender: Male	58 (97%)
Current smoker	22 (37%)
Job Category	
Insulator	20 (33%)
Other	40 (67%)
Glazier / taper	9 (15%)
Energy conservation	7 (12%)
Other construction	24 (40%)
Symptoms	
None	19 (32%)
Non-specific	24 (40%)
Asthma, work-related	15 (25%)
Spirometry - airflow obstruction	16 (27%)

**Worker Self Reported Exposure (n= 60) Preliminary Data**

Other spray near you	
No	7 (12%)
Monthly or less	14 (23%)
Daily / weekly	39 (65%)

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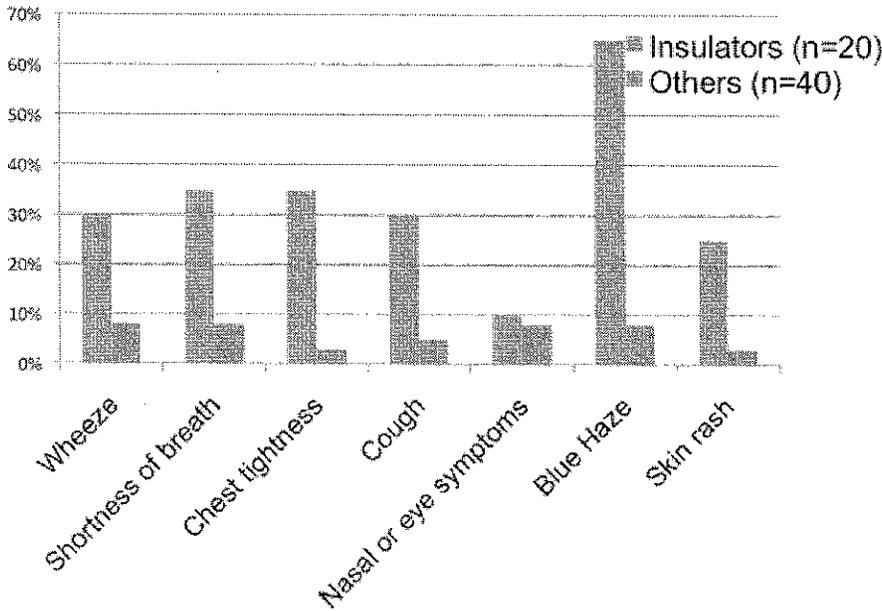
Get Isocyanate product on skin

Never	4 (7%)
Occasionally	22 (37%)
<b>Frequently</b>	<b>34 (57%)</b>

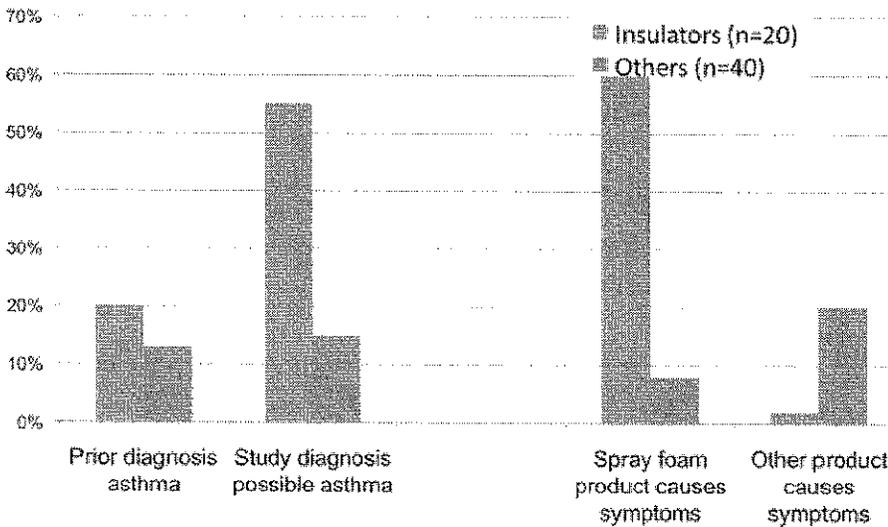
Where on skin

Hands, arms, wrists	24 (40%)
Head, neck, face	15 (25%)

**Work-related symptoms preliminary data (n = 60)**



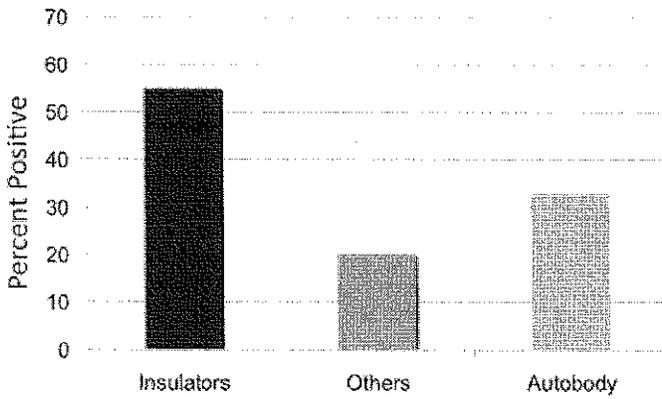
**Possible Asthma: prior diagnosis vs study diagnosis preliminary data (n = 60)**



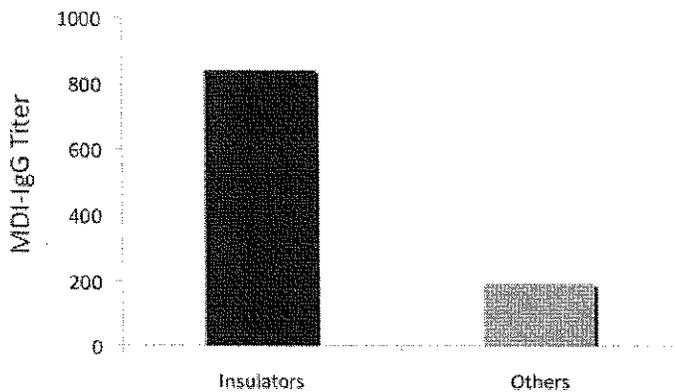
**Prevalence of isocyanate-specific-IgG Comparison to autobody workers preliminary data**

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**MDI specific-IgG titres (mean) preliminary data (n = 60)**



**PU Construction Worker Project – Initial Preliminary Conclusions**

- Work-related asthma symptoms are common in the PU spray foam workers – may represent isocyanate asthma
- High prevalence MDI-IgG positive titers in PU spray foam workers
- MDI skin exposure is commonly reported
- Traditional IH monitoring does not appear to be adequate

**Health Effects of Exposure to "Green" Polyurethane Spray Foam**

- What's in it
- Potential health effects - isocyanate asthma
- Major challenges
- Biomonitoring - Isocyanate-specific IgG / IgE
- CPWR study – preliminary data
- **Questions**

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**UMass**

Dhimiter Bello, PhD

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CPWR-NIOSH Construction Center Grant "Assessment and Prevention of Isocyanate Exposures in the Construction Industry"

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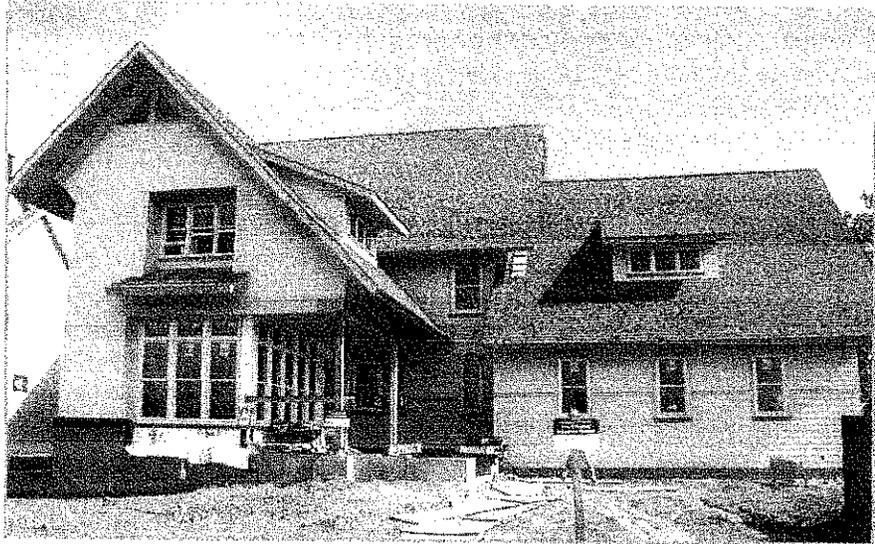
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#### **Synopsis:**

- ✓ Supports Health House program guidelines
- ✓ Creates a superior air-seal to minimize airflow and accompanying moisture
- ✓ Protects home occupants from outdoor allergens and pollutants
- ✓ Uses 100% water-blown technology

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# FACT SHEET

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Environmental & Occupational Health Assessment Program  
Environmental Health Section  
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<http://www.ct.gov/dph/ieq>

11-11

## Indoor Air Quality Testing Should Not Be The First Move

Many times, office workers, homeowners, renters, teachers, parents, administrators and other school stakeholders want to have their building "tested" to assure themselves of "good indoor air quality". This is usually not the first move that responsible parties should make. Why do health professionals recommend caution and a great deal of thought before testing the air? There are a number of reasons.

### ◆ There Are No Standards

- There are no appropriate standards for indoor air quality (IAQ) in environments such as schools, office buildings, and residences.
- There are some industrial standards for permissible exposure limits for certain chemicals used in manufacturing and other work place settings, but these standards should not be used for children, sensitive populations such as pregnant women, the elderly, or people with certain illnesses. They should never be used in residential settings.
- There are no standards for indoor levels of molds. This because there is great variability in people's reaction to mold. Also, there is no scientific support for designating a particular mold measurement as "safe" or "unhealthy."
- The most current ventilation guidelines for acceptable indoor air quality are just that - *guidelines*. They are not enforceable unless they are part of the building code. Newer buildings are generally designed according to newer ventilation guidelines, but older ones built to a building code in existence at the time of construction (especially pre-1989) may be outdated.

### ◆ The Lack Of Enforceable Standards Makes Interpretation A Tricky Business

*It is difficult to interpret the results of air testing. This can add to the confusion and create an air of mistrust between the stakeholders and the administration that ordered the testing.*

- ⇒ Testing as a first response does not usually lead to an answer or solution. Very often air testing is conducted as a knee-jerk reaction to a reported IAQ problem. Such testing done in the absence of a hypothesis, or as part of a well-planned investigation, usually produces data that raises more questions that it answers. It can raise expectations that a solution will follow, and subsequently raises suspicions if no answer is found.

⇒ Background Exposures – Most indoor pollutants (mold, particles, volatile chemicals) are present in all buildings at “background” levels. These contaminants are present in most buildings without causing adverse health effects. Testing indoor air will therefore always find something, usually background levels that have no significance for reported health complaints.

**Therefore, DO NOT TEST IF:**

- the results cannot be interpreted
- results will add no meaningful information
- just because someone wants it done

◆ **What Is The First Step In Creating A Space With Good Indoor Environmental Quality? What Should You Do Before or Instead of Air Testing?**

- ⇒ Walk through the building using your eyes, nose, and common sense to identify potential problems.
- ⇒ Look at general cleanliness (or lack thereof) in each of the areas you inspect.
- ⇒ See if building services can substitute cleaning agents that have less of an odor ("low emitters") than the stronger odor-producing ones that may be in use.
- ⇒ In addition to bedrooms, bathrooms, classrooms, offices, gymnasiums, locker rooms, auditoriums, music rooms, industrial and fine arts rooms, etc, also look at maintenance areas such as janitor closets, mechanical rooms that house ventilation equipment, chemical storage closets in labs and in custodial areas, etc.
- ⇒ Take note of where carpeting is used. How is it cleaned, and how often? Does it ever get wet from flooding, roof leaks, etc, and if so, how quickly is it dried out?
- ⇒ Walk around outside of the building and look for potential pollution sources.
- ⇒ Look for locations of fresh air intakes and exhausts. Are they too close together, allowing exhaust air to be sucked back into the building via the intakes? Are the intakes located near dumpsters or where busses, trucks or cars idle?
- ⇒ Look at how the building is set on the land. Does the land slope downward towards the building, allowing rainwater to pool along the foundation? Is the building located on former swampland or landfill? Is there a high water table or underground stream under the building? Is landscaping too close to the building?

All of these things can have an impact on indoor environmental quality. Here are some additional things that should be done early on, before resorting to actually testing the air.

• **Examine Building Usage**

Compare the hours the building is used with any automatic timers that may be set to turn the mechanical ventilation systems on and off, and make adjustments as necessary. Those who schedule building usage for activities must be sure to communicate this to facilities management. Mechanical systems should be turned on early enough in the morning to let these systems attain full capacity by the time school or work begins.

• **Ask About Maintenance Service Contracts**

Schools and offices often have service contracts to take care of certain parts or all of the physical plant. This is especially true for the ventilation equipment. You can ask questions about how often filters are scheduled to be changed, and about what other components are included in an annual service contract (be sure to ask to see the maintenance log for proof of when this work was completed).

If your facility subcontracts out janitorial services, find out what is included in the contract. Ask about the cleaning agents they use, and request "low emitting" chemicals when available.

• **Plan Minor Renovations During Off-Hours**

- Schedule minor jobs such as painting, floor re-surfacing, carpet installation, etc. during hours when school is not in use.
- Use low emitting paint, glues, polyurethane, and other building materials whenever possible. Limit the use of particleboard, pressed wood and plywood containing formaldehyde.

• **Build Communication Into Large Renovation Projects**

- Before major renovation projects are scheduled, meet with office workers, principal, teacher representative, school nurse, facilities director and local health director in your town or district. Set up a plan for communicating relevant information to everyone who may be affected. This includes workers, parents and students. For schools, EPA's **Tools for Schools** program can be very helpful here . CT DPH has a similar program for offices called **Tools for Office Buildings** - see page 6.
- Plan to do as much work as possible during non-school or non-business hours.
- Isolate construction areas from non-construction areas using barrier techniques to minimize contamination in areas that will be used for normal school or office activities.

Much of the time, a building assessment should be to identify basic problem areas. Once these areas have been identified, you then may decide to call in the professionals. However, as a first cut, here are some things you can do yourself.

• **What You Can Do Yourself**

- Schools should implement EPA's *Tools for Schools Program*. Offices may wish to implement *Tools for Office Buildings*. (see page 6)
- Develop proactive risk communication
- Do routine scheduled maintenance, *especially on HVAC* (heating, ventilation and air conditioning) *systems*
- Remove pollution sources
- Substitute low emitting products whenever possible
- Fix all leaks *promptly!*
- Remove and discard all porous materials damaged by water. This includes ceiling tiles, carpets, furnishings, and even wallboard.
- Schedule repairs/renovations during off hours

• **When *Is* Indoor Environmental Testing Useful?**

Once a problem has been identified, the solution may be thought of as a puzzle. There are many pieces, and air sampling may be one of them. Other important pieces of the puzzle will include: a building walk through, taking a history of the physical plant and any past and present maintenance problems, history of building usage and land usage on the property and surrounding neighborhoods, review of architectural and mechanical blueprints, interviewing maintenance staff, and anything else that would add information about the physical structure of the building, and the activities that go on in and around the building.

It may also be useful to interview the building occupants. Ask for their help in identifying problem areas. Set up good lines of communication between management, staff, and parents. This is crucial and cannot be over emphasized! Ask the school or company nurse if she/he has observed or documented an increased incidence of health complaints. Are they specific types of complaints or more generalized in nature? It may be desirable to do a symptom survey if lots of people are affected. Your local health director can help coordinate these activities.

When all of the practical steps and investigations described above have been conducted, there may be a place for air testing. Air testing may be used to confirm or refute a highly suspected source that is uncovered during the walk-through inspection.

Air testing is most useful when a specific contaminant or contamination source has already been identified as a likely culprit, and quantitative data are needed to:

- Document the degree or extent of the hazard, or
- Document different locations in a building where elevated levels or severe conditions exist.

Air testing may also be useful in a qualitative manner when trying to differentiate between several suspect chemicals or sources. Although air testing is sometimes useful in tracking down chemical sources, air testing for mold is an entirely different story. A complicating factor in interpreting air results from mold testing is that a variety of molds are present in our everyday environment. Most of the time, you will find that molds normally found outdoors are also present indoors. This is because they are carried in on our clothing and shoes, and also enter building interiors via open windows, doors, and fresh air intakes.

- So, to review, indoor air testing may be useful when:**
- It is part of an overall evaluation**
  - When the data is interpretable**
  - When the data has a descriptive component that helps to illustrate its place in the overall evaluation**
  - NEVER alone**

After undertaking the steps described above, you may find it necessary to hire one or more professionals. Remember that varied problems may require more than one type of specialist. For example, you may need a ventilation engineer, or a moisture specialist, or an architect, or an industrial hygienist, or an environmental/ geology consultant. Here are some tips to follow when hiring a consultant.

**• When You Have To Call In A Consultant**

- Discuss the problem with your local health director, and enlist their help with risk communication to all of the stakeholders. He/she may also be able to help you select the right kind of consultant for the job at hand.
- Review the American Industrial Hygiene Association (AIHA) consumer brochure: *Guidelines for Selecting An Indoor Air Quality Consultant*. Go to: [http://www.aiha.org/news-pubs/newsroom/Documents/Guidelines for Selecting An Indoor Air Quality Consultant.pdf](http://www.aiha.org/news-pubs/newsroom/Documents/Guidelines%20for%20Selecting%20An%20Indoor%20Air%20Quality%20Consultant.pdf)
- Have a clear understanding of the problem, so that you can direct the consultant properly.
- Make sure the consultant explains the scope of the project up front - what they can and cannot do. Communicate this to all of the stakeholders so people will have a realistic expectation about the process.

For technical information concerning evaluation, testing or data interpretation, contact:

Marian L. Heyman, MPH  
 CT Department of Public Health  
 Tel: (860) 509-7740  
 Email: [marian.heyman@ct.gov](mailto:marian.heyman@ct.gov)  
<http://www.ct.gov/dph/ieq>  
<http://www.ct.gov/dph/mold>

### US Environmental Protection Agency *Tools for Schools Program*



The U.S. EPA has developed an innovative program to address indoor air quality (IAQ) in schools. The *Tools For Schools (TfS)* program is based on the following key principles:

- Many IAQ problems can be prevented by the school community
- IAQ problems can often be resolved using the skills of school staff
- The expenditures and effort to prevent most IAQ problems are a fraction of that required to solve problems once they develop.

Participating schools form a *TfS* committee consisting of administrators, teachers, maintenance staff, parents, and others. The CT School Indoor Environment Resource Team works with *TfS* committees, teaching them how to use *TfS* materials to investigate indoor air quality hazards and develop short and long-term strategies to prioritize and solve IAQ problems.

The *TfS* Action Kit is a key feature of the *Tools for Schools* program. The kit provides all of the materials necessary to promote a low-cost, problem-solving team approach to improving indoor environmental quality (IAQ) in schools.

For more information about starting or maintaining a *TfS* program, call:

Kenny Foscue  
 CT Department of Public Health  
 Tel: (860) 509-7740  
 Email: [kenny.foscue@ct.gov](mailto:kenny.foscue@ct.gov)  
<http://www.ct.gov/dph/schools>

### Connecticut Department of Public Health *Tools for Office Buildings Program*



Poor indoor environmental quality in office buildings continues to be a concern of many workers. Using the EPA *Tools For Schools* program as a model, CT DPH created the *Tools for Office Buildings (TfOB)* Program.

*Tools for Office Buildings* is a proactive, preventive, team-based program that educates building occupants and property management about conditions and practices that may affect the indoor environment, identifies building conditions that contribute to poor indoor air quality, and provides guidance for remedies including low cost/no cost solutions.

Participants learn how to conduct an overall building assessment, are taught to recognize factors that can impact the office indoor environment, and how they can play a role in improving the workplace environment.

For more information about starting a *TfOB* program, call:

Joan Simpson  
 CT Department of Public Health  
 Tel: (860) 509-7740  
 Email: [joan.simpson@ct.gov](mailto:joan.simpson@ct.gov)  
<http://www.ct.gov/dph/ieq>



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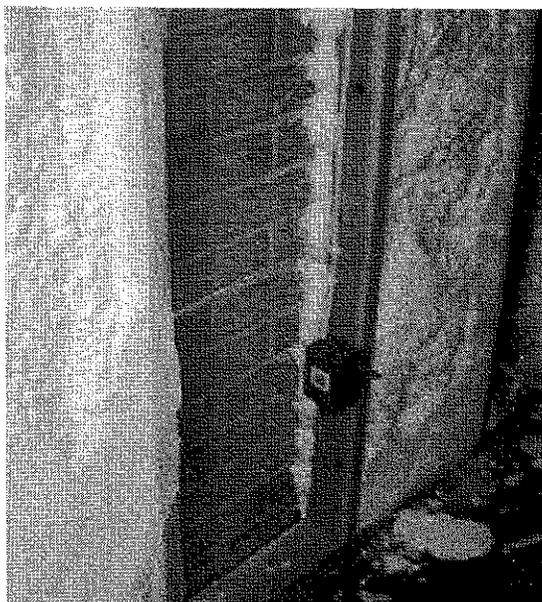
## NIOSH Science Blog

Safer Healthier Workers

### Help Wanted: Spray Polyurethane Foam Insulation Research (<http://blogs.cdc.gov/niosh-science-blog/2012/03/sprayfoam/>)

Categories: [Chemicals](http://blogs.cdc.gov/niosh-science-blog/category/chemicals/), [Construction](http://blogs.cdc.gov/niosh-science-blog/category/construction/), [Exposure](http://blogs.cdc.gov/niosh-science-blog/category/exposure/), [Green](http://blogs.cdc.gov/niosh-science-blog/category/green/), [Personal protective equipment](http://blogs.cdc.gov/niosh-science-blog/category/personal-protective-equipment/)

March 21st, 2012 1:55 pm ET - **David A. Marlow, BS**



(<http://blogs.cdc.gov/niosh-science-blog/files/2012/03/spf.jpg>)

Environmentally friendly doesn't necessarily mean worker friendly. In many cases, new "green" technologies and products have reached the market without being adequately evaluated to determine whether they pose health or safety risks to workers in manufacture, deployment, or use. Spray polyurethane foam—commonly referred to as SPF—is a case in point. Its use as insulation has been on the upswing because of the laudable aim of builders and property owners to improve energy efficiency. As popular as it has become, however, much remains unknown about spray polyurethane foam—specifically the health implications of its amines, glycols, and phosphate upon workers.

Polyurethane foam has a high R-factor (or R-value), so it resists the flow of heat and, when used as insulation, increases a building's energy efficiency. Because of this, it has become a favorite in the world of energy-conscious construction and renovation. While better insulation

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clearly means less energy consumption, what's not clear is the level of protection and ventilation workers need so that they remain safe during the installation process.

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## MDI: The known hazard

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Spray polyurethane foam is applied as a liquid but expands as it dries. The product itself is a two-component system. The first chemical in the mixture is methylene diphenyl diisocyanate (MDI). The [hazards of MDI](http://www.cdc.gov/niosh/topics/isocyanates/) (<http://www.cdc.gov/niosh/topics/isocyanates/>) are well-documented and their exposure limits have been established. However, the known hazards for spray polyurethane foam only take into account the first part of the mixture—the MDI.

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## Amines, glycols, and phosphate: Unknown risks

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The other half of the mix has not been studied for worker safety. It is a chemical question mark with no toxicology or health information. This part contains amines, which act as a catalyst; glycols—blowing agents that react with the foam; and phosphate, a flame retardant. This half of the spray polyurethane foam equation raises several questions:

- What is the concentration of the fumes and vapors from these chemicals when spray foam is applied?
- Are the workers who are applying the spray foam adequately protected?
- What about others on site who are not applying the spray foam and who are not wearing the same personal protective equipment?
- How long does it take to ventilate the area after application?
- Are there cost-saving methods for isolating and venting the fumes?

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## A need for real-world air sampling

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We are currently researching these issues. In our labs we've done tracer gas studies, simulating potential exposures to spray polyurethane foam components, but to make the science useful for SPF installers, we need partners to help us collect on-site air samples. At the worksite, we will collect personal breathing-zone air samples and set up five tripods with air-sampling pumps to obtain readings in a variety of sampling areas. We would like to gather samples during the spray foam application, and again at intervals afterwards. The data we collect will help us gauge:

- The true level of personal protective equipment needed by the worker applying the spray foam and by those who are elsewhere on the worksite.
- The actual amount of time before the area is void of harmful levels of vapors. The idea that the area needs to be clear for 24 hours is anecdotal and has no scientific underpinning.
- Proper ventilation and cordoning of the spray foam work area. Some contractors go to great lengths to tape and plastic the room; others do nothing at all. Our air sampling will clarify what the best practice is.

Additionally, we are working on a portable spray booth that will contain overspray fumes and improve ventilation—a cost-saving intervention.

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## A need for solid science

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It's difficult for even the most conscientious employers to protect their workers because limited data exist on the second part of the spray foam mixture. The popularity of the product and the number of companies using it demands that there be some scientific background informing its use.

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## Help wanted

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Please contact NIOSH to advance the science behind spray polyurethane foam insulation. You can reach us through this blog. While foam insulation may be green, with your help, our research can ensure that spray foam is sustainable for your workers as well.

—David A. Marlow, BS

*Mr. Marlow is an industrial hygiene engineer in the NIOSH Division of Applied Research and Technology.*

 [25 Comments \(#comments\)](#)

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1. March 26, 2012 at 12:54 pm ET - Rachel White

I work with Byggmeister [<http://www.byggmeister.com>], a residential remodeling firm in Newton, MA, that has been using SPF as an insulation material for some now. Your call for help is timely for us: we have recently begun to take a closer look at the existing guidelines on SPF safety in an effort to better protect our crew and our clients (most of whom are living in their homes during construction). So, we are thrilled that you are doing this research and would very much welcome the opportunity to participate in your study. Please let me know if we can be of help.

[Link to this comment \(http://blogs.cdc.gov/niosh-science-blog/2012/03/sprayfoam/#comment-3499\)](http://blogs.cdc.gov/niosh-science-blog/2012/03/sprayfoam/#comment-3499)

2. March 28, 2012 at 4:14 am ET - Emlyn Ó Troighthead

This topic should be of interest to health and safety professionals, trades and regulatory bodies in Ireland as at the moment, there are incentive schemes in place for home owners to improve insulation in their homes. As a health and safety consultant, I closely follow such topics in the media, online etc. and am not aware of any concerns to date in this field.

It would be interesting to hear the views of users of this material or trade representative bodies in respect of the extent of use and any research done on the application of spray polyurethane foam in Ireland.

[Link to this comment \(http://blogs.cdc.gov/niosh-science-blog/2012/03/sprayfoam/#comment-3514\)](http://blogs.cdc.gov/niosh-science-blog/2012/03/sprayfoam/#comment-3514)

3. March 29, 2012 at 12:20 am ET - greenwashed

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