Laboratory

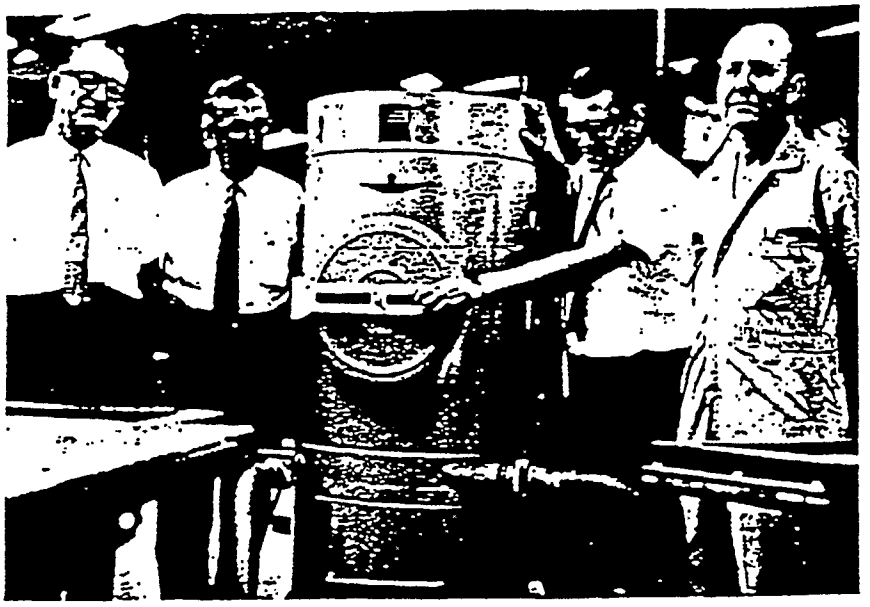
MOUNT SINAI MSM SCHOOL OF MEDICINE

of The City University of New York

INSULATION HYGIENE PROGRESS REPORTS

FROM THE INSULATION INDUSTRY HYGIENE RESEARCH PROGRAM

Irving J. Selikoff, M.D., Program Director
Vol. 1 No. 4 Winter 1969



Joseph R. Shrode, International Organizer of the IAHFIAW, Claude E. Foster, Contract Manager of the Houston Johns-Manville office, Guy F. Cusumano, Sales Manager of Hoffman Industries, and Howard C. Forrest of the Forrest Co. with the Hoffman dust collector used during the Houston trial.

Saw Dusts Cut To A Trace By Two New Collectors

Dust produced by cutting with band saws can be virtually eliminated in the insulation industry! This was the conclusion following trials of two dust collector systems during September and October by IIHRP personnel.

Dust from band saws was early identified for priority action by the industrial hygiene program. Twenty-five saw manufacturers were contacted and asked if they provided dust collection facilities on their band saws. None indicated he did and among the negative replies, one manufacturer even stated, "An efficient suction system would require more ducting etc., than would be practical to build into a machine."

Fortunately, among the saw manufacturers, the Howard C. Forrest Co. of Houston, Texas, a major supplier to the insulation industry, was concerned about dust exposures from sawing operations and made his facilities and saws in Houston available to the IIHRP for a dust collector trial.

Two dust collection systems were selected for trial, each differing significantly in design. Dust levels were measured with and without the use of collectors during the cutting of calcium silicate-asbestos block and half-round pipe covering.

Far Below Limit

In each case, the dust collector reduced the asbestos dust exposure of the saw operator dramatically indeed, to levels less than 1/10th that of the currently proposed asbestos threshold limit value.

The material felt most representative

(Continued on back page)

Cigarettes, Asbestos Don't Mix

By Dr. Irving J. Selikoff
Director, IIHRP

There are a number of problems which asbestos workers face as a result of the dusts to which they are exposed. It is clear that the best way to solve these problems is to greatly decrease or eliminate the dusts—and it is to this task that the IIHRP is dedicated.

Nevertheless, it is now evident that one of the principal hazards—lung cancer—can be sharply decreased by a simple measure—stopping the smoking of cigarettes! This is true, of course, among adult men in general, but it is ESPECIALLY TRUE OF ASBESTOS WORKERS. There is something particularly dangerous about the combination—insulation work and cigarette smoking—that creates a risk much greater than either one by itself, or even the simple addition of the two.

All men increase their risk of developing lung cancer if they regularly smoke cigarettes—for asbestos workers, this increase is tremendous. We have calculated that an asbestos worker who smokes has 92 times the risk of dying of lung cancer as compared with a man who neither smokes cigarettes nor works as a pipe coverer.[1]

Local 12 and Local 32 Research

Asbestos workers throughout the country owe a debt of gratitude to the members of Local 12 (New York) and Local 32 (Newark), IAHFIAW. The names of Terence McConnell and the late John Bogovich come immediately to mind, as do those of James Grogan, Howard Barnett, Edward Kellner, Nicholas Lucich, William Shannon, James Mulhern, Jack Novak, George Rider, Raymond Rider and Edward

(Continued on center spread)

PLAINTIFF'S EXHIBIT

CAP-1628

CAPCO KIN 0001594

'You Can Live Without Them

(Continued)

Sanborn. Their efforts were guided, extended and reinforced by General President Hutchinson, Secretary-Treasurer Haas, President Emeritus Sickles, and the loyal and capable staff of the International office. But the credit belongs, too, to the membership of these two locals, each man who patiently and diligently helped complete the research which led to the discovery of the unusual and extraordinary cigarette smoking effect.

Starting on January 1, 1963, the two locals began to keep a careful eye on all their members, but particularly on the more senior members, those who had entered the locals from 1910 to 1942, and who, by 1963, already had more than 20 years in the trade. There were 370 such men. It was determined that:

87 men had never smoked cigarettes regularly.

283 had smoked cigarettes.

The locals have since observed what has happened to these two groups of men, the same in all respects (age, work experience, etc.) except that one smoked cigarettes and the other did not! The experiences of the two groups have been instructive.

By November 1st, 1969, only one of the 87 men who did not smoke cigarettes developed lung cancer. Among the 283 who had a history of cigarette smoking, 35 developed lung cancer!

		Lung Cancer Jan. 1, 1963 to Nov. 1, 1969
No cigarette smoking	87	1
Cigarette smoking ..	283	35
	370	36

It seems obvious that insulation work and cigarette smoking don't mix.

What should be done about this situation? Four recommendations are warranted:

1. Minimize or eliminate exposure to insulation dusts on the job. This is the goal of the IIHRP and will be done with the help of labor and the industry, including locals of the IAHFIAW and contractors of the ICDNA throughout the country. A harbinger of what will be done is demonstrated by the improved table saws reported on page 1.

[illegible] workers who do not smoke [illegible] should never start.

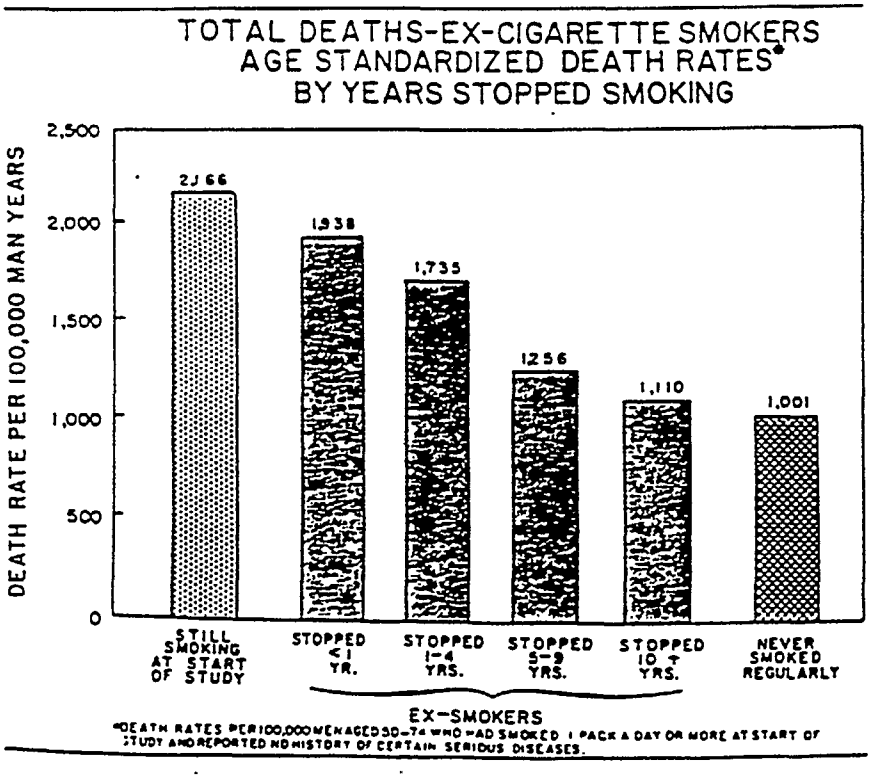
3. Those who now smoke cigarettes should stop immediately. This is true *even if they are retired from the trade.* Dust remains trapped in the lung and cigarettes will be harmful. While it is too early to tell yet the full beneficial effect of stopping smoking among asbestos workers, there is reason to believe this may be considerable. Dr. Hammond has found, for example, that among American men in general stopping smoking significantly decreases the risk of lung cancer, and the longer one goes without smoking, the greater the decrease in risk. In fact, 10 years after stopping, the risk is little greater than that of men the same age who never smoked cigarettes! (See Figure 1.)

Cigar smoking and pipe smoking have at least so far not been associated with any increase in risk of lung cancer among the members of Local 12 and Local 32. Cigarette smoking is the culprit.

4. Regular examinations should be scheduled. This is important for men who started in the trade twenty or more years before and especially important for those 20-year men who smoke cigarettes or ever smoked cigarettes regularly, even if they have stopped.

These precautions won't cure all the problems in the trade immediately, but promise to bring one of the most important ones under control. They are feasible and practical, and their introduction will be a tribute to the pioneering research of the Asbestos Workers Union.

FIGURE 1.



[1] Selikoff, I. J., Hammond, E. C. and Churg, J. Asbestos exposure, smoking and neoplasia. Journal of the American Medical Association Vol. 204, pages 106-112, April 8, 1968.

Successful Saw Tests

(Continued from back page)

demonstrated that by using properly engineered duct work dust collection could significantly reduce operator exposure levels.

At the conclusion of the trials, Howard Forrest stated his pleasure over the successful outcome. "We have had available on our saws a 5 or 6 inch outlet to which high volume dust collectors can be attached. In addition, we will provide on all future saws the appropriate ducting for attachment to high velocity systems. Moreover, the owner of any present Forrest saw can obtain the necessary attachment from us if he wishes to modify his present saw."

CAPCO KIN 0001595

Vol. 1 No. 4 Winter 1969

Insulation Hygiene Progress Reports

from the

Insulation Industry Hygiene Research Program

Editor: W. J. Nicholson, Ph.D., Published at the Environmental Sciences Laboratory (Irving J. Selikoff, M.D., Director), Mount Sinai School of Medicine of the City University of New York, New York, N.Y. 10029

Advisory Council of IIHRP

Irving J. Selikoff, M.D. Program Director and Chairman

E. Cuyler Hammond, Sc.D. Vice President, American Cancer Society, New York, N.Y.

Albert Hutchinson, General President, International Association of Heat and Frost Insulators and Asbestos Workers, Washington, D.C.

J. B. Jobe, Vice President, Johns-Manville Corporation, New York, N.Y.

Fred L. Pundsack, Ph.D. Vice President, Research and Development, Johns-Manville Corporation, New York, N.Y.

George W. Wright, M.D. Director of Medical Research, St. Luke's Hospital, Cleveland, O.

PURPOSES OF THE INSULATION INDUSTRY HYGIENE RESEARCH PROGRAM

1. To develop improved methods for minimizing exposure of insulation workers to dusts and fumes encountered in their work.

2. To disseminate knowledge of these improved methods of dust control wherever they may be applied advantageously and to offer cooperation, advice and assistance toward their universal adoption.



Engineer Robert B. Black of the Oregon State Board of Health changes a personal sampler filter on a worker during the study of conditions in the insulation industry. (Photo courtesy of the Oregon State Board of Health)

Oregon State Health Board Studies Insulation Workers

Several research programs directed to diagnosis of the health problems of insulation workers are in progress throughout the country in addition to the program at Mount Sinai School of Medicine. A particularly thorough study has been that of the Environmental Health Section of the Oregon State Board of Health.

Studies of the working conditions of Local 36, International Association of Heat and Frost Insulators and Asbestos Workers Union, were conducted by Mr. Robert Black of the Environmental Health Section. In this study personal air samplers, collecting air from the breathing zone of workers, were used to measure the atmospheric concentrations of asbestos fibers during various operations.

As an example, the tests showed that cutting amosite blanket with a textile saw produced an atmospheric concentration of 16 fibers (over 5 microns in length) per cubic centimeter. Tearing asbestos cloth by hand resulted in an atmospheric concentration of 43 fibers per cc, while cutting asbestos cloth with a textile saw produced 8.2 fibers per cc.

Health is Checked.

The Environmental Health Section has also conducted limited studies of the health of the members of Local 36. From chest X-rays 18 of 103 workers were found to have conditions that could be related to asbestosis. In studies of pulmonary function they also found that lung efficiency of asbestos workers decreased with age significantly faster than that of a comparable group of non-asbestos workers.

In commenting on the Oregon program, Dr. Irving J. Selikoff stated that it was particularly gratifying to have state agencies take interest in the health problems of asbestos workers. "The Oregon studies, which corroborate our own, point to the need for rapid action to reduce dust exposures in the insulation trade. The magnitude of the problem is great, but through the cooperation of governmental agencies with labor and industry we will be able to obtain meaningful solutions soon."

CAPCO KIN 0001596

Successful Saw Tests

(Continued)

for the trials was the cutting of covering for 6-inch diameter pipes. The cutting of this commonly used material can be especially dusty as the dust is generated by the saw blade 3 inches above the surface of the saw table. When cutting with no dust collector, this dust spreads out from the cut, bounces against the table, and is dispersed into the air.

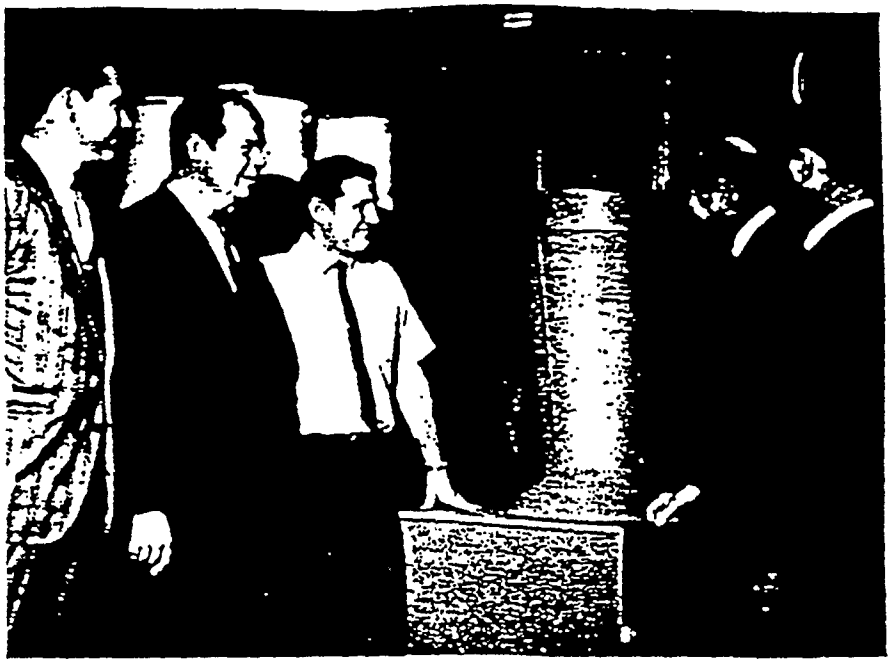
The two systems of dust collection tested were the high velocity system of Hoffman Industries of New York City and the high volume system of The Torit Corporation of St. Paul, Minnesota. Each system used highly efficient bag filters but differed in the mode of collection from the saw.

The Hoffman system used a 2-inch collection pipe that directs an airflow along and then away from the saw blade at velocities exceeding 10,000 ft./min. This speed exceeds typical blade velocities of from 3,000 to 5,000 ft./min. This high velocity air stream not only removes all material from the blade, but draws the dust produced above the table down the saw blade and into the collector.

The trials of the Hoffman collector were held at the Forrest Company plant in Houston and conducted by William B. Reitze, Duncan A. Holaday, and William J. Nicholson of Mount Sinai's Insulation Industry Hygiene Research Program.

10,000-fold Reduction

They found from dust counts made 20 inches from the cut that *dust levels could be reduced over 10,000 times from those which exists with no collector.* The dust at this point was mostly heavy particles which would fall to the floor and produce general housekeeping problems. But of most importance, at the breathing zone of the saw operator the dust level from very fine particles and fibers was reduced to 1/20th of that which existed with no collector.

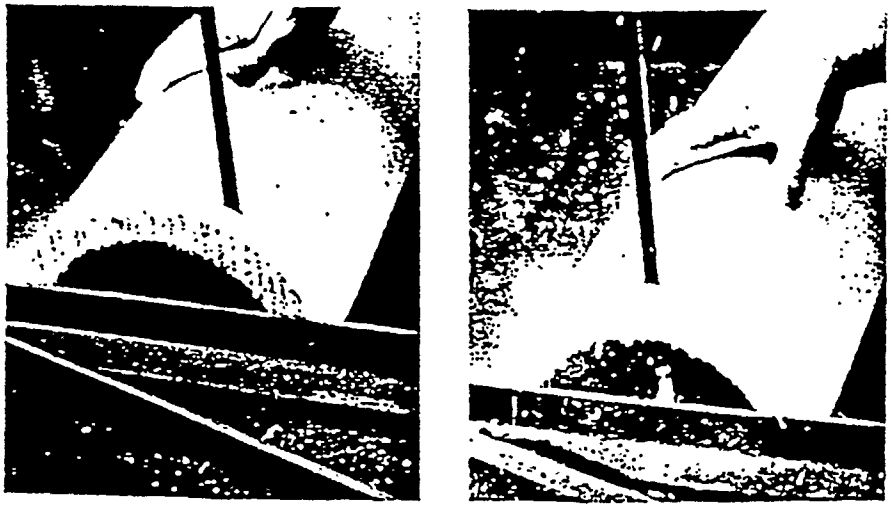


Viewing the dust collection equipment of The Torit Corporation are Roger E. Cunningham, Executive Director of the Illinois Regional Insulation Contractors Industry Promotional and Educational Program, Richard Bennett, Chicago Sales Manager of The Torit Corp., Gerald McMahon, Director of the Illinois Insulation Contractors Apprentice Training Program, Frank R. Chase, Vice President of Torit, and Leo Pierce of Torit.

Joseph R. Shrode, International Organizer of the International Association of Heat and Frost Insulators and Asbestos Workers Union, who operated the saw during the Houston trial commented on the efficiency of the dust collection system. "I was really impressed with the effectiveness of the dust collector. I've been in the insulation trade for many years and during that time have seen a large number of fab shops and job sites. Some of these locations had dust collection systems, usually of the home-made variety. While certainly useful, their efficiency in no way approached that which I saw today. There was just no dust at all."

The Torit high volume system was tested on a Forrest saw at the Apprentice Training Facility of the Chicago area Local 17 of the IAHFIAW directed by Gerald McMahon. The Torit system is similar to that designed by several dust collector companies. In this method a large volume of air is collected from the area beneath the saw table and by a collector mounted above the cutting area. In typical cases 1,500 to 2,500 cubic feet of air are collected per minute.

The Chicago trial was conducted by William Reitze and William Nicholson of the IIHRP. Mr. Roger E. Cunningham, Executive Director of the Illinois Insulation Contractors Industry Promotional and Education Program, participated as an observer. Dust counts were taken with and without dust collection facilities operating during the cutting of calcium silicate-asbestos and on other insulation materials. Again it was



The cutting of 6" diameter pipe covering, with and without the use of a dust-collector.

(Continued on center spread)

CAPCO KIN 0001597