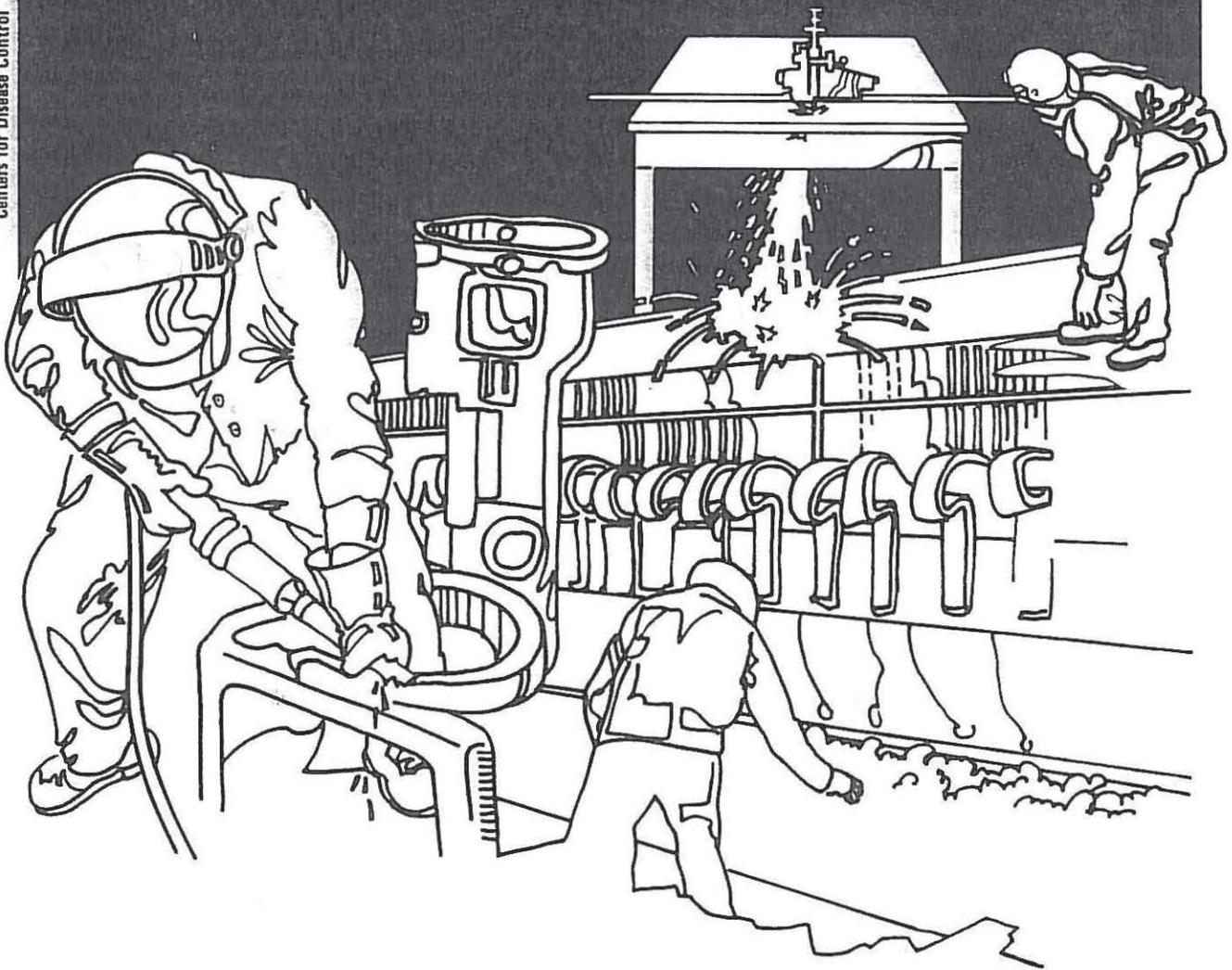


NIOSH



Health Hazard Evaluation Summaries

HETA 81-038-801
HENSEL PHELPS
CONSTRUCTION COMPANY
GREELEY, COLORADO

PREFACE

The Hazard Evaluations and Technical Assistance Branch of NIOSH conducts field investigations of possible health hazards in the workplace. These investigations are conducted under the authority of Section 20(a)(6) of the Occupational Safety and Health Act of 1970, 29 U.S.C. 669(a)(6) which authorizes the Secretary of Health and Human Services, following a written request from any employer or authorized representative of employees, to determine whether any substance normally found in the place of employment has potentially toxic effects in such concentrations as used or found.

The Hazard Evaluations and Technical Assistance Branch also provides, upon request, medical, nursing, and industrial hygiene technical and consultative assistance (TA) to Federal, state, and local agencies; labor; industry and other groups or individuals to control occupational health hazards and to prevent related trauma and disease.

Mention of company names or products does not constitute endorsement by the National Institute for Occupational Safety and Health.

HETA 81-038-801
JANUARY 1981
HENSEL PHELPS CONSTRUCTION COMPANY
GREELEY, COLORADO

NIOSH INVESTIGATORS:
Bobby J. Gunter, Ph.D., IH

I. SUMMARY

In November 1980 the National Institute for Occupational Safety and Health (NIOSH) received a request from management of Hensel Phelps Construction Company, Greeley, Colorado, to evaluate a potential health hazard to asbestos at a hotel under construction in Steamboat Springs, Colorado. There was concern over possible asbestos exposure during the sawing and handling of asbestos sheetboard.

All carpenters who were sawing and working with the sheetboard were monitored for asbestos exposure during the environmental survey conducted on November 18, 1980.

Four breathing zone air samples and one general area air sample were taken for asbestos. Values ranged from 50,000 to 320,000 fibers per cubic meter greater than 5 microns in length. The average exposure was 130,000 fibers per cubic meter. Two of five samples exceeded the NIOSH recommended level of 100,000 fibers per cubic meter. None of the samples exceeded the Occupational Safety and Health Administration (OSHA) standard of 2,000,000 fibers per cubic meter.

An inadequate respirator program, which did not fulfill the requirements set forth in the OSHA General Industry Standard (29 CFR 1910.134) was observed during this survey.

On the basis of the environmental data, a health hazard did exist at the time of this survey from exposure to asbestos and an inadequate respirator program. Recommendations on eliminating the health hazard at this work site are included on page 3 of this report.

KEYWORDS: SIC 1542 (General Contractors), asbestos, construction, respirators.

II. INTRODUCTION

NIOSH received a request in November 1980 from the management of Hensel Phelps Construction Company, Greeley, Colorado, to determine if there was a health hazard from asbestos during the sawing and nailing of asbestos fiberboard at a hotel under construction in Steamboat Springs, Colorado. An environmental survey was conducted on November 18, 1980, to evaluate potential exposures to asbestos.

III. BACKGROUND

Asbestos sheetboard was being used for the construction of patios and balconies at the high-rise hotel under construction. All workers (four) that were working with and around the asbestos board were monitored for possible asbestos exposure. The workers are exposed for eight-hour work periods.

IV. ENVIRONMENTAL METHODS AND MATERIALS

All four asbestos workers were interviewed and monitored for asbestos exposure. Environmental breathing zone and general area air samples for asbestos were collected on AA filters and counted on a phase contrast microscope.

V. EVALUATION CRITERIA

A. Environmental

The two sources of criteria used to assess the workroom concentration of asbestos were the (1) Occupational Safety and Health Administration (OSHA) standard (29 CFR 1910.1001) and (2) the NIOSH criteria for a recommended standard.

NIOSH recommends that occupational exposure to asbestos be controlled so that workers are not exposed to a workroom air concentration for an 8-hour time-weighted average (TWA) exposure of 100,000 fibers per cubic meter greater than 5 microns in length and 500,000 fibers per cubic meter greater than 5 microns in length for a 15-minute Ceiling. The U.S. Department of Labor/Occupational Safety and Health Administration (OSHA) standard for asbestos for a 8-hour (TWA) exposure is 2,000,000 fibers per cubic meter greater than 5 microns in length, and a Ceiling concentration of 10 fibers per cubic meter greater than 5 microns in length.

B. Toxicological

Repeated exposures to high concentrations of asbestos over a long period of time will cause asbestosis which is a disabling fibrotic disease of the lungs. Any exposure to asbestos increases a worker's chance of developing an asbestos-related cancer later on in life.

VI. RESULTS AND DISCUSSION

Four breathing zone air samples and one general area air sample were taken for asbestos. Values ranged from 50,000 to 320,000 fibers per cubic meter greater than 5 microns in length. The average exposure was 130,000 fibers per cubic meter. Two of five samples exceeded the NIOSH recommended level of 100,000 fibers per cubic meter. None of the samples exceeded the Occupational Safety and Health Administration (OSHA) standard of 2,000,000 fibers per cubic meter. Refer to Table 1 for the environmental results.

An inadequate respirator program, which did not fulfill the requirements set forth in the OSHA General Industry Standard (29 CFR 1910.134) was observed during this survey.

Employee interviews revealed only one worker who had a medical problem (angina pains). This worker should be medically evaluated to see if he is able to wear respiratory protection. One other worker had a long history of asbestos exposure, but had no respiratory or other medical complaints.

VII. CONCLUSIONS

Based on the environmental sampling and the inadequate respirator program, a hazardous situation existed during this evaluation to all workers that were working with the asbestos board. Management did purchase adequate respirators; however, workers were neither properly trained in the use of the respirators nor were the respirators adequately fitted. Management should institute a respirator program that complies with the eleven criteria outlined in the Occupational Safety and Health Administration standards 29 CFR 1910.134, January 1978.

VIII. RECOMMENDATIONS

Some of the following recommendations are now being followed; however, they should be continued and enforced more thoroughly.

1. An adequate respirator program protecting workers from elevated asbestos exposure should be started immediately.
2. Eating, drinking, and smoking should be prohibited when workers are working around asbestos.
3. Workers should be trained on the potential dangers from overexposure to asbestos.
4. Employees should not carry their cigarettes on the work site when working with asbestos.
5. Workers should take showers and leave their work clothes at the work site when working with asbestos and receiving exposures as high as the ones found during this evaluation.
6. Workers should be clean shaven prior to each tour of duty to ensure proper respirator fit.

IX. AUTHORSHIP AND ACKNOWLEDGMENTS

Report Prepared By:

Bobby J. Gunter, Ph.D.
Regional Industrial Hygienist
NIOSH - Region VIII
Denver, Colorado

Originating Office:

Hazard Evaluation and Technical
Assistance Branch (HETAB)
Division of Surveillance, Hazard
Evaluations, and Field Studies (DSHEFS)
NIOSH, Cincinnati, Ohio

Report Typed By:

Marilyn K. Schulenberg
NIOSH - Region VIII
Denver, Colorado

X. DISTRIBUTION AND AVAILABILITY

Copies of this report are currently available upon request from NIOSH, Division of Technical Services, Information Resources and Dissemination Section, 4676 Columbia Parkway, Cincinnati, Ohio 45226. After 90 days the report will be available through the National Technical Information Service (NTIS), Springfield, Virginia. Information regarding its availability through NTIS can be obtained from NIOSH, Publications Office, at the Cincinnati address.

Copies of this report have been sent to:

1. Hensel Phelps Construction Company.
2. NIOSH - Region VIII.
3. Colorado State Department of Health.
4. State Designated Agency.

For the purpose of informing affected employees, a copy of this report shall be posted in a prominent place accessible to the employees for a period of 30 calendar days.

TABLE 1

Breathing Zone and General Area Air Concentrations of Asbestos Fibers

Hensel Phelps Construction Company
Steamboat Springs, Colorado

November 18, 1980

| Job Classification | Location | Sampling Time | Fibers/M ³ * |
|----------------------|---------------|-------------------|-------------------------|
| Carpenter | 7th Floor | 8:00 AM - 2:05 PM | 140,000 |
| Carpenter Apprentice | 6th Floor | 8:02 AM - 2:05 PM | 320,000 |
| Laborer | 6th/7th Floor | 8:05 AM - 2:08 PM | 50,000 |
| Carpenter | 6th Floor | 8:18 AM - 2:15 PM | 50,000 |
| General Room | 7th Floor | 8:05 AM - 2:00 PM | 70,000 |

EVALUATION CRITERIA

100,000 TWA

500,000 C

LABORATORY LIMIT OF DETECTION

30,000

* = fibers per cubic meter greater than 5 microns in length.

TWA = time-weighted average

C = Ceiling

2/10/19

1/10/19