PLAINTIFF'S EXHIBIT WV-06311

PLAINTIFF'S EXHIBIT 3164

Ford

Personnel and Organization Staff

Inter Office

February 14, 1979

E. Valentine, Manager
Personnel and Organization
Product Design Staff
Design Center

cc R. Petersen, M.D.
R. Quarles
H. Larsen

Subject: Employe Exposure to Asbestos, Modeling Systems Room

A review of the industrial hygiene studies performed in the Modeling Systems Room has been completed by the writer.

The findings and recommendations of these studies have been reported to H. Larsen, Facility Services Design Center in a series of reports (see attached). All studies were performed as a result of employe concern that they were exposed to airborne asbestos fibers.

The synopsis of the studies findings are as follows:

- Ceiling insulation material contains approximately 15% asbestos.
- Settled dust samples collected in the Modeling Systems Room contain possibly 1 - 2% asbestos.
- Air sampling conducted in the work area show seven of the eight samples contain non-detectable levels of asbestos. The eighth sample contains the minimum detectable level with the resultant exposure 1/200th of that permissible.

Based upon the above results, and additional observations by the writer, the following conclusions are drawn:

- Employes involved in the type of work (drafting) being performed at the time of sampling are not exposed to excessive airborne concentrations of asbestos.
- A health hazard could be created whenever any maintenance or facilities work is performed on the ceiling. Whenever work is scheduled to be performed on the ceiling, provisions of the standard regulating asbestos (see attached) must be followed.

Based on the above conclusions, the following recommendations are made:

- The area should be kept clean and excessive accumulation of settled dust must be avoided. To prevent a deterioration in cleanliness and creation of a health hazard to janitorial personnel, it is recommended that a vacuum approved for use with asbestos be purchased.

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If you have any further questions concerning the employee exposure to asbestos in this area, please contact the writer at 337-8955.

Keith Lee
Industrial Hygienist
Industrial Hygiene & Toxicology Department

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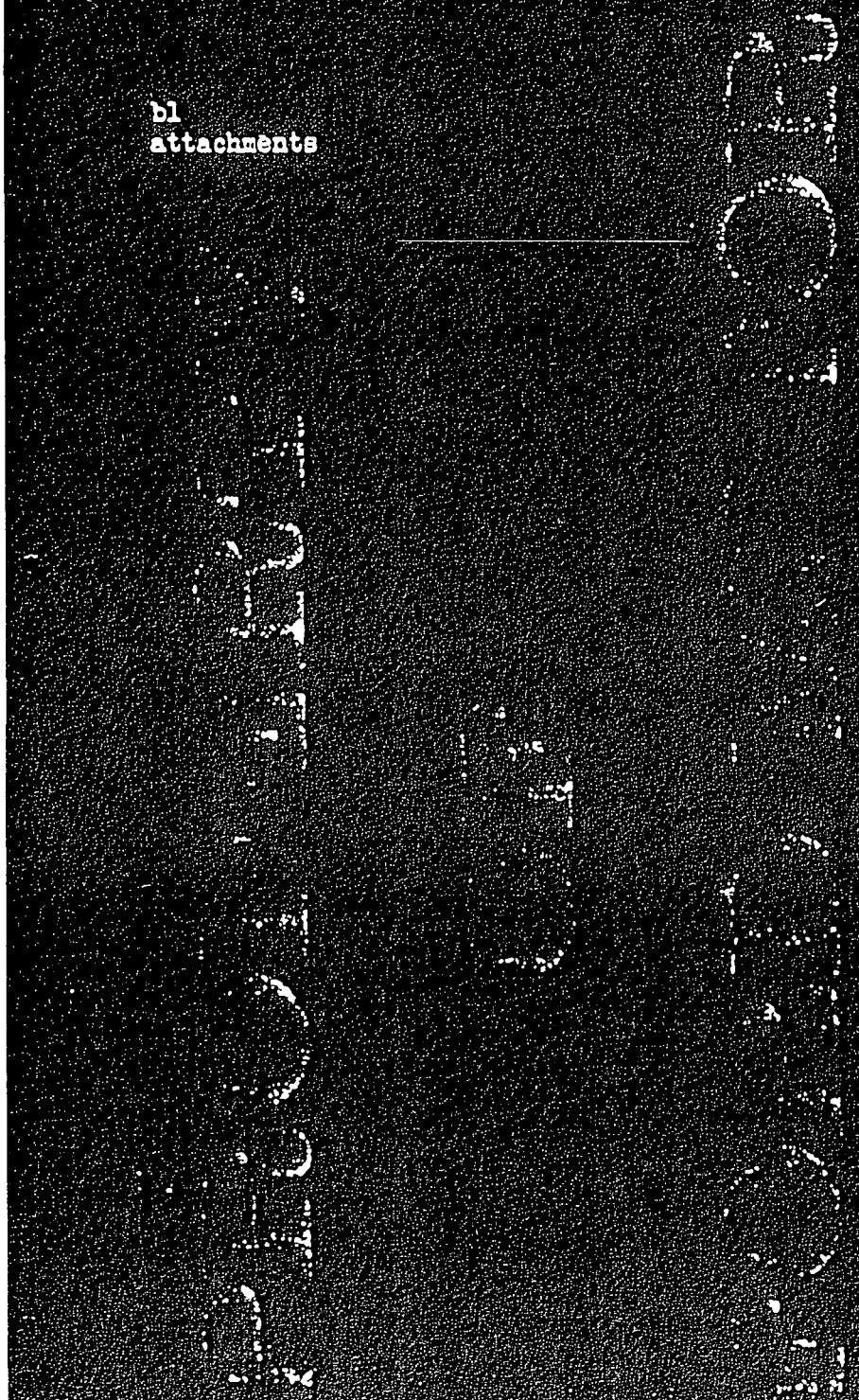
attachments



Ford

12 77 E Valentine
W R Dieckman
F Hoadley
J. Mitchell

Inter Office

DESIGN CENTER
FACILITY & STAFF SERVICES

Personnel and
Organization Staff

Mr. H. M. Larsen
Facility Services
Design Center

November 3, 1977

1977 NOV 8 AM 9:41

cc R. Peterson, M.D.
R. Quarles

Subject: Employe Exposure to Asbestos - Modeling Systems Room - Model Buildup Room

Reference: Industrial Hygiene Report to H. M. Larsen On June 1, 1977.

An industrial hygiene survey was performed in the Modeling Systems Room in Design Center at Research and Engineering on October 12, 1977. This survey is a continuation of one performed on April 4, 1977. At that time potential asbestos exposure was evaluated in the design room. The modeling room is separated from the design room by a wall. However, employes in this department work in both rooms. A potential asbestos exposure exists due to an approximate 3 inch coating of insulation on the ceilings of both rooms (confirmation of the asbestos was made by Central Laboratory and was attached to the June 1, 1977 report). Periodically this insulation does separate and fall from the ceiling. This fall out is of concern to the employes resulting in questions about their health and subsequently our sampling.

Air samples of the ambient dust levels were taken at four points in the Modeling Room. The sampling locations were selected to provide an overall view of contamination in the room. No detectable asbestos was found on any of the samples and no employe health hazard is felt to exist from exposure to asbestos. These results combined with those from the previous sampling on April 4, 1977 indicate that the normal work performed by the design engineers can be performed without a hazardous exposure to asbestos.

Keith Lee

Keith Lee

Industrial Hygiene and Toxicology Department
Employe Health Services

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Attachments (2)

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DISCUSSION

Currently, occupation of and work performed in the Modeling Systems Area (both design and modeling rooms) does not create an employe health hazard. However, it is possible that a health hazard could be created whenever work requires manipulation of the insulation. For this reason, whenever maintenance is performed, the employes should be instructed in the potential health hazards and proper handling procedures for asbestos.

Presently, this area is clean with little settled dust or debris. It is important to maintain the area in this condition or it may be possible to create a health hazard by movement in the area which would disturb any asbestos contaminated dust. To prevent a deterioration in cleanliness and creation of a health hazard to janitorial personnel it is recommended that a vacuum approved for use with asbestos be purchased and used to clean up the ceiling fall-out. This type of vacuum contains a highly efficient filter which prevents asbestos from passing through the filter, out the exhaust, and reentry into the room atmosphere. If help is needed in selection of this vacuum please contact this department.

DATA SHEET

INDUSTRIAL HYGIENE SERVICES SECTION

INDUSTRIAL HYGIENE AND TOXICOLOGY DEPARTMENT

EMPLOYE HEALTH SERVICES

PERMISSIBLE OCCUPATIONAL EXPOSURE LIMITS TO AIRBORNE CONTAMINANTS:

(fibers/cc = Asbestos fibers, longer than 5 micrometers per cubic centimeter of air sampled

Time Weighted Average Exposure, 8 hr. exposure

Asbestos - 2 fibers/cc

General Room Samples

Location - Modeling Room	Asbestos - fibers/filter*	Airborne Concentrat
Southwest corner	<3000	Non-detectable
Northwest	<3000	
Northeast	<3000	
Southeast	<3000	

* 3000 fibers is the minimal detectable by the laboratory

Equipment: Bendix BDX 41 - air sampling pump
0.8 micrometer, membrane filters, 37 mm diameter

Laboratory: Clayton Environmental Consultants

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DESIGN CENTER
FACILITY & STAFF SERVICES

U.R. Dilchrist
J Mitchell
F. Hankley
Earl H
K 6-6

Inter Office

Personnel and Organization Staff

1977 JUN 6 AM 7:57

Mr. H. M. Larsen
Facility Services
Design Center

June 1, 1977

Subject: Employe Exposure to Asbestos - Modeling Systems Room - Design Center

Employe exposure to asbestos in the Design Center, Modeling Systems Room at Research and Engineering was evaluated on April 4, 1977. The sampling was performed as the result of employe concern with the potential for their exposure to asbestos. The source of asbestos in the room is an approximate three-inch coating of insulation on the ceiling which consists primarily of asbestos. The survey was requested by and assistance was received from T. J. Murphy, Safety Engineer Research Center. Analysis of the bulk insulation material was performed by Central Laboratory Services at the request of Mr. Murphy. The analysis is attached for your information.

Air samples of the ambient dust levels were taken at three points in the room. Each sample was evaluated by counting the number of asbestos fibers present on the filter. No detectable asbestos was found on the samples and no employe health hazard is felt to exist from exposure to asbestos.

Discussion

Currently, occupation of and work in the Modeling Systems Room does not create an employe health hazard. However, it is possible that a health hazard could be created whenever any work requires manipulation of the insulation. For this reason, whenever maintenance is performed, the employes should be instructed in the potential health hazards and proper handling procedures for asbestos.

Keith Lee

Keith Lee
Industrial Hygienist
Industrial Hygiene Section
Employe Health Services Department

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Attachment

cc T. J. Murphy
R. Peterson, M.D.
R. Quarles
E. Valentine

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Data Sh

Modeling Systems Room

Design Center, Research & Engineering Center

April 4, 1977

MIOSHA Standards for Occupational Exposure to Airborne Contaminants Occupational Health Standards for General Industry Rule 2101 Table G-1 - Time Weighted Average.....Asbestos - 2 fibers/cc

General Room Samples

Location	Asbestos fibers/filter	Airborne Concentration - fibers/cc
Southeast corner	<3000*	Nondetectable
Center room	<3000	"
North center	3000	0.01

Equipment - Bendix BDX 41, air sampling pumps
0.45 membrane filters 37mm diameter

Laboratory - Clayton Environmental Consultants, Inc.

*3000 is the least detectable amount by the laboratory

PIPPINS V. FORD

CENTRAL LABORATORY SERVICES
GENERAL SERVICES
LABORATORY INVESTIGATION REPORT

NUMBER 702978

TO: T. J. Murphy

4-26-77

SUBJECT: Insulation

OBJECT: Determine the presence of asbestos in the insulation.

CONCLUSION: The insulation consists primarily of clino-chrysotile asbestos. A small quantity of Silicon Dioxide is also present.

TEST DATA:

Emission Spectrographic Analysis, % by wt:

Silicon as SiO_2	44.0
Calcium as CaO	18.0
Magnesium as MgO	18.0
Aluminum as Al_2O_3	6.0
Iron as Fe_2O_3	3.7
Titanium as TiO_2	0.50
Manganese as MnO	0.22

X-Ray Diffraction:

The pattern obtained indicates two phases are present. The primary phase is clino-chrysotile asbestos. The secondary (minor) phase is Silicon Dioxide, SiO_2.

D. J. Pangonis
Materials Engineering
Chemistry Department

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employees. In no case shall airborne concentrations of asbestos fibers be allowed to exceed the excursion limits prescribed in paragraph (f) of this section.

(d) *Employee observation of monitoring.* Affected employees, or their representatives, shall be given a reasonable opportunity to observe any monitoring required by this paragraph and shall be notified of the results thereof.

(e) *Caution signs and labels.* (1) *Caution signs and labels.* Caution signs shall be posted and displayed at each regulated area with appropriate modifications of the legend as may be necessary to inform employees of the exposure limits prescribed in paragraph (f) of this section. Signs shall be posted at such a distance from such a location that an employee may read the signs and take necessary protective steps before entering the area marked by the signs. Signs shall be posted at all approaches to [illegible] asbestos [illegible]

[illegible] (2) The warning [illegible] paragraph (e) of this section shall conform to the requirements of 29 CFR 1910.145(d)(4) in format [illegible] and to the following specifications: The sign shall bear the following legend in the lower panel, with letters and style of a visibility at least equivalent to that specified in this subparagraph.

Legend	Minimum Height of Letters
[illegible]	[illegible]
DANGER	1 inch.
ASBESTOS	1 inch.
CANCER AND LUNG HAZARD	½ inch.
[illegible]	[illegible]
[illegible]	[illegible]
[illegible]	[illegible]

§ 1910.1001 Asbestos.

(a) *Definitions.* For the purpose of this section, (1) "Asbestos" includes chrysotile, amosite, crocidolite, tremolite, anthophyllite, and actinolite.

(2) "Asbestos fibers" means asbestos fibers longer than 5 micrometers.

(b) *Permissible exposure to airborne concentrations of asbestos fibers.*—(1) *Standard effective July 7, 1972.* The 8-hour time-weighted average airborne concentrations of asbestos fibers to which any employee may be exposed shall not exceed five fibers, longer than 5 micrometers, per cubic centimeter of air, as determined by the method prescribed in paragraph (e) of this section.

(2) *Standard effective July 7, 1976.* The 8-hour time-weighted average airborne concentrations of asbestos fibers to which any employee may be exposed shall not exceed two fibers, longer than 5 micrometers, per cubic centimeter of air, as determined by the method prescribed in paragraph (e) of this section.

(3) *Ceiling concentration.* No employee shall be exposed at any time to airborne concentrations of asbestos fibers in excess of 10 fibers, longer than 5 micrometers, per cubic centimeter of air, as determined by the method prescribed in paragraph (e) of this section.

(c) *Methods of compliance.*—(1) *Engineering methods.* (i) *Engineering controls.* Engineering controls, such as, but not limited to, isolation, enclosure, exhaust ventilation, and dust collection, shall be used to meet the exposure limits prescribed in paragraph (b) of this section.

(ii) *Local exhaust ventilation.* (a) Local exhaust ventilation and dust collection systems shall be designed, constructed, installed and maintained in accordance with the American National Standard Fundamentals Governing the Design and Operation of Local Exhaust Systems, ANSI Z9.2-1971, which is incorporated by reference herein.

(b) See § 1910.6 concerning the availability of ANSI Z9.2-1971, and the maintenance of a historic file in connection therewith. The address of the American National Standards Institute is given in § 1910.100.

(iii) *Particular tools.* All hand-operated and power operated tools which may produce or release asbestos fibers in excess of the exposure limits pre-

PROPOSED RULE

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...ter 1 (1910) concerning the availability of Public Law 2-1960 and the in-...ce of an inspection file in connection with The ...ts of the Act shall ...t Standards Institute is given in ...1910.1...

...ion shall be ...ained to ... to ... ...ation that ... unable to function ... respirator, or that ... of the standard ... be impaired by its ... shall be ... ...

...ployer shall ... ...

[illegible] shall maintain [illegible] at least [illegible] months for employees exposed to asbestos [illegible] the [illegible] to exceed the [illegible] prescribed by paragraph [illegible] of this section.

(d) *Employee rotation and transfer.* [illegible] Asbestos exposure shall not [illegible] to provide a reasonable opportunity to observe any medical [illegible] required by this paragraph and shall have no [illegible] thereof.

(e) *Communication of hazards to employees.* (1) *Warning signs.* [illegible] Caution signs shall be provided [illegible] Caution signs shall be posted at each [illegible] such that a person can [illegible] the sign before [illegible] the asbestos [illegible] exceed the [illegible] prescribed in paragraph (b) of this section. [illegible] shall be posted [illegible] such location [illegible] the asbestos [illegible] the [illegible] prescribed in paragraph (b) of this section. [illegible] Signs required by this paragraph shall bear the following information:

[illegible]

[illegible] shall conform to the requirements of 29 CFR 1910.145(d)(4) and shall be [illegible] in accordance with that [illegible] Signs required by this paragraph may be used in conjunction with other [illegible] but shall be sufficiently [illegible] that they are clearly [illegible] from [illegible]

(2) *Labels.* [illegible] Labels required by subdivision (i) of this subparagraph shall be printed in letters of sufficient size and contrast as to be readily visible and legible. The label shall state:

[illegible]

[illegible]

[illegible]

[illegible]

(3) *Markings.* [illegible] All external surfaces [illegible] shall be maintained free of accumulations of asbestos [illegible] of which [illegible] there would be an excessive concentration.

(4) *Waste disposal.* Asbestos waste, scrap, debris, bags, containers, equipment, and asbestos-contaminated clothing, designated for disposal, which may produce in any reasonably foreseeable use, handling, storage, processing, disposal, or transportation airborne concentrations of asbestos fibers in excess of the exposure limits prescribed in paragraph (b) of this section shall be collected and disposed of in sealed, impermeable bags, or other closed, impermeable containers.

(f) *Recordkeeping.*—(1) *Exposure records.* Every employer shall maintain records of any personal or environmental monitoring required by this section. Records shall be maintained for a period of thirty years and in accordance with 29 CFR 1910.20(a)(2) through (a)(4), except that the Assistant Secretary of Labor for Occupational Safety and Health, the Director of the National Institute for Occupational Safety and Health, and an authorized representative of either:

(2) *Employee exposure records.* Each employer and former employer shall make records of any measurements taken to monitor employee exposure to asbestos as required by subparagraph (d) of this paragraph which shall also contain the [illegible] and shall [illegible] the [illegible] and [illegible] the [illegible] and [illegible] the [illegible] and

...ployee's ... be taken instead of the co...

...

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Inter Office

Personnel and
Organization Staff

[illegible] Supervisor
Facilities Services
Design Center

September 5, 1978

[illegible] Burns
[illegible], M.D.
[illegible]
[illegible] Valentine

[illegible] Asbestos Content of Ceiling Tile - Modeling Systems Room

References: Industrial Hygiene reports to H. Larsen, June 1, 1977 and November 5, 1977 on the subject of Employe Exposure to Asbestos - Modeling Systems Room

The ceiling insulation material used in the Modeling Systems Room is composed of [illegible] percent asbestos. This analysis was performed by Clayton Environmental Consultants and confirms the asbestos content of the insulation.

[illegible] provided by the consulting laboratory does not affect the conclusions [illegible] in the referenced report. It is recommended that the [illegible] reports be reviewed and the recommendations followed.

[illegible] Keith [illegible]
Industrial Hygienist
Industrial Hygiene and Toxicology
Department

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