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20 DEC 1968

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The Secretary,
Department of the Interior,
CANBERRA CITY A.C.T. 2601

The Secretary-Manager,
National Capital Development
Commission,
P.O. Box 373,
CANBERRA CITY A.C.T. 2601

ASBESTOSFLUFF INSULATION

Attached for your information is a copy of a memorandum to the Director of Works, Canberra concerning the above.

(Arthur D. Spears)
Acting Director

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COMMONWEALTH OF AUSTRALIA

A.C.T. HEALTH SERVICES BRANCH

DEPARTMENT OF HEALTH

C.M.L. Building, Darwin Place, Canberra City, A.C.T. Telephone 49 8077 P.O. Box 825, Canberra City 2601

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In reply please quote A.3641

20 DEC 1968

COPY ONLY

The Director,
Department of Works,
CANBERRA. A.C.T. 2607

Asbestosfluff Insulation

I refer again to your memorandum 68/928 of the 16th July, 1968 wherein you requested a report on the health aspects of asbestosfluff.

It is considered desirable that D. Jansen and Company Pty. Ltd., should be dissuaded or even prevented, if possible, from using asbestosfluff as insulation material in houses. Not only are men being unnecessarily exposed to a harmful substance in the course of their work, which is against the best public health practices, but there is evidence that community exposure to asbestos dust is undesirable.

In the light of the present stage of knowledge of the health effects of asbestos dust, it is prudent to limit asbestos to essential uses only and then in solid form.

It is believed that another company, Bowsers Asphalt Pty. Ltd., of Rozelle, is considering commencing operation in Canberra, using asbestos in particle form.

With the present demand for insulation, Canberra may become a large market for use of asbestos in the form of fluff for insulation. Many people in the community will be exposed because some asbestos dust will be carried out of the roof space by air currents.

The results of our investigations have disclosed what appears to be a serious exposure to asbestos dust. In view of harmful nature of this substance the use of asbestos fluff for the purpose of insulating should be discontinued and less hazardous material such as rockwool, insulwool, or fibre glass should be substituted.

(Arthur D. Spears)
Acting Director

ASBESTOS HAZARD

On 11th July, 1968, I visited Canberra following a request from the A.C.T. Health Services Branch, to investigate the possible hazards which might arise from the use of asbestos as insulating material for houses. In the company of Dr. M. Ryan, the Medical Officer of Health and Mr. D. Kruger, Chief Health Inspector, I inspected two houses in which this work was being done by the Asbestos Coatings Division of D. Jansen & Co. Pty. Ltd., a Canberra firm. The workmen involved were Mr. M. Calder who described himself as the manager of the Division and a Mr. Jansen, an apprentice plasterer aged about 18 years, the son of the owner. No other workmen are engaged in this work by this company.

Method of Use

The principle associated with this work is quite simple: a centrifugal fan mounted in a small motor truck blows asbestos fibre through a 2½ inch diameter p.v.c. hose into the roof space of a house so that the ceiling is covered with a layer of "asbestos fluff" to a depth of 2-2½ inches. About 250 lbs of asbestos is used for the usual three bedroom house and it takes about 1½ hours to do each job; two men insulate 4 houses each day. Two men are engaged in the work, one in the motor truck feeding asbestos from bags into a hopper whilst the other is in the roof space directing the asbestos stream from the hose.

The asbestos is received in paper lined hessian bags containing 100 lbs and is carried in the truck which has a specially made body 7 feet 6 inches long, 6 feet wide and 6 feet 3 inches high. The bags are branded EGNEP Pty. Ltd., South Africa, and bear a shipping mark JH (presumably James Hardie), the asbestos is grade S33 and Mr. Simpson, Chief Chemist of James Hardie Pty. Ltd., has informed me that it is undoubtedly amosite because EGNEP does not mine, package or market any other asbestos mineral. The truck, in addition to carrying the asbestos and other equipment, has a hopper 24 inches x 18 inches x 18 inches which contains a simple device by which the fibres are fluffed up and further opened. The hopper is connected to a 14 inch centrifugal fan driven by a ½ h.p. electric motor and this fan extracts the fibre from the hopper and delivers it to the application hose which is about 50 feet long. The man feeding the hopper is exposed to a considerable cloud of asbestos dust and habitually wears a respirator because of the discomfort. The two men alternate day by day between working in the truck and in the roof space.

The man in the truck opens the bag with a knife and with his hands scoops asbestos into the hopper thus exposing himself to a high concentration of dust. The hopper contains two beaters, a wire brush and a rotary feeding mechanism but most of the dust produced arises from the actions of the man in removing the fibre from the bag and distributing it in the hopper. There is some leakage where the fan joins the hopper and around the fan casing. The hopper, which is the central feature of the machinery through which the fibre passes en route to the roof space, has clearly been designed for the purpose but neither of the two men involved on the day of the inspection knew its history - Mr. Jansen knew only that his father had purchased it secondhand and brought it to Canberra. I think it may have been used for rock wool or fibre glass application at one stage.

In the roof space the man holds the end of the application hose and directs it into the correct place until he estimates the depth of asbestos to be sufficient. This is an extremely dusty environment as would be expected, particularly because the velocity of air through the pipe would need to be about 3000 or 4000 feet per minute in order to carry the asbestos fibre. I was told that the workmen always wear respirators whilst doing this work.

Respiratory Protection

On the day of the inspection both men were wearing respirators. The man in the truck was wearing a Minnesota Mining & Machinery Company paper face mask which is of no value for protection against dusts which cause pneumoconiosis. The man in the roof space was wearing a Protector Type R2000

fitted with type R54 filters. This type is suitable for use in some situations where there is a pneumoconiosis risk but on this particular day the filters were placed in the respirator in the wrong way and considerable leakage was clearly evident. The inside of the respirator face piece was covered with asbestos dust as were both inlet and outlet valves but it was not possible to determine whether the valves were faulty because the filters were wrongly inserted.

Both men are clearly exposed to excessive asbestos dust and should take great care to minimise this exposure. Indeed it is unwise for them to be working with this material whilst suitable substitutes, i.e. rock wool and fibre glass, are available. However, if it is necessary for them to persist with the use of asbestos they must pay meticulous attention to respiratory protection. The 3M type face mask must never be used for protection against asbestos dust. It is interesting to note that respirators are worn because the asbestos dust is considered a nuisance, the workmen being ignorant of the harmful aspects of breathing it. The Protector R2000 respirator might be suitable protection for the man in the truck provided he conscientiously maintains it, keeping the valves in good operating condition and the head-harness tight. He could be taught to do this and his motivation could be sufficient but it must be impressed on him strongly that he should check his respirator daily for leaks and other signs of inefficiency.

The man in the roof space is exposed to too high a concentration of dust to rely on an air purification device and he should wear a supplied air respirator, which of course would be preferable for the man in the van. The most suitable respirator would be a half-face piece supplied air device, the air being supplied by an efficient blower. Suitable equipment is supplied by Protector Safety Products, Normalair, IPCO Safety Pty. Ltd., Willson Products and Mine Safety Appliances Ltd.

Some thought should be given to whether D. Jansen & Co. Pty. Ltd., should be dissuaded or even prevented from using asbestos as insulation material in houses. Not only are men unnecessarily exposed to a harmful substance in the course of their work, which is against the best public health practices, but there is some evidence that community exposure to asbestos dust is undesirable. This evidence is not completely convincing but is being taken seriously by experts in the field and, in the light of the present state of knowledge of the health effects of asbestos, it would be prudent to limit asbestos to essential uses only. It is believed that another company, Bowsers Asphalt Pty. Ltd., of Rozelle, is considering commencing operations in Canberra, having used asbestos in a similar manner in Sydney for the past 13 years. With the present demand for insulation, Canberra may become a large market for asbestos insulation with many people in the community exposed because some asbestos will be carried out of the roof space by air currents.

G. Major.

(G. MAJOR)
Physicist,
Occupational Health Section

July 1968.