

W. B. R. ENGINEERING Inc.*Environmental & Management Consultants*

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R.C.R.A.
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E.I.S.
ASBESTOSS.P.C.C.
O.S.N.A.
R.T.K.
INCINERATION**AIR - WATER - ENERGY - INDUSTRIAL HYGIENE - NOISE - WASTE**• DESIGN OF AIR/ENERGY/NOISE
POLLUTION CONTROL SYSTEMS

• SPECIFICATIONS/DRAWINGS/PERMITS

• INTERIM MANAGEMENT

October 2, 1992

TO: Mr. Norman Hubley, Attorney
Ms. Antoinette Hubbard, Attorney
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Ref: BIRD ASBESTOS

REPORT #531

This is the promised follow-up to our 9/30/92 meeting at Bird, Inc., Norwood, MA.

W.B.R. ENGINEERING INC. REPORT #430 stated in its CONCLUSION on Page 12 that there were no loose asbestos fibers on the felt but there were about 4,688 asbestos fibers/sq. inch visible on the surface after abrasion on the Bird 45 lb. Asphalt Base Sheet tested in February, 1992. It also stated that most of the exposed fibers were still secured to the asphalt sealer.

It is the opinion of this consultant that a roofer working outdoors would never normally surface scrape the roofing felt, as was done in our "worst case" test. The roofer might cut the felt with a knife or scissors- thereby exposing an area of about 1/16th inch thick multiplied by the length of the cut. In our test the surface was abraided 5 times with a sharp scalpel to determine if the asbestos fibers were still secured to the felt. Our results were that "most" were still secured (encapsulated) in the felt. If you ask for a number instead of the word "most", we would say at least 80%.

We believe a roofer, working outdoors in fresh air, would receive a greater exposure to asbestos from asbestos fibers normally in the ambient air than he would from cutting asbestos containing roofing felt in which the asbestos fibers were thermally sealed-in in the manufacturing process. That thermal sealing of the asbestos fibers was achieved in the felt manufacturing plant by:

- 1) the felt being saturated on both sides in hot 450F asphalt 4 times or more during manufacture.
- 2) then both sides of the felt were rubbed along a metal bar to force the asphalt into the pores of the felt.

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- 3) Item 1) was repeated again
- 4) Item 2) was repeated again
- 5) then it was tightly pulled over dozens of chilled water rollers to cool and "set" the felt into a smooth black surface.

When one considers that a normal person in a typical non-asbestos working environment will breathe from 9,000 to 27,000 asbestos fibers every day (as explained in REPORT #430), this consultant believes a roofer's exposure to asbestos fibers in the asphaltic roofing paper is very small compared to a level of asbestos in the ambient air. That statement is based on:

- 1) MOST (estimated 80% or more) of the asbestos fibers are still secured to the felt paper.
- 2) the roofer's nose is not close to the asbestos fibers which may come loose from or break off from the felt paper.
- 3) the roofer normally works outdoors where most of the time the wind, even very little wind, will blow away and disperse those asbestos fibers.

WBR