FILE NAME: Flooring (FLR)

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BC Note (attached to next page)

This is data gathered during the 1984 EPA national study but not published in the red book. As such it got little attention.

See page 3.

Agency Washington, D.C.
TS-798 1984 - 2

EPA

Asbestos-in-Buildings Technical Bulletin

Topic: USE OF ASBESTOS-CONTAINING FRIABLE MATERIALS AND VINYL-ASBESTOS FLOOR TILES IN PUBLIC AND COMMERCIAL BUILDINGS

INTRODUCTION

A national survey was carried out by EPA to determine the incidence of asbestos-containing friable materials (ACFM) in public and commercial buildings other than schools. (Friable materials are materials that can be crumbled, pulverized, or reduced to powder in the hand.) The survey was an effort to deal with the broad problem of public exposure to ACFM. Previous estimates of the number of buildings that contain asbestos ranged from 5 to 45 percent with an unknown degree of accuracy. No valid national estimates existed and this wide range did not satisfy the Agency's information needs. Consequently, a national survey was undertaken to produce more precise and statistically valid estimates with a known degree of accuracy that can be used to support the Office of Toxic Substances' technical assistance and regulatory programs. The study also gathered data on the incidence of vinyl-asbestos floor tiles in the buildings surveyed since no data on this incidence were previously available.

HOW THE SURVEY WAS CONDUCTED

Public and commercial structures include government buildings, apartments, office buildings, hospitals, restaurants, and all types of wholesale and retail establishments. In general, they are buildings which are either accessible to the public, or, as a group, are occupied by many people. Altogether, public and commercial buildings in the U.S. number more than four million. For purposes of the survey, three categories of structures were sampled to represent the following buildings: federally owned or leased (excluding the military), private residential (apartment buildings with 10 or more units), and private nonresidential (retail and some wholesale establishments and office buildings). It was not practical to include all categories because of inadequate building lists for sampling, or because of the infrequent use or low occupancy of others. The buildings represented in the survey are estimated to be 3.6

million. The statistical design of the survey ensured that survey results could be reliably projected to the entire population of buildings. EPA inspected 231 buildings. Of these, roughly one-fourth were federal buildings, one-fourth were private residential structures, and one-half were private nonresidential buildings. Ten different sites (cities or groups of counties) across the country were included in the sample to ensure geographic representativeness. Buildings of various sizes, ages, and construction materials were also included in the sample design.

All Bulk Materials Were Sampled

Each building in the sample was inspected for the presence of materials that may contain asbestos: friable sprayed- or troweled-on materials, ceiling tile, pipe and boiler insulation, and floor tile. Over 1500 samples of suspect materials were collected and analyzed for asbestos. These included approximately 500 floor tile samples.

The inspection process was designed to ensure uniformity of inspection for all buildings in the sample, and thoroughness within each building. Standard EPA protocols were employed in the sampling of bulk materials to ensure the representativeness of samples of sprayed- or troweled- on materials and, where possible, ceiling tile. Convenience samples were taken of pipe and boiler wrap, some ceiling tile, and floor tiles to avoid damaging or affecting the cosmetic appearance of the areas. Laboratory analyses of the bulk samples for asbestos followed the EPA protocol for polarized light microscopy. The laboratory analysis for asbestos in floor tiles required some developmental work to determine an effective sample preparation method.

Rigorous Quality Assurance Program

A rigorous quality assurance program was employed throughout the study. At all stages of the analysis, work was reviewed for consistency with established procedures for data collection and transmittal. In addition, laboratory analyses of bulk materials were checked by randomly collecting side-by-side samples and analyzing them in different laboratories. Routine quality control procedures were also utilized in each laboratory.

SUMMARY OF RESULTS

The survey was designed to provide information on the number of buildings with different types of ACFM, the extent of ACFM usage, and the degree to which usage differs among different types of buildings.

It is important to keep in mind that the asbestos content of building materials may not be a good single indicator of exposure potential. A recent EPA study of asbestos in an urban school system (Airborne Asbestos Levels in Schools, EPA 560/5-83-003) showed no correlation between asbestos content of bulk materials and levels of asbestos in the air.

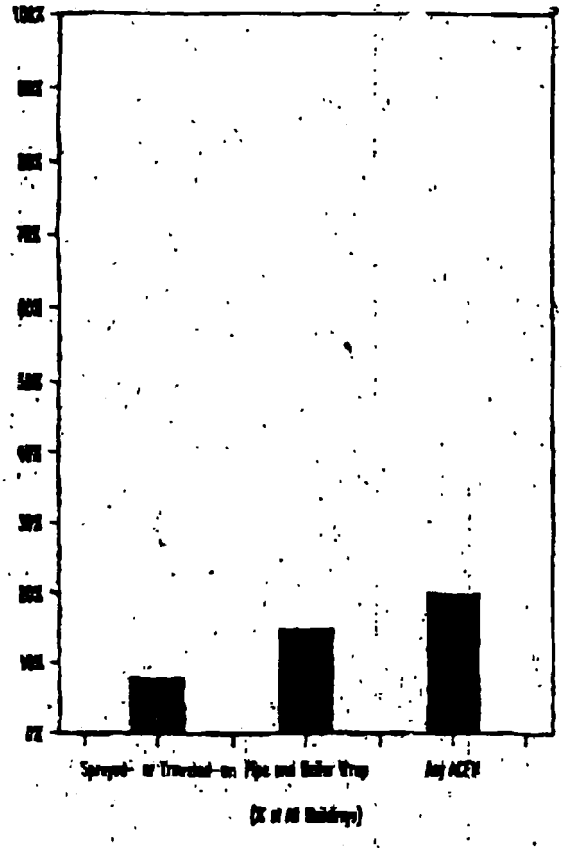
A Relationship Between Building Age and Type of ACFM

No significant differences in the overall use of ACFM were found among buildings of different construction techniques or materials (masonry, wood frame, or steel beam). Prior to 1960, most of the asbestos-containing friable materials found were boiler and pipe insulation materials. After 1960, most of the asbestos-containing friable materials were sprayed or troweled onto ceilings and steel beams. This continued until 1973, when the EPA banned the use of sprayed-on asbestos-containing friable materials for all but decorative use. These materials were totally banned in 1978.

REPORTS

For copies of the survey report and related EPA asbestos documents including guidance documents, call (800) 424-9056 or for technical assistance call your EPA Regional Asbestos Coordinator. In the District of Columbia, call 554-1404.

INCIDENCE OF ACFM



ASBESTOS CONTENT

