

# LESSONS LEARNED:

CONSULTING ENGINEERING IN THE BUILT ENVIRONMENT

## OBSERVATIONS AND LESSONS FROM THE SCHOOL OF EXPERIENCE

### ASBESTOS-CONTAINING BUILDING MATERIALS

**WHAT IS ASBESTOS?** Asbestos is a naturally-occurring fibrous mineral used in manufacturing, building materials, and other products. A material is considered an asbestos-containing material (ACM) when the asbestos content is greater than one percent. It is important to note that OSHA also regulates materials containing less than one percent asbestos.

**WHY WAS ASBESTOS USED?** Asbestos gained widespread use because it was readily available, low in cost compared to other building material component alternatives, and because of its unique properties including – chemical corrosion resistance, insulating qualities, and acoustical/soundproofing qualities. Asbestos proved well-suited for many uses in the construction industry, and was commonly used in the following building products:

- Roofing (roofing, flashing, tar/sealers)
- Floor Tile and Associated Mastics
- Drywall and Drywall Joint Compound
- Decorative and Acoustical Finishes
- Waterproofing
- Textured Paints
- Insulation Sealants
- Ceiling Tiles
- Sheet Flooring
- Fireproofing
- Caulking and Glazing
- Asbestos Cement Board
- Thermal Systems Insulation
- Wall and Ceiling Plaster
- Fire Door Insulation
- Woven Electrical Wire Insulation

**WHY ARE ASBESTOS FIBERS DANGEROUS?** When asbestos breaks down, fibers are released from the product and into the air. Once fibers enter the lungs, the fibers do not break down and often have particle sizes that cause them to get trapped in the lungs causing scarring that can cause medical problems including lung cancer, asbestosis, and mesothelioma. If a person is a smoker, and is exposed to asbestos fibers, the chance of getting lung cancer increases greatly.

**WAS ASBESTOS BANNED?** Yes and No. The manufacturing of asbestos-containing spray-applied insulation and fireproofing was banned in 1972. Since 1972, the following bans were placed on asbestos by the EPA:

- 1973 – The application of spray-applied materials for fireproofing and insulation
- 1975 – Molded and wet applied asbestos (e.g. pipe joint insulation)
- 1976 – Asbestos for mechanical system insulation
- 1978 – Acoustical and decorative applications
- 1989 – Multiple types of non-friable asbestos to be phased out in three stages by 1997

In 1991, the U.S. Circuit Court of Appeals required EPA to re-evaluate the bans. The EPA clarified the restrictions in 1993 and the following items were banned: paper products, flooring felts, and new uses of asbestos. As a result, dozens of building materials may still be legally manufactured with asbestos. Products include roofing products, sealants, caulks, floor tiles and associated mastics, friction products, asbestos cement, and various other products.

**WHAT DOES IT MEAN TO BE FRIABLE OR NON-FRIABLE?** The EPA defines a Friable ACM as “any material containing more than one percent asbestos that, when dry, may be crumbled, pulverized, or reduced to powder by hand pressure. Non-friable ACM is any material containing more than one percent asbestos that, when dry, cannot be crumbled, pulverized, or reduced to powder by hand pressure. Under the US EPA Asbestos NESHAP regulations, non-friable ACM is divided into two categories. Category I non-friable ACM are asbestos-containing resilient floor coverings (commonly known as vinyl asbestos tile (VAT)), asphalt roofing products, packaging and gaskets. All other non-friable ACM are considered Category II non-friable ACM”. Non-friable ACM may become friable if subjected to sanding, grinding or abrading. EPA classifies friable and non-friable ACM which will be rendered friable as Regulated Asbestos-Containing Materials (RACM) under the NESHAP regulations.

**WHAT AM I REQUIRED TO DO IF MY BUILDING MIGHT CONTAIN ASBESTOS?** The EPA and OSHA regulate ACM in schools, public buildings and commercial buildings. ACM is regulated in residences if contractors/subcontractors/fire departments demolish, burn, repair, or renovate a structure. If renovations to or demolition of a structure are planned, building owners and/or contractors should have the building (or buildings) inspected for ACM by an accredited/licensed Asbestos Inspector prior to any disturbance to suspect asbestos-containing materials. The EPA and OSHA require the inspection of suspect asbestos-containing materials prior to disturbance in any building regardless of the date of construction as the use of asbestos in building materials is still permitted in construction today. If ACM is found in materials to be removed or otherwise disturbed, they should be abated by a contractor with accredited/licensed asbestos personnel (supervisors and workers). Preparation of asbestos removal plans, visual inspections, and air monitoring should be conducted (and may be required depending on the type of facility and state that you are in) in conjunction with asbestos abatement activities.

We hope this “**Lessons Learned**” has increased your understanding of asbestos and asbestos-related requirements.

Respectfully,  
**ECS Corporate Services, LLC**