

CONSTRUCTION NEWS SENSE



Asbestos in the Workplace

What is Asbestos?

Asbestos is a group of highly fibrous minerals composed of long, thin, separable fibers. Separated asbestos fibers are strong and flexible enough to be spun and woven. They are also heat resistant, making them useful in many industrial applications; however, because of their durability, asbestos fibers also pose potential human health risks. Fibers that get into lung tissue can remain there indefinitely.

Many people may have come into contact with asbestos fibers through occupational exposure. A few such occupations include:

Carpenters	Millwrights
Drywallers	Operating engineers
Electricians	Painters
Floor covering installers	Plasterers
Insulators	Plumbers
Maintenance workers	Roofers

Where Can Asbestos be Found?

Asbestos has been commonly used for acoustical and thermal insulation, fire proofing, and as a component in various building materials. There are still many asbestos-containing products in use today. A few such materials are:

- asbestos-cement corrugated sheets
- asbestos-cement pipes
- roof coatings
- flooring felt
- roofing felt
- vinyl/asbestos floor tile and mastics
- drywall mud
- pipe insulation
- ceiling tiles

Health Effects

Some diseases associated with exposure to asbestos are:

- Asbestosis - scarring (fibrosis) of the lung tissue
- Lung cancer and mesothelioma - cancer of the lining of the lungs or abdomen
- Pleural plaques - calcification on the lining or the lungs

The routes of exposure to asbestos are limited to inhalation or ingestion of the fibers, with inhalation being the primary hazard. Breathing in high concentrations of asbestos fibers would seem to be an obvious health risk; however, less certain is the relationship between the amount inhaled and resulting disease. There is no evidence to support there is a threshold level below which no adverse effects might occur.

A recent report from the National Institute for Occupational Safety and Health (NIOSH) showed deaths from asbestosis increased from fewer than 100 in 1968 to more than 1,470 in 2004. There has been no apparent leveling off of this trend (Work-related Lung Disease Surveillance Report, 2008). The same report documented more than 2,600 deaths from mesothelioma in 2004.

Sandia's Asbestos Management Program

Sandia Facilities Maintenance and Operations Center (FMOC) has adopted a management-in-place strategy for addressing asbestos hazards in the work environment. The principal objective of this strategy is to minimize the exposure of employees, contractors, and visitors to asbestos in a safe, cost-effective manner. To accomplish this, the FMOC Asbestos Implementation Team (FAIT) was created in 1991 to develop and implement an asbestos management program. The program models those in use by commercial property owners and managers and provides a safe, less costly alternative to wholesale removal operations.

Sandia has specified the use of asbestos-free building materials in facilities constructed after 1991. The FAIT has posted a [list](#) of those facilities on its FMOC web site. FMOC construction Project Manager/Lead must obtain an Asbestos Work Release (AWR) from the FAIT if a proposed project involves a facility that is not on the "Asbestos-Free Areas" list and if the proposed project would disturb any building materials.

Construction and maintenance personnel must carefully review the information on the AWR prior to beginning work and must strictly follow the guidance therein to avoid disturbing asbestos-containing building materials. Workers who are unsure as to whether a building material contains asbestos should contact a Project Lead and ask for an AWR or directly contact the FAIT.

FAIT services can be requested through the Jobsite Hazard Evaluation (JSHE) process, MAXIMO, Facilities Express, or by submitting a Request for Asbestos Support form, obtainable from the following web site: https://oracleportalp.sandia.gov/portal/page/portal/Facilities/FESH/FESH%3AAsbestos_Lead

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How Good is your Hoisting and Rigging Program?

Across the country, a number of hoisting and rigging mishaps have occurred this year, some of them significant. Is your company managing all lifting activities with a thorough knowledge of the requirements and taking into account lessons learned? Everyone involved in hoisting and rigging activities should be aware the corners of synthetic slings need to be padded and all should know anchor points must be manufacturer-rated. The following is additional "quick refresher" information.

The ASME B30 series and the O1065 specification are important requirements for performing construction work at SNL. Hazards must be analyzed and prescribed controls must be applied.

Working Load Limit

Working load limits are based on general applications with minimum shock loading and reasonable in-line loading. If conditions significantly vary from the normal, the working load limit must be reduced.

ASME requirements are often referenced in litigation, expected by insurance carriers, and referenced by OSHA under the General Duty Clause 5(a)(1).

Here are some examples of references to working load limits in industrial standards:

- OSHA 1926.251 – Construction Industry: "...shall not be loaded in excess of its recommended working load limit."
- ASME B30.9 – Slings: "The rated load of the sling shall not be exceeded."
- ASME B30.26 – Rigging Hardware: "The rated load of the hardware shall not be exceeded."

Calculations for working load limits must take into account:

- Yield strength
- Fatigue requirements
- Field experience
- Other requirements

Manufacturers set working load limits based on all these conditions. To minimize risk, users must respect these manufacturers' established working load limits.

Rigging Standards

Several standards relating to rigging and lifting have been updated or are in the process of being updated. These updates include more criteria in addition to existing ASME B30.9, ASME B30.10, ASME B30.26, and OSHA 1926.550 standards.

ASME B30.9 – 2003 provides significant new information regarding all aspects of sling selection, inspection, and use.

ASME B30.26 covers hardware used in rigging for lifting purposes, including shackles; adjustable hardware (turnbuckles, eye bolts, eye nuts, swivel hoist rings); compression hardware (wire rope clips and wedge sockets); links, rings and swivels; and rigging blocks (not crane blocks).

Slings – New Expectations

- Sling users shall be trained in the selection, inspection, cautions to personnel, effects of environment, and rigging practices.
- "...Sling identification shall be done by the sling manufacturer ... should be maintained by the user so as to be legible during the life of the sling ... sling shall be removed from service if ... missing or illegible sling identification."
- Written records of the most recent periodic inspection shall be maintained and shall include the condition of the sling.

Hardware – New Expectations

- Users shall be trained in the selection, inspection, cautions to personnel, effects of environment, and rigging practices.
- Equipment identification shall be maintained by the user so as to be legible throughout the life of the equipment; equipment shall be removed from service if it is missing or displays illegible identification.
- Equipment should be inspected prior to use, periodic inspection at least each year, written records are not required.

OSHA standards are statutory and legally binding. Non-compliance with OSHA standards can result in fines. In some legal proceedings, OSHA standards may be used to establish liability. ASME standards are often included in OSHA requirements, and they may also form the basis for a requirement under the OSHA 5(a)(1) General Duty Clause.

Good Work Practices for a Rigging Plan

Plan every lift and consider the following questions:

1. Who is responsible (competent) for the rigging?
2. Have lines of communication been established?
3. Are there any special requirements?
4. Are there unusual environmental concerns?
5. Is the rigging in acceptable condition?
6. Is the rigging appropriate for lifting?
7. Does the rigging have proper identification?
8. Are the working load limits known for all gear being used?
9. What is the weight of the load?
10. Are the working load limits adequate?
11. Where is the load's center of gravity?
12. Is the load rigged to the center of gravity?
13. What is the sling angle?
14. Will there be any side or angular loading?
15. Are the slings padded against sharp corners?
16. Is the hitch appropriate for the load?
17. Is a tag line required to control the load?
18. Will personnel be clear of suspended loads?
19. Is there any possibility of fouling?
20. Will the load lift level and be stable?

Rigging must be used in compliance the manufacturer's recommendations and industry standards, including OSHA, ASME, ANSI, API, and others as appropriate. This article is designed to assist contractor with potential program changes and good work practices. Let's rig safely.

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