

HAZARDOUS BUILDING MATERIALS SURVEY AND REMOVAL

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CHAPTER A-13

LEAD HANDLING AND REMOVAL

13.1 GENERAL.

13.1.1 Scope. This chapter identifies the Architect-Engineer's (A-E's) responsibility for determining the existence of asbestos (and other regulated hazardous materials, HM's including lead and PCB's) and implementing the safeguards for its removal. Whenever asbestos containing material (ACM), or other HM is reported by the using military installation (Director of Engineering and Housing (DEH) or Base Civil Engineer (BCE) or is discovered by the Architect-Engineer during a field visit, the Architect-Engineer shall incorporate the provisions of this chapter into the design documents. Unless the using agency can provide location and quantities of asbestos through recent survey report of analytical sampling and testing results with the DD Form 1391, other programming documents, or supplemental data at the Predesign Conference, the A-E shall be responsible for determining the actual existence and/or nonexistence of asbestos on all renovation, rehabilitation, or demolition projects. Hazardous materials will be assumed present in all buildings built prior to 1980, unless verification is made otherwise. A-E will report building history (construction dates) with submittal. A-E firms that indicate an inability to determine the existence of asbestos (or other HM's) or implement safeguards for its removal due to insurance restrictions shall inform the Savannah District in writing at the submittal of the initial fee proposal. Asbestos (or other HM's) survey and abatement may then be accomplished independently by the Savannah District for incorporation into the construction documents.

13.1.2 Overview. Exposure to airborne asbestos has been associated with four diseases: lung cancer, gastrointestinal cancers, pleural or peritoneal mesothelioma, and asbestosis. Other regulated hazardous materials cause health problems. Lead is a poison and causes several health problems and can be deadly. The Environmental Protection Agency and the Occupational Safety and Health Administration have adopted regulations requiring control procedures of asbestos, lead, and PCB's and to ensure safe working conditions during demolition or renovation of buildings or structures. These procedures apply to any work that involves material which contains asbestos (or other HM's). Examples of materials which may contain or be covered by asbestos are as follows:

- a. piping
- b. ducts
- c. boilers
- d. turbines
- e. furnaces
- f. walls, ceilings, floor tiles, roofing, siding
- g. sprayed on acoustic and/or fireproofing materials
- h. textiles such as gasket rope, curtains, etc.
- i. soil

Lead may be contained in paint as well as, in soil and pavement where leaded gasoline was exposed, PCB's may be in light fixtures ballasts and in generators.

13.1.3 A-E Designer Requirements. The designer or consultant shall have attended a designers training course and successfully passed the examination. The designer shall also be certified in the State of North Carolina per state requirements if the project is in North Carolina. The A-E shall comply with the provisions of this chapter for design purposes where the following conditions indicate asbestos (friable or nonfriable) is to be encountered:

- a. If the site is found to be or suspected of being asbestos contaminated and is to be demolished or renovated,
- b. If the asbestos (and/or lead based paint, LBP) onsite will be drilled, scraped, cut through, or penetrated, thereby releasing asbestos (and/or lead), or
- c. If any onsite asbestos will be enclosed or encapsulated.
- d. If removal of PCB contained light fixtures or generators is required.

13.1.4 A-E Responsibilities. Demolition of asbestos material without Environmental Protective Agency (EPA) notification and improper work practices can result in a \$10,000 per day fine being levied on both the building owner and Contractor. The CEGS 02080 is written so that the construction contractor will be required to provide the written notifications and report to the EPA. It is the Architect-Engineer's responsibility to determine existence and location of asbestos material, to prepare contract documents recommending methods of disposing of the asbestos, (lead, or PCB) hazard(s), and to prepare an estimate of construction cost relating to the recommended methods.

13.1.5 Site Visit.

13.1.5.1 The A-E with professional experience, or his consultant certified in the Comprehensive Practice of Industrial Hygiene (C.I.H.) and having specialized experience in sampling for asbestos, will perform a site investigation to determine the existence and location of asbestos material and shall take bulk samples from suspected locations and do any necessary exploratory work on the site, using good engineering judgement.

13.1.5.2 In obtaining the samples for testing, the A-E shall follow all OSHA/NIOSH safety requirements for personal and public safety, and insure that the disturbed area will not increase the hazard from release of asbestos fibers.

13.1.5.3 A sufficient number of samples shall be analyzed to cover all suspect materials. Samples with 1 percent or greater contamination by weight of asbestos shall be considered asbestos containing material (ACM), and that material shall be designated for removal, enclosure, or encapsulation.

13.1.5.4 The A-E shall notify the Savannah District Project Manager immediately, followed up in writing of any highly friable, contaminated, occupied areas which pose an immediate threat to the health of the occupants.

13.1.5.5 Nonfriable materials containing asbestos may not require testing, special handling, or disposal procedures unless such materials are to be sawed, pulverized, or handled in such a manner that will cause dust and asbestos fibers to be released.

13.1.5.6 The samples shall be sent to a laboratory for testing to determine percent of asbestos, type of asbestos, and binding material, and the results documented with the Preliminary Design Analysis. Polarized light microscopy (PLM) analysis will be specified for initial screening. Analysis of floor tile and other resinously bound materials by EPA Method 600/M4-82-020 Dec. 1982 may yield false negative results because of method limitations in separating closely bound fibers and in detecting fibers of small length and diameter. Therefore, a qualitative assessment of vinyl floor tile shall be done by the transmission electron microscopy (TEM) method. The quality analysis of vinyl tile by TEM shows that asbestos is either present in high portions or not present in detectable quantities. Floor tile qualitative TEM results shall be reported as "> 1 percent asbestos," "< 1

percent asbestos, trace," or "no asbestos detected." By specifying qualitative analysis only for floor tile considerable cost savings should be realized over the quantitative assessment usually done by the TEM method.

13.1.5.7 Laboratories analyzing bulk samples shall be participating in the Research Triangle Institute testing round robin (phone 919-541-6000 or 800-334-8571 EXT. 6741) and shall have participated in at least 50 percent of the rounds within the last year and scored 90 percent or better. Laboratories analyzing air samples shall be AIHA accredited and be proficient in the NIOSH PAT program.

13.1.5.8 The following is a list of possible laboratories capable of performing the sample analysis. This list is by no means all inclusive or an endorsement of any one of them. As of the latest writing of this manual, these laboratories meet the requirements listed above. The A-E shall confirm that the laboratory still meets the requirements before sending samples.

- a. Applied Technical Services, Inc.
1990 Delk Industrial Blvd.
Marietta, Georgia 30067
(404) 423-1400
- b. James H. Carr and Associates, Inc.
P.O. Box 90209
Columbia, South Carolina 29202
(803) 776-7789
- c. Q.A.S., Inc.
4701 Joseph Michael Court
Raleigh, North Carolina 27606
(919) 851-2891
P.O.C. John Sheats
- d. Georgia Tech Research Institute (GTRI)
Georgia Institute of Technology
Atlanta, Georgia 30332
(404) 894-3825
- e. Research Triangle Institute
P.O. Box 12194
Research Triangle Park, North Carolina 27709
(919) 541-6000
(800) 334-8571 Ext. 6741

13.1.5.9 Survey Reports: The asbestos survey report shall contain single line floor plan sketches of the buildings and rooms, showing where samples were taken, indexed schedule of samples surveyed with the sample number and other pertinent notes, narrative on methodology of survey. The laboratory bulk sample report numbers will be correlated with the samples taken.

13.1.5.10 The presence (or absence) of other suspected hazardous materials shall be verified by similar applicable methods discussed above.

13.2 APPLICABLE PUBLICATIONS.

The most current editions of the publications listed below constitute an addendum to this chapter wherever referenced or applicable.

Federal Standards No. 313A

NIOSH The National Institute for Occupational Safety and Health
Manual of Analytical Methods, Physical and Chemical Analysis
Method

OSHA The Occupational Safety and Health Administration
29 CFR 1910.1001
29 CFR 1926.58

EPA Environmental Protection Agency
40 CFR 61 Subpart A & M

Guide Specification CEGS-02080

EFARS 52.2/9009

Note: The above referenced agencies may be contacted at the following addresses:

- a. The National Institute for Occupational Safety and Health
CDC-NIOSH
Building J, N.E., Room 3007
Atlanta, Georgia 30333
- b. The Occupational Safety and Health Administration
200 Constitution Avenue
Washington, D.C. 20210
- c. Environmental Protection Agency
401 M Street, S.W.
Washington, D.C. 20460

13.3 PRECONCEPT SUBMITTAL REQUIREMENTS.

No requirements for this section.

13.4 CONCEPT (35%) DESIGN SUBMITTAL REQUIREMENTS.

The Concept Design Submittal shall include the following:

- a. Criteria listings - standards, manuals, etc.
- b. Trip report, including a description of findings, sample locations, and test procedures.
- c. Written notification of any highly friable, asbestos contaminated, occupied areas which pose an immediate threat to the health of the occupants.
- d. Certification and/or experience of A-E or consultant performing asbestos sampling and asbestos/lead abatement design.

e. Name and certification of asbestos/lead testing laboratory

f. Narrative describing anticipated scope of work. (Document building relative to making assumptions, including original construction date).

13.5 **SIXTY PERCENT (60%) SUBMITTAL REQUIREMENTS.**

No requirements for this section.

13.6 **PRELIMINARY (60%) DESIGN SUBMITTAL REQUIREMENTS.**

13.6.1 Preliminary Design Analysis.

13.6.1.1 The Preliminary Design Analysis shall include all items contained in the Concept Design submittal and any necessary changes as required.

13.6.1.2 The A-E shall furnish certified laboratory test results with the project Preliminary Design Analysis verifying the existence of asbestos by type, concentration level (in percent), location, condition, and binder type (including percent). The analysis of vinyl floor tile is an exception as noted earlier. Qualitative TEM analysis of sample test results shall be submitted reporting results as ">1 percent asbestos," "<1 percent asbestos, trace," or "no asbestos detected." Negative test reports are also required. The A-E shall furnish certified laboratory test reports with the project preliminary Design Analysis verifying the existence of lead, concentration of lead, location, and condition. Negative test results are also required.

13.6.2 Preliminary Drawings.

13.6.2.1 Drawing(s) shall be submitted at Preliminary for all projects or portions thereof which contain asbestos (or other HM).

13.6.2.2 The A-E shall provide demolition or renovation drawing(s) which show(s) any asbestos abatement work.

13.6.2.3 Each drawing shall indicate the location of all HM's and type of the asbestos with enough detail so that quantities can be estimated.

13.6.2.4 The drawings shall include a schedule of occupancy phasing, (if applicable).

13.6.2.5 In crawl spaces, where the dirt floor has been contaminated with asbestos, the A-E shall indicate the area of dirt to be removed to a minimum of 25 mm (1 inch) depth or greater as deemed necessary, and whether the material is friable or nonfriable.

13.6.2.6 Asbestos abatement drawings will be prepared for color reproduction or will otherwise clearly delineate the asbestos work (only).

13.6.2.7 Plate numbers will carry an "R-" prefix for asbestos abatement. Work related to other HM's may be located on "R" plates or elsewhere as is feasible.

13.6.2.8 If part of a larger set of drawings, then all asbestos drawings shall be grouped together immediately following the site development drawings. Sheet and ring numbers shall follow sequentially with the other drawings in the set.

13.6.3 Preliminary Specifications. The concept submitted Unified Facilities Guide Specifications (UFGS) list shall be updated to include any new specifications based on the refined preliminary design. All specifications from the list shall be tentatively marked up, with major edits, and submitted as part of the preliminary (60 percent) submittal. Specifications shall comply with the requirements of Chapter A-11, SPECIFICATIONS. Specifications shall be submitted with red-line edits indicating all deleted/modified text.

13.7 FINAL (100%) DESIGN SUBMITTAL REQUIREMENTS.

13.7.1 Final Design Analysis. The Final Design Analysis shall be a refinement of the Concept Submittal and the Preliminary Design Analyses. If the Preliminary stage is not required, the Final Design Analysis shall include all items required in paragraphs 13.4 and 13.6.1.

13.7.2 Final Drawings.

13.7.2.1 Final plans will be the refinement and completion of preliminary drawings. All comments from this office relating to concept and preliminary design shall be incorporated in the final drawings.

13.7.2.2 Where crowded conditions exist, sufficient sections and elevations will be shown to indicate clearly the exact location of the asbestos in relation to other items.

13.7.2.3 The number of floor plans, elevations, and details will be sufficient to enable the Contractor to perform a detailed estimate.

13.7.3 Final Specifications.

13.7.3.1 Guide Specification, as noted above will either be developed by the A-E if a full design or required to be developed if an RFP. Where the RFP A-E is responsible for reviewing specifications, the A-E shall ensure that a MAP trained asbestos designer reviews the Contractor's specification.

13.7.3.2 A copy of the "Asbestos Survey Report" shall be included as an appendix to the Asbestos specification. A copy of the survey report for other HM's shall be included in the documents where applicable.

13.7.3.3 The A-E shall include both marked up draft and final typed specifications in the Final Design submittal package.

13.8 CORRECTED FINAL DESIGN SUBMITTAL REQUIREMENTS.

13.8.1 Notice. In the Corrected Final Design Submittal, the designer of record finalizes the construction documents. This includes the incorporation of approved comments from the previous design submittal reviews. The Corrected Final Design Submittal requirements shall be the same as the Final Design Submittal requirements. Unless indicated otherwise in the project Specific Instructions, this submittal will not be another review in ProjNet and is only for final backcheck of all comments.

13.8.2 Compliance. The comments generated during the Final Design review shall be incorporated in the Corrected Final submittal.

13.9 ESTIMATE.

In preparing the Project Estimate, the costs of the asbestos abatement will be identified as a separate item for the quantity of asbestos involved. Provide a detailed breakdown or backup data in

the estimate for cost of the Industrial Hygienists on job, permit filing costs, air and final cleanup sampling and laboratory analysis costs, labor cost for abatement work for each of the major types of materials involved, transportation costs, and disposal costs. The costs relative to handling other HM's shall be estimated in similar manner as described for asbestos.

13.10 **FEE PROPOSAL.**

The A-E's fee proposal shall identify the material sampling and laboratory test analysis as a separate item.

*** End of Section ***