

Asbestos Abatement and Removal Specifications
for
Removal and Disposal of Asbestos Containing Materials



Originally Prepared for LA County Department of Public Works by:
DOUGLAS J. DAVIS, CIH, CSP, CAC, PE, REA, REHS
DOUGLAS J. DAVIS & ASSOCIATES, INC., APRIL 15, 2006

REVIEWED, REVISED AND APPROVED (for LA County Department of Public Works):

A handwritten signature in cursive script, appearing to read "Grace M. Rinck".

GRACE M. RINCK, CIH NO. 6662, CAC NO. 93-0919
AURORA INDUSTRIAL HYGIENE, INC. JUNE 15, 2006

Document adopted as foundation for setting Countywide Standards by:
County of Los Angeles, Facility Management EHS (Environmental Health and Safety) Best Practice Workgroup, May 2, 2017

Reviewed, Enhancements and Updates Recommended and Approved by:
County of Los Angeles, Facility Management EHS (Environmental Health and Safety) Best Practice Workgroup, July 7, 2017

TABLE OF CONTENTS

PART 1 GENERAL	4
1.1 APPLICABILITY OF SPECIFICATIONS.....	4
1.2 DESCRIPTION OF WORK.....	4
1.3 DEFINITIONS.....	6
1.4 NOTIFICATIONS.....	9
1.5 QUANTITY TAKE-OFF.....	10
1.6 SUBMITTALS	10
1.7 QUALITY ASSURANCE.....	14
PART 2 PRODUCTS	17
PART 3 EXECUTION	17
3.1 MATERIAL HANDLING.....	17
3.2 EQUIPMENT	18
3.3 TOOLS AND LOCAL EXHAUST SYSTEM.....	19
3.4 WORKER PROTECTION.....	20
3.5 GENERAL WORK AREA REQUIREMENTS.....	21
3.6 DECONTAMINATION UNIT REQUIREMENTS.....	21
3.7 DAILY PERSONAL AIR MONITORING.....	22
3.8 SIGN-IN/SIGN-OUT LOG & DAILY ACTIVITY REPORT.....	22
3.9 HOUSEKEEPING.....	22
3.10 WORK AREA PREPARTION.....	23
PART 4 ASBESTOS REMOVAL	25
4.1 GENERAL WORK AREA.....	25
4.2 REMOVAL OF OSHA CLASS I MATERIALS WITHIN A NPE SYSTEM.....	26
4.3 REMOVAL OF OSHA CLASS I MATERIALS WITHIN GLOVEBAGS.....	26
4.4 REMOVAL OF OSHA CLASS II MATERIALS.....	28
4.5 REMOVAL OF OSHA CLASS II MATERIALS – VINYL AND ASPHALT FLOORING..	28
4.6 REMOVAL OF CLASS II MATERIALS – ROOFING MATERIALS.....	28
4.7 REMOVAL OF CLASS II MATERIALS – SIDING, SHINGLES, TRANSITE PANELS..	29
4.8 REMOVAL OF CLASS II MATERIALS – ASBESTOS CONTAINING GASKETS.....	29
4.9 REMOVAL OF OTHER CLASS II ASBESTOS CONTAINING MATERIALS.....	29
4.10 REMOVAL OF CLASS III MATERIALS.....	30
4.11 REMOVAL OF CLASS IV MATERIALS.....	30
PART 5	
CLOSURE	31

ASBESTOS ABATEMENT & REMOVAL SPECIFICATIONS

PART 1 GENERAL

1.1 APPLICABILITY OF SPECIFICATIONS

- 1.1.1 These specifications cover the removal and disposal of Asbestos Containing Materials (ACM) and Asbestos Containing Construction Materials (ACCM) at any site, building or structure specified by the Los Angeles County Department (LAC) (i.e., fireproofing, drywall, drywall tape joint compounds, floor tile/mastic, pipe insulation [glove bag removal] roofing, stucco, cement, asphalt and miscellaneous asbestos containing construction materials) which is known, or likely, to contain greater than 0.1 percent asbestos.
- 1.1.2 These specifications for asbestos abatement are intended to define the asbestos related project. Site Specific General Requirements, Site Specific Work Area Plans and Site Specific Scopes of Work that may be developed as the work schedule is clarified are integral to and shall constitute a part of these specifications.
- 1.1.3 The County or contracted designee (Contractor) should carefully inspect each work area to determine if he/she can in fact both remove all materials under consideration. If he/she can or cannot, he/she needs to include this information in writing during the construction meeting along with any other areas he/she determines to be inaccessible. In some cases, a sign may be required to warn of hidden asbestos material. The Contractor should be prepared to place signs as determined to be necessary by the LAC's retained Certified Asbestos Consultant (CAC).
- 1.1.4 If removal and replacement of materials is necessary, replacement materials should first be identified before removal.
- 1.1.5 Henceforth, these Asbestos Abatement Specifications are referred to as the Specifications.

1.2 DESCRIPTION OF WORK

- 1.2.1 The work specified herein is abatement of asbestos containing material(s) to be performed by competent persons who are properly trained, knowledgeable and qualified in the techniques of asbestos abatement, handling and disposal of asbestos and/or asbestos-contaminated materials and the subsequent cleaning of asbestos contaminated areas. Work shall be performed by Contractors who comply with all applicable federal, state and local regulations, are capable of, and willing to perform the work pursuant to these specifications.

- 1.2.2 All work shall be performed under the strict work practices and procedures outlined herein, as applicable. The retained CIH/CAC's decision(s) will be final in all matters relating to the interpretation of these specifications and all applicable regulations. The Contractor shall abide by all directions and decisions of the retained CIH/CAC or CSST relative to asbestos fiber control.
- 1.2.3 The Contractor shall furnish all labor, materials, services, insurance, equipment, and decontamination facilities to carry out the complete removal and disposal of all ACM identified in these specifications. The Contractor shall make all his own estimation of removed material to determine quantities.
- 1.2.4 Work shall be performed in accordance with all applicable regulations, codes, ordinances and standards of governing authorities having jurisdiction and the requirements specified herein.
- 1.2.5 Contractor shall furnish all labor, material, supervision, construction tools and equipment necessary to perform the following work:
 - 1.2.5.1 Removal of all identified asbestos within the limit lines described by County's Representative. Contractor shall verify quantities and locations.
 - 1.2.5.2 Provide and maintain environmental and occupational safety protective measures, equipment and procedures at the work site.
 - 1.2.5.3 Clean the work site to completely remove all visually apparent asbestos and to reduce the airborne concentrations as described in Section 5.3-5.5.
 - 1.2.5.4 If in the course of removing ACM from the site, the Contractor discovers any other ACM, other than those described in plans, reports, or specifications, the Contractor shall notify the County via written Change Order. Only upon receiving the County's approval, the Contractor will remove and dispose of such item(s) at the contract unit price identified by the Contractor in his bid.
 - 1.2.5.5 With respect to available utilities, the Contractor shall coordinate access and use of all utilities as needed for the duration of the project with the County. The Contractor will be required to provide utilities.
 - 1.2.5.6 The Contractor shall obtain all necessary permits from the City of Los Angeles, South Coast Air Quality Management District (SCAQMD) and other authorities having jurisdiction.
 - 1.2.5.7 Package, transport and disposal of all asbestos to an approved disposal site.

1.2.5.8 Cooperate with County's Representative with regard to air monitoring and observation of procedures.

1.3 Definitions

- 1.3.1 Aggressive method - removal or disturbance of building material by sanding, abrading, grinding or other method that breaks, crumbles, or disintegrates intact ACM.
- 1.3.2 Amended water - water to which surfactant (wetting agent) has been added to increase the ability of the liquid to penetrate ACM.
- 1.3.3 Asbestos Manager (AM) - shall be the LAC employee responsible for implementing County's asbestos policy and program. The AM shall be considered County's Representative for all determinations of project consistency with County's department policy and laws and regulations relating to asbestos.
- 1.3.4 Asbestos - includes chrysotile, amosite, crocidolite, tremolite asbestos, anthophyllite asbestos, actinolite asbestos, and any of these materials that has been chemically treated and/or altered. Asbestos includes Presumed Asbestos Containing Material (PACM).
- 1.3.5 Asbestos Consultant - shall be the independent party retained by the County to provide consultation and supervision services for asbestos abatement and survey activities. Typical qualifications and operations of the Asbestos Consultant are given in Appendix C.
- 1.3.6 Asbestos-containing construction material (ACCM) - any material containing more than one tenth of one percent asbestos., but less than 1% by weight.
- 1.3.7 Asbestos-containing material (ACM) - any material containing more than one percent asbestos.
- 1.3.8 Authorized person - any person authorized by the employer and required by work duties to be present in regulated areas.
- 1.3.9 Class I asbestos work - activities involving the removal of thermal system insulation (TSI) and surfacing ACM and PACM, including removal of non-friable asbestos by aggressive methods.
- 1.3.10 Class II asbestos work - activities involving the removal of ACM which is not thermal system insulation or surfacing material. This includes, but is not limited to, the removal of asbestos-containing wallboard, floor tile and sheeting, roofing and siding shingles, and construction mastics.
- 1.3.11 Class III asbestos work - repair and maintenance operations, where "ACM", including TSI and surfacing ACM and PACM, is likely to be

disturbed. No more than 25 square feet, or one glove bag, worth of material is to be disturbed.

- 1.3.12 Class IV asbestos work - maintenance and custodial activities during which employees contact but do not disturb ACM or PACM.
- 1.3.13 Clean room - an uncontaminated room having facilities for the storage of employees' street clothing and uncontaminated materials and equipment.
- 1.3.14 Closely resemble - that the major workplace conditions which have contributed to the levels of historic asbestos exposure, are no more protective than the conditions of the current workplace.
- 1.3.15 Competent person - one who can identify existing and predictable hazards in the surroundings or working conditions which are unsanitary, hazardous, or dangerous to employees, and who has authorization to take prompt corrective measures to eliminate them: in addition, for Class I and Class II work who is specially trained in a training course which meet the criteria of EPA's model accreditation Plan (40 CFR 763) for project designer or supervisor, or its equivalent
- 1.3.16 Critical barrier - two or more layers of plastic sealed over all openings into a work area or any other similarly placed physical barrier sufficient to prevent airborne asbestos in a work area from migrating to an adjacent area.
- 1.3.17 Decontamination area - an enclosed area adjacent and connected to the regulated area and consisting of an equipment room, clean room, and on occasions, a shower unit, which is used for the decontamination of workers, materials, and equipment that are contaminated with asbestos.
- 1.3.18 Demolition - the wrecking or taking out of load-supporting structural member and any relating razing, removing, or stripping of asbestos products.
- 1.3.19 Disturbance - contact that releases fibers from ACM or PACM or debris containing ACM or PACM. This term includes activities that disrupt the matrix of ACM or PACM, render ACM or PACM friable, or generate visible debris. Disturbance includes cutting away small amounts of ACM and PACM, no greater than the amount which can be contained in one standard sized glove bag or waste bag in order to access a building component. In no event, shall the amount of ACM or PACM so disturbed exceed that which can be contained in one glove bag or waste bag which shall not exceed 60 inches in length and width.
- 1.3.20 Employee exposure - that exposure to airborne asbestos that would occur if the employee were not using respiratory protective equipment.

- 1.3.21 Equipment room (change room) - a contaminated room located within the decontamination area that is supplied with impermeable bags or containers for the disposal of contaminated protective clothing and equipment.
- 1.3.22 Fiber - a particulate form of asbestos, 5 micrometers or longer, with a length to diameter ration of at least 3 to 1.
- 1.3.23 Glovebag - an impervious plastic bag-like enclosure affixed around asbestos containing material, with glove-like appendages through which materials and tools can be handled.
- 1.3.24 High-efficiency particulate air (HEPA) filter - a filter capable of trapping and retaining at least 99.97 percent of all mono-dispersed particles of 0.3 micrometers in diameter.
- 1.3.25 Homogenous area - an area of surfacing material or thermal system insulation that is uniform in color and texture.
- 1.3.26 Industrial hygienist - a professional qualified by education, training, and experience to anticipate, recognize, evaluate and develop controls for occupational health hazards. A Certified Industrial Hygienist (CIH) is an industrial hygienist who has been certified by the American Board of Industrial Hygiene. ***A CIH must also be certified in asbestos to perform asbestos-related work.**
- 1.3.27 Intact - that the ACM has not crumbled, been pulverized, or otherwise deteriorated so that it is no longer likely to be bound with its matrix.
- 1.3.28 Modification - a changed or altered procedure. Material or component of a control system, which replaces a procedure. Material or component of a required system. Omitting a procedure or component, or reducing or diminishing the stringency or strength of a material or component of the control system is not a "modification".
- 1.3.29 Negative initial exposure assessment - a demonstration by the employer which complies with the criteria in Title 8 of the California Code of Regulations, Section 1529 (Title 8 CCR 1529), subsection (f)(2)(c), that employee exposure during an operation is expected to be consistently below the Permissible Exposure Limit (PEL).
- 1.3.30 Presumed Asbestos-Containing Material (PACM) - thermal system insulation and surfacing material found in buildings constructed no later than 1980. The designation of material as "PACM" may be rebutted pursuant to CCR Title 8 Section 1529, subsection (k)(4). Materials may not be deemed PACM for disposal purposes.

- 1.3.31 Project Designer - a person who has successfully completed the training requirements for the abatement project designer established by 40 U.S.C. Section 763.90(g).
- 1.3.32 Regulated area - an area established by the employer to demarcate areas where Class I, II, and III asbestos work is conducted, and any adjoining area where debris and waste from such asbestos work accumulate; and a work area within which airborne concentrations of asbestos, exceed or there is a reasonable possibility they may exceed the permissible exposure limit.
- 1.3.33 Removal - all operations where ACM and/or PACM is taken out or stripped from structures or substrates, and includes demolition operations.
- 1.3.34 Renovation - the modifying of an existing structure, or portion thereof.
- 1.3.35 Repair - overhauling, rebuilding, reconstructing or reconditioning of structures or substrates, including encapsulation or other repair of ACM or PACM attached to structures or substrates.
- 1.3.36 Surfacing material - material that is sprayed, troweled-on or otherwise applied to surfaces (such as acoustical plaster on ceilings and fireproofing materials on structural members, or other materials on surfaces for acoustical, fireproofing, and other purposes).
- 1.3.37 Surfacing ACM - surfacing material which contains more than 1 percent asbestos.
- 1.3.38 Thermal system insulation (TSI) - ACM applied to pipes, fittings, boilers, breeching, tanks, ducts, or other structural components to prevent heat loss or gain.
- 1.3.39 Thermal system insulation ACM - is thermal system insulation that contains more than 1 percent asbestos.

1.4 Notifications

- 1.4.1 Notification of asbestos abatement activities shall be provided by the Contractor to all cognizant federal, state, and local agencies prior to the start of abatement activities. At least ten (10) working days prior to the start of work, the Contractor shall submit the following to the County, or its representative for review. No work shall begin until these documents are submitted, and approved by the County, or its representatives.
 - 1.4.1.1 Notices required by federal/state/local regulations. In addition, proof of timely transmittal to the respective agency requiring the notice.

1.4.1.2 Copies of current, valid permits required by state/local regulations.

1.4.1.3 Copies of all state and local licenses and permits necessary to carry out the work described in this plan.

1.4.2 Agency Notification

1.4.2.1 The Contractor will notify, in writing, Cal/OSHA and SCAQMD of the planned asbestos removal operation at least 14 calendar days prior to beginning work. Proof of notification shall be supplied to the County, or its representative, prior to the start of work.

1.5 Quantity Take-off

1.5.1 All ACM quantities shall be determined by the bidder and no claim for additional cost will be accepted by the County as a result of quantities of ACM to be removed except those provided for in these Specifications.

1.5.2 Any quantities implied in these Specifications are illustrative only and are not intended to represent actual quantities for bidding purposes.

1.6 Submittals

1.6.1 Manufacturer's Product Data

1.6.1.1 Local Exhaust Equipment

1.6.1.2 Vacuum Equipment

1.6.1.3 Respirators

1.6.1.4 Pressure Differential Monitor

1.6.2 Plan for Removal and Demolition of Asbestos: Submit a detailed job-specific plan of the Work procedures to be used in the removal and demolition of materials containing asbestos at least one week prior to the start of Work.

1.6.2.1 The plan shall be prepared and signed by the Contractor.

1.6.2.2 Such plan shall include a sketch showing the location, size, and details of asbestos control areas, location and details of the change rooms, layout of change rooms, layout and location of waste container pass-out airlock system, and locations of local exhaust equipment and their effluent exhaust locations.

- 1.6.2.3 The plan shall also include interface of trades involved in the construction, sequencing of asbestos-related Work, disposal plan, type of wetting agent and removal encapsulant to be used, respirators, protective equipment, pressure differential monitoring devices, and a detailed description of the method to be employed in order to eliminate emissions.
 - 1.6.2.4 The plan shall include copies of emergency, security and contingency plans as follows:
 - 1.6.2.4.1 A plan to provide emergency and fire evacuation for removing workers from the work zone in an emergency. A copy of this plan shall be filed with the local fire and/or ambulance unit.
 - 1.6.2.4.2 A plan for maintaining the security of the work zone. The security plan shall provide a means of preventing accidental or unauthorized entry.
 - 1.6.2.4.3 A contingency plan addressing emergencies, equipment failures and barrier failure. This plan shall include telephone numbers of representative of the Contractor to be contacted in emergencies.
 - 1.6.2.5 The plan shall be approved prior to the start of asbestos abatement Work.
 - 1.6.2.6 Prior to beginning Work, the County, Consultant, and Contractor shall meet to discuss in detail the asbestos plan, including Work procedures and safety precautions.
- 1.6.3 Field Test Reports
- 1.6.3.1 Air Sampling Results: Fiber counting shall be completed and results made available to the County *within 24 hours*. The Consultant shall notify the Contractor immediately of exposure to asbestos fibers more than the Permissible Exposure Limit (PEL) of 0.1 fibers/cubic centimeter (f/cc).
 - 1.6.3.2 Pressure Differential Recordings for Local Exhaust Systems: The Contractor shall review and report the pressure differential recordings onsite and frequently to address any failures in containment, particularly at the beginning and end of each shift. The Contractor shall immediately report to the County variance in the permissible pressure differential which could cause adjacent unsealed areas to have asbestos fiber concentration more than 0.01 fibers per cubic centimeter or background, whichever is higher.

1.6.3.3 Asbestos Disposal Quantity Report: The Contractor shall review and report to the County within 24 hours from the end of each day, the amount of asbestos-containing material removed during the previous day. Quantities shall be listed as bags or parcels, not bins.

1.6.4 Administrative and Closeout Submittals

1.6.4.1 Notification of Equipment Rental: If rental equipment is to be used during asbestos handling and disposal, written notification concerning the intended use of the equipment will be furnished to the rental agency, with a copy to the County.

1.6.4.2 The Contractor shall submit to the County, or its representative, a certification that exposure measurements, medical surveillance, and worker training records are kept in conformance with CCR Title 8, Section 1529. This certification must be signed by an officer of the abatement-contracting firm and notarized.

1.6.4.3 Landfill Delivery Records: *Within 3 days* after delivery of asbestos-containing material to the landfill, submit detailed delivery tickets, and hazardous waste manifests, prepared, signed, and dated by an agent of the landfill, certifying the amount of materials delivered to the landfill.

1.6.4.4 Waste Disposal Site Approval: Submit recommended waste disposal site to the County for approval prior to the start of the project. Submit written evidence to the County prior to disposal, that the waste disposal site is approved for asbestos disposal by the EPA and other applicable authorities. Contractor shall use the form attached hereto as Attachment 5. At job completion, these records shall be inserted into the job binder and transmitted to the County's Representative.

1.6.4.5 Respiratory Protection Program: The abatement Contractor and Consultant must have a written Respiratory Protection Program as required by CCR Title 8, Section 5144. The Respiratory Protection Form (Appendix B), shall be completed by the Contractor, and submitted to the County, or its representative.

1.6.4.6 Certificate of Worker's Acknowledgment: Appendix C provides a model certificate of worker training. After each worker, has completed the Contractor's respiratory protection program, had the appropriate level of asbestos training, and had a medical exam, a fully executed copy of this, or an equivalent form, shall be completed and submitted to the County, or its representative.

- 1.6.4.7 Personnel Training Certificates: Prior to the Notice to Proceed, the successful Contractor shall submit a declaration certifying that all of the Contractor's employees have been adequately trained in accordance with CCR Title 8, Section 1529. The Contractor shall also submit proof that all personnel who will be permitted to enter contaminated Work Areas have been adequately trained in accordance with CCR Title 8, Section 1529 for certification as an Asbestos Worker or Supervisor for Class I asbestos abatement projects. These documents are to be kept onsite, throughout the project
- 1.6.4.8 Medical Examination and Certification: Prior to the Notice to Proceed, the Contractor shall submit proof that all personnel who will be permitted to enter contaminated Work Areas have had medical examinations in accordance with CCR Title 8, Section 1529. Provide a written certification signed by a licensed physician that all workers and supervisors have met or exceeded all the medical prerequisites listed herein and in CCR Title 8, Section 1529 and 29 CFR 1910.134. These documents are to be kept onsite, throughout the project
- 1.6.4.9 Contractor Licensing Board Asbestos Certification: Submit a copy of the Contractor's California State Contractor's Licensing Board Asbestos Certification in accordance with the California Business and Professional Code, Section 7058.5, to the Contractor.
- 1.6.4.10 At no time, shall an asbestos abatement contractor subcontract services to another asbestos abatement contractor
- 1.6.4.11 Contractor Class C Asbestos Removal License: Submit proof that the Contractor possesses a current California Class C Asbestos Removal License to the County.
- 1.6.4.12 Hazardous Waste Hauler License and EPA Transporter's Number: Submit proof that the Contractor or the Contractor's Hazardous Waste Hauler possesses a current Hazardous Waste Hauler License and EPA Transporter's Number to the County.
- 1.6.4.13 Cal/OSHA Registration: Submit a copy of the Contractor's current California OSHA registration to conduct asbestos-related work.
- 1.6.4.14 Submit any current and valid licenses, permits, and notices required by federal/state/local regulations and proof of timely transmittal of notices to the respective agency requiring the notices.

1.6.4.15 At job completion, Contractor shall transmit the job binder to County's Representative. Contents shall be as described in this section plus any additional items as listed in Appendix B.

1.7 Quality Assurance

1.7.1 Where methods or procedures are specified, they shall constitute minimum measures and shall in no way relieve Contractor of sole responsibility for the means, methods, techniques, sequences or safety measures in connection with the work.

1.7.2 The removal of asbestos shall be supervised by an asbestos supervisor who has experience in this field of construction and can furnish a record of satisfactory performance on at least three projects for work of comparable type.

1.7.3 All work shall be performed in compliance with all pertinent laws, rules and regulations, and industry standards existing at the time of the work, including but not limited to:

1.7.3.1 Federal requirements which govern abatement work or hauling and disposal of hazardous waste materials include, but are not limited to, the following:

- United States Environmental Protection Agency (EPA), Title 40, Code of Federal Regulations, Part 61, National Emission Standards for Hazardous Air Pollutants (NESHAP), National Emission Standard for Asbestos (40 CFR, Part 61, Subpart A & M).
- EPA, Asbestos Hazard Emergency Response Act (AHERA), Title 40, Code of Federal Regulations, Part 763, including Appendices (40 CFR, Part 763).
- EPA, Resource Conservation & Recovery Act (RCRA).
- United States Department of Transportation (DOT), Hazardous Substances, Title 49, Code of Federal Regulations, Parts 171 through 180 (49 CFR Parts 171 and 180).
- United States Department of Labor, Division of Occupational Safety and Health (OSHA), Occupational Exposure to Asbestos, Tremolite, Anthophyllite, and Actinolite, Final Rules, Title 29, Code of Federal Regulations, Part 1910, Section 1001 and Part 1926, Section 1101.
- Respiratory Protection, 29 CFR Part 1910, Section 134 and 42 CFR Part 84.

- Asbestos in Construction Industry, 29 CFR Part 1926.
- Access of Employee Exposure/Medical Records, 29 CFR, Part 1910, Section 2.
- Hazard Communication, 29 CFR, Part 1910, Section 1200.
- Specifications for Accident Prevention Signs and Tags, 29 CFR, Part 1910, Section 145.
- Personal Protective Equipment, 29 CFR, Part 1910, Sections 132 -138.
- National Electric Code

1.7.3.2 State and Local Regulations

- The State of California, Department of Industrial Relations, Division of Occupational Safety and Health (Cal/OSHA), Asbestos in Construction, Title 8, California Code of Regulations, Section 1529 (CCR Title 8, Section 1529).
- Title 8, Section 341.6, Registration, Asbestos-Related Work.
- Title 8, Division 1, Chapter 4, Division of Industrial Safety.
- The State of California, Department of Health Services, Title 22, California Code of Regulations, Environmental Health, Section 66699, Persistent and Bioaccumulative Toxic Substances (CCR Title 22, Section 66699).
- The State of California, Health and Safety Code, Sections 25249.5 and 25249.6.
- The State of California, Business and Professions Code, Section 7085.5 (Asbestos Certification) and other corresponding regulations in the California Contractors State License Board, Title 16, California Code of Regulations, Chapter 8 (CCR Title 16, chap. 8).
- California Labor Code, Sections 6501.5, 6501.7, 6501.8, and 6501.9.
- South Coast Air Quality Management District, Rules and Regulations including Rule 1403.
- Division 10 of the City of Los Angeles Fire Code, 92 Edition.

1.7.3.3 Analytical Methods

- National Institute for Occupational Safety and Health (NIOSH) Method 7400 – Fibers.
- U.S. EPA Level II Transmission Electron Microscopy Analytical Method by Yamate et al., 1984.
- EPA, Title 40, Code of Federal Regulations, Part 763, Appendix A, Subpart F, Section 1, Polarized Light Microscopy, (40 CFR, Part 763).

1.7.3.4 Miscellaneous Standards and References

- Underwriters Laboratories (UL) Standard 586, 1990 High Efficiency, Particulate, Air Filter Units.
- American National Standards Institute (ANSI), ANSI Z9.2, Fundamentals Governing the Design and Operation of Local Exhaust Systems.
- American National Standards Institute (ANSI), ANSI Z88.2, Practice for Respiratory Protection.
- National Fire Protection Association (NFPA), Standard 10, Standard for Portable Fire Extinguishers.

1.7.4 All applicable state, local regulations and ordinances, including any regulations regarding state and/or local licenses or certificates.

1.7.5 Where applicable state or local regulations are more stringent than federal requirements or the requirements referenced herein, Contractor and Consultant shall adhere to the more stringent regulations.

1.7.6 The Contractor warrants that he is familiar with the codes and requirements applicable to asbestos abatement work and shall give all notices and comply with all laws, ordinances, rules, and regulations applicable to the work. If the Contractor observes that the Specifications or plans are at variance therewith, he shall give written notice to the County's Representative describing such variance. If the Contractor performs any work knowing it to be contrary to such laws, ordinances, rules, and regulations, and without written notice to the County's Representative, he shall bear all costs arising therefrom. The Subcontractor's particular attention is directed to the applicable Cal/OSHA regulations found in CCR Title 8, Section 1529 and the necessity of complying with the regulations in the progress of his work. Failure or omission on the part of the Contractor, or any of their representatives, either to discover or to bring to the attention of the

County any deviation from, omission from, or noncompliance with the requirements for asbestos abatement shall not be used by the Contractor as defense for failure on his part to fulfill such requirements.

PART 2 PRODUCTS

- 2.1 Polyethylene sheeting in sizes to minimize the frequency of joints.
- 2.2 Tape: Glass fiber or other tape capable of sealing joints of adjacent plastic sheets and for attachment of plastic sheeting to finished or unfinished surfaces of dissimilar materials under both dry and wet conditions.
- 2.3 Surfactant (Wetting Agent): Shall consist of materials that are non-toxic and non-irritating to skin and eye, and non-carcinogenic. The wetting agent shall consist of 50 percent polyoxyethylene or polyglycol ester and 50 percent polyoxyethylene ether, or the equivalent. Wetting agents shall be applied by means of an airless sprayer or equal.
- 2.4 Encapsulant: Shall conform to USEPA requirements, shall contain no toxic or hazardous substances and no solvents.
- 2.5 Impermeable Containers: Air and water-tight, suitable to receive and retain any asbestos-containing or contaminated materials until disposal at an approved site and labeled in accordance with applicable Cal-OSHA regulations (CCR Title 8, Section 1529). Two types of impermeable containers shall be used:
 - 2.5.1 Six (6) mil plastic bags
 - 2.5.2 Metal or fiber drums with tightly fitting lids.
- 2.6 Warning Labels and Signs: In conformance with applicable Cal/OSHA regulations (CCR Title 8, Section 1529).
- 2.7 Other Materials: Provide all other materials, such as lumber, nails, and hardware that may be required to construct and dismantle the decontamination area and the barriers that isolate the Work area.

PART 3 EXECUTION

- 3.1 Material Handling
 - 3.1.1 Deliver materials in the original packages, containers, or bundles bearing the name of the manufacturer and the brand name.
 - 3.1.2 Store materials subject to damage off the ground, away from wet or damp surfaces, and under cover sufficient to prevent damage or contamination.

- 3.1.3 Remove all ACM from the premises. Dispose of materials that become contaminated with asbestos in accordance with applicable regulatory standards.

3.2 Equipment

- 3.2.1 Respirators: Contractor shall provide workers with personally issued and marked respiratory equipment approved by NIOSH and meeting the specifications of Cal/OSHA. This respiratory equipment shall be suitable for the asbestos exposure level in the Work area according to CCR Title 8, Section 1529 (i). The Contractor shall provide disposable HEPA (P100) cartridges as required, with sufficient replacement cartridges. Cleaning wipes shall also be provided as necessary
- 3.2.2 Personal Protective Equipment: Contractor shall provide workers, County, and authorized visitors with sets of protective disposable clothing, head covers, gloves, eye protection and foot covers of sizes to properly fit individual workers and visitors whenever they are required to enter the Work area. Provide access and use of the Contractor's change room. Provide a minimum of four sets per day and sufficient sets as required for workers and County. The personal protective equipment shall remain the property of the Contractor.
- 3.2.3 Change Rooms: Provide a temporary unit with a separate equipment room, decontamination room, for personnel required to wear whole body protective clothing.
 - 3.2.3.1 Separate each room from the others and from the control area by airlocks.
 - 3.2.3.2 Keep street clothing and street shoes in the clean area.
 - 3.2.3.3 Vacuum and remove asbestos-contaminated disposable protective clothing while still wearing respirators in the equipment room. Seal clothing in impermeable bags or containers for disposal.
 - 3.2.3.4 Do not remove disposable protective clothing in the decontamination locker room.
 - 3.2.3.5 Remove cloth work clothing in the decontamination locker room.
 - 3.2.3.6 Tag and bag cloth work clothes for laundering and keep work shoes in the decontamination locker room.
 - 3.2.3.7 Do not wear work clothing between home and work.
 - 3.2.3.8 Provide showers with hot and cold water.
 - 3.2.3.9 Locate showers between the decontamination locker room and the clean locker room, and require employees to shower before changing into street clothes.

- 3.2.3.10 Shower wastewater shall be handled and disposed as asbestos-containing material or shall be filtered through a final filter of at least 0.5-micron particle size collection capability before disposal into the sanitary sewer system.
- 3.2.3.11 Handle and dispose of wastewater filters as asbestos-containing material.
- 3.2.3.12 Clean asbestos-contaminated work clothing in accordance with CCR Title 8, Section 1529 or use disposable clothing
- 3.2.3.13 Change rooms shall be physically attached to the Work area wherever feasible and required.
- 3.2.4 Eye Protection: Furnish goggles for personnel engaged in asbestos operation when a full-face respirator is not being used.
- 3.2.5 Caution Signs and Labels: Provide caution signs printed in English and the prominent language of the location at approaches to asbestos Work areas. Locate signs at such distance that personnel may read the sign and take the necessary precautions before entering the Work area. Provide caution labels printed in English and the prominent language of the location. Affix labels to asbestos materials, scrap, waste, debris, sealed impermeable bags, asbestos waste drums, and other asbestos-containing products. Caution signs and labels shall conform to the requirements defined in CCR Title 8, Section 1529.
- 3.2.6 A minimum of one 4A/60BC dry chemical extinguisher shall be maintained at each of the following locations:
 - 3.2.6.1 At each electrical panel.
 - 3.2.6.2 At each corner of the Work area.
 - 3.2.6.3 Within 5 feet of the external entry to the shower room from the Work area.
 - 3.2.6.4 Within 5 feet of the external entry to the shower room from the "clean room."
- 3.3 Tools and Local Exhaust System: Provide the local exhaust system in accordance with ANSI Z9.2 and as specified herein.
 - 3.3.1 Provide a local exhaust system in each Work area.
 - 3.3.2 Filters on vacuums and exhaust equipment shall be absolute HEPA filters and UL 586 labeled.
 - 3.3.3 Provide local exhaust equipment, certified by South Coast Air Quality Management District, designed for a minimum of one Work area air change every 15 minutes at 75% efficiency and additional air change flow rate sufficient to maintain a minimum pressure differential of minus 0.02 inches of water column relative to adjacent, unsealed areas. Local exhaust equipment shall be operated 24 hours per day until the

asbestos control area is removed. The Contractor is responsible for providing all necessary manpower and/or equipment, including but not limited to, emergency power, security and fire watch to ensure 24-hour operation.

- 3.3.4 Additional Ventilation Units: Provide Local Exhaust Systems to the site in accordance with these Specifications for use inside the containment in the event engineering controls are not effective in controlling the fiber count below the PEL during the removal process. The unit(s) shall be placed inside the containment as an additional filtration in a manner to move the air away from the workers' breathing zones and towards the exhaust unit(s).
 - 3.3.5 Back-up Ventilation Units: Provide at a minimum one additional Local Exhaust System for up to every 10 units on the site for replacement if a ventilation unit fails to operate properly. These backup units must be stored on site during the entire project duration.
 - 3.3.6 Provide a manometer-type or magnehelic-type negative pressure differential monitor with minor scale divisions of 0.02 inches of water and accuracy within plus or minus one percent.
 - 3.3.7 Calibrate the manometer daily and as recommended by the manufacturer.
 - 3.3.8 Furnish recorded readings of the pressure differential between locations in the Work area and adjacent unsealed areas at the beginning of each workday and every 2 working hours thereafter.
 - 3.3.9 Pressure differential readings shall be taken inside the Work area from the furthest point from the local exhaust equipment.
 - 3.3.10 The local exhaust system shall be operated continuously, 24-hours per day, until the asbestos control area enclosure is removed.
 - 3.3.11 Replace filters as required to maintain the efficiency of the system. Units are to be turned off during replacement. Running units output are to be increased or additional units are to be turned on to maintain the pressure during replacement procedures.
 - 3.3.12 The building heating, ventilating, and air conditioning (HVAC) system shall not be used as the local exhaust system for the Work area.
- 3.4 Worker Protection
- 3.4.1 A tailgate will be held to discuss the hazards of the job and the methods to perform the work.

- 3.4.2 Prior to commencement to work, all workers shall be instructed and shall be knowledgeable in the appropriate procedures of personal protection and asbestos removal.
 - 3.4.3 Contractor and Consultant shall be solely responsible for enforcing worker protection requirements.
 - 3.4.4 Reporting Unusual Events: When an event of unusual and significant nature occurs at the site, Contractor shall prepare and submit a special report listing chain of events, persons participating, responses and similar pertinent information. When such events are known or predictable in advance, advise the County at the earliest possible date.
 - 3.4.5 Reporting Accidents: If a significant accident occurs at the site or anywhere else work is in progress, the Contractor shall prepare and submit appropriate reports to the County. For this purpose, a significant accident is defined to include events where personal injury is sustained, or property loss of substance is sustained.
- 3.5 General Work Area Requirements
- 3.5.1 Workers shall always wear a respirator properly fitted on the face while in the Work area. Workers wearing tight-fitting face pieces shall be clean-shaven to the extent that the hair does not interfere with the sealing surface of the respirator. This must be documented by a standard respirator fit test.
 - 3.5.2 The Contractor shall instruct and train workers in proper respirator use. They will also mandate the performance of fit checks any time a respirator is worn, including after meals and breaks.
 - 3.5.3 Workers shall wear disposable, full-body coveralls and disposable head covers and footwear suitable for asbestos work in the Work area.
- 3.6 Decontamination Unit Requirements: At all Work areas, the Contractor shall set up a change room, shower and equipment room outside the Work area. Where feasible and required the change room, shower and equipment room will be attached to the Work area. All workers without exception shall:
- 3.6.1 Remove and properly store street clothes in the change room and put on new disposable coveralls, head covers, footwear and cleaned respirator before entering the Work area.
 - 3.6.2 Remove the disposable coveralls, head covers, and footwear in the equipment room and dispose them in an appropriate asbestos waste container. Still wearing their respirators, workers shall proceed to the showers and remove their respirators while showering with soap and

tempered water. Wetted HEPA respirator cartridges shall be disposed of in appropriate asbestos containers.

- 3.6.3 This procedure shall be followed each time a worker enters or leaves the Work area.
 - 3.6.4 Workers shall not eat, drink, smoke, or chew gum or tobacco in the Work area.
 - 3.6.5 The Contractor shall provide disposable coveralls, head covering, and footwear to any official representative of the County who inspects the project.
 - 3.6.6 All persons entering the Work area shall wear an approved respirator and disposable coveralls, head covering, and footwear.
- 3.7 Daily personal air monitoring shall be conducted by the Contractor to determine the airborne concentrations of asbestos to which workers may be exposed.
- 3.8 Sign-In/Sign-Out Log and Daily Activity Report
- 3.8.1 Contractor shall maintain a sign-in/sign-out log in the immediate vicinity of the change room of any decontamination area. This log shall be maintained from the time the first activity is performed involving the disturbance of asbestos-containing material until acceptance of the final air test results. All persons entering the Work area, including the Contractor's workers, County, County's consultants, and Government officials, shall be required to sign in and out each time upon entering and leaving the Work area. All persons shall indicate name, time, company or agency represented, and reason for entering the Work area.
 - 3.8.2 Contractor shall maintain a daily activity report describing work performed, materials and methods used, inspections made, test taken, and any unusual conditions or problems.
 - 3.8.3 Consultant shall immediately notify the County if any substrate or material not originally discussed needs to be or is disturbed or removed.
 - 3.8.4 Except for governmental inspectors having jurisdiction, no visitors shall be allowed in any work area, except as authorized by the County.
 - 3.8.5 Any materials, such as supplies, copper piping, etc., removed from site, without proper authorization, will be deemed as theft.
- 3.9 Housekeeping
- 3.9.1 The Contractor shall always keep the premises free from accumulation of waste materials or rubbish caused by their employees. Bags of

asbestos material and other waste material shall be removed immediately at the completion of work at each shift. Maintain surfaces of the Work area free of debris and keep waste from being distributed outside of the immediate Work area.

- 3.9.2 Removal of Asbestos Waste Containers - Provide a waste container removal system. Asbestos waste containers shall not be removed through the change rooms. The waste container removal system shall consist of a wash down station inside the Work area, a washroom, and a waste container holding area. Provide airlocks between each area and an airlock with access to outside the Work area from the holding areas. Provide caution signs as specified herein for asbestos Work areas. The waste container removal system shall be a temporary unit constructed to prevent the escape of asbestos fibers from the area. The system shall be physically attached to the Work area. Personnel entering the waste container removal system shall wear personal protective equipment. The system shall not be used to enter or exit the Work area. Access to outside the waste container removal system shall be sealed except during the removal of asbestos waste containers. Perform cleanup of the waste container removal system as specified herein for enclosed Work areas. Do not remove the waste container removal system enclosure and caution signs prior to receipt of the County's clearance certification. All asbestos waste containers shall be removed from the Work area daily.
- 3.9.3 Procedure for Disposal of Asbestos: Do not remove any asbestos-containing materials from the site without approval from the County. Procedure for hauling and disposal of asbestos waste shall comply with 40 CFR 61, Subpart M and CCR Title 22, and South Coast Air Quality Management District Rule 1403.

3.10 Work Area Preparation

- 3.10.1 Provide Warning Signs meeting regulatory requirements at each visual and physical barrier.
- 3.10.2 Where appropriate, the Contractor shall seal all openings with a 6-mil minimum polyethylene containment barrier to prevent leakage of air into the outside environment or other portions of the building. Individually seal ventilation openings in walls (supply and exhaust), wall mounted fixtures, doorways, windows, convectors, and other wall and floor openings into the Work Area with adhesive tape alone or with 2 layers of polyethylene sheeting at least 6-mil, taped securely in place with adhesive tape.
- 3.10.3 All work shall be performed as either Class I, Class III, or Class IV work. Class II work will be performed under Class I containment requirements.

- 3.10.4 The Contractor shall pre-clean movable objects to be salvaged for the Contractor within the proposed Work areas using HEPA vacuum equipment or wet cleaning methods as appropriate. The Contractor shall move such items to storage or other area as directed by the County.
- 3.10.5 If materials are deemed contaminated, they are not to be removed from the containment area until they are properly decontaminated or disposed of.
- 3.10.6 The Contractor shall pre-clean immovable objects, such as mechanical and electrical equipment and fixtures, within proposed Work area using HEPA vacuuming equipment or wet cleaning methods as appropriate.
- 3.10.7 Prior to placing plastic sheeting, clean the Work area(s) and immediately adjacent areas physically connected to abatement areas using HEPA vacuum equipment or wet-cleaning methods as appropriate. Do not use methods that raise dust such as broom sweeping or vacuuming with non-HEPA equipped vacuum cleaners.
- 3.10.8 Contain Work areas with two layers of 4-mil plastic sheeting on walls and ceilings, and two layers of 6-mil plastic sheeting on floors, or as otherwise directed in writing by the Asbestos Consultant.
- 3.10.9 Install as a drop cloth a 6-mil sheet of plastic, creating the 3rd layer of flooring, in areas where asbestos removal work is to be carried out. Completely cover floor with sheet plastic. Where the work is within 10 feet of a wall, extend the drop cloth up wall. Support sheet plastic on wall with duct tape, seal top of drop cloth plastic to Primary Barrier with duct tape so that debris is unable to get behind it. Provide cross strips of duct tape at wall support as necessary to support sheet plastic and prevent its falling during removal operations. Remove drop cloth at end of each work shift or as work in an area is completed.
- 3.10.10 The Contractor shall construct worker and waste container/equipment decontamination units in compliance with EPA guidelines. Provide sufficient numbers of lockers in change or "clean" rooms or workers' clothing with one locker reserved for County personnel.
- 3.10.11 The Contractor shall establish emergency exits and procedures for the Work area, satisfactory to fire officials and provide fire extinguishers as required. Exits shall be demarcated with arrows and large lettering on the polyethylene sheeting walls visible from throughout the work area
- 3.10.12 The Contractor shall ensure that barriers and plastic enclosures remain effectively sealed and taped. Inadvertent tears in plastic shall be repaired with fiber tape and the tear covered by plastic applied with spray adhesive, overlapping the tear by 6 inches on all sides.

- 3.10.13 If during performance of abatement work suspect ACM is observed outside of abatement enclosures, or if damage occurs to the enclosure barrier(s), work shall stop immediately upon discovery, appropriate repairs will be made (by Contractor), and all such debris will be collected using appropriate vacuums and wet methods.

PART 4 ASBESTOS REMOVAL

- 4.1 General: In a Work area, the Contractor shall:
- 4.1.1 Remove and dispose of all asbestos containing materials in accordance with the methods and procedures outlined in CCR Title 8, Section 1529.
 - 4.1.2 Where appropriate, work areas shall be airtight and enclosed under differential air pressure for the duration of the asbestos removal and the subsequent cleaning phases until all removal areas have been air-tested and found to follow the specified final air quality clearance level as determined by the Certified Asbestos Consultant to meet local and federal requirements.
 - 4.1.3 Perform appropriate cleaning using HEPA vacuum or wet cleaning methods of all areas physically connected to areas receiving asbestos removal.
 - 4.1.4 Dispose of all contaminated or otherwise removed materials and wastes in sealed and labeled containers in an approved sanitary landfill.
 - 4.1.5 Never use high pressure water streams to remove any type of ACM or ACCM.
 - 4.1.6 After removal, all surfaces shall be wet-cleaned and HEPA vacuumed to remove residual accumulated material. After cleaning, surfaces shall appear free of visible material.
 - 4.1.7 Prior to the removal of the plastic sheeting from the wall and floor surfaces, apply approved encapsulant on all concrete substrates, structural steel, and piping surfaces from which the material was removed and to plastic sheeting prior to its removal.
 - 4.1.8 Following related repair work remove any remaining floor and wall plastic, including seals on openings, and dismantle worker waste container/equipment decontamination areas and leave all areas clean.
 - 4.1.9 Eating, smoking or applying cosmetics shall not be permitted in the Work areas.

- 4.2 Class I Work within a Negative Pressure Enclosure System (NPE).
- 4.2.1 A Certified Asbestos Consultant must supervise all Class I work. A NPE will be used for the removal of spray-on acoustic ceiling, spray-on fireproofing, drywall, and the removal and/or decontamination of ceiling tile, ceiling t-grid system, and attached fixtures within site, building, or structure specified by the LAC.
 - 4.2.2 The NPE shall be built with a digital monometer, shower, water filter with a 5-micron pore size, and a heating unit attached.
 - 4.2.3 Before beginning work within the enclosure and at the beginning of each shift, the NPE shall be inspected for breaches and smoke-tested for leaks by the Asbestos Consultant. Any leaks detected will be sealed by the Contractor.
 - 4.2.4 Electrical circuits in the enclosure shall be deactivated and locked out, when necessary. Temporary power and portable lighting sources will be provided from outside the work area; insure safe installation (including using ground fault circuit interrupters (GFCI) of temporary power sources and equipment by compliance with all applicable electrical code requirements and Federal, state and local requirements.
 - 4.2.5 Thoroughly wet ACM prior to be removed to satisfaction of Asbestos Consultant. Accomplish wetting by a fine spray (mist) of amended water or removal encapsulant applied with airless spray equipment.
 - 4.2.6 Mist work area continuously with amended water to reduce airborne fiber levels. Apply mist with airless spray equipment. ***Must always mist the area unless a safety risk is associated with liquid in the area.**
- 4.3 Removal of OSHA Class I Work within Glovebags
- 4.3.1 At least two persons shall perform the removal for each glovebag or glovebag in operation.
 - 4.3.2 Employees must don the appropriate personal protective equipment.
 - 4.3.3 Check pipe where the work will be performed. Wrap damaged (broken lagging, hanging, etc.), pipe in two layers of 6-mil plastic and "candy-stripe" with adhesive tape.
 - 4.3.4 Place a drop cloth on surfaces beneath the pipe insulation to be removed. Build a spot containment around the work area.
 - 4.3.5 Place one layer of adhesive tape around undamaged pipe at each end where the glovebag will be attached. If the pipe insulation is not ACM, remove pipe insulation approximately three inches on either side of the

point of attachment. Use caution, however, as ACM insulation may be found under the fiberglass. Then proceed with the attachment of the glove bag directly to the pipe.

- 4.3.6 Slit top of the glovebag open (if necessary) and cut down the sides to accommodate the size of the pipe (about 2 inches longer than the pipe diameter).
- 4.3.7 Place necessary tools into pouch located inside glovebag.
- 4.3.8 Seal glovebag.
- 4.3.9 Request that the Asbestos Consultant perform a smoke tube test. If leaks are found, tape close using adhesive tape and re-test.
- 4.3.10 Insert wand from garden sprayer through water sleeve. Adhesive tape water sleeve tightly around the wand to prevent leakage. Attach HEPA vacuum hose to the glovebag and seal.
- 4.3.11 Remove insulation using putty knives or other tools. Place pieces in bottom of bag without dropping.
- 4.3.12 Rinse tools with water inside the bag and place back into pouch.
- 4.3.13 Using scrub brush, rags and water, scrub and wipe down the exposed pipe.
- 4.3.14 Remove water wand. Turn on the vacuum only briefly to collapse the bag.
- 4.3.15 Remove the vacuum nozzle, twist water sleeve closed and seal with adhesive tape.
- 4.3.16 From outside the bag, pull the tool pouch away from the bag. Place adhesive tape over twisted portion and then cut the tool bag from the glovebag, cutting through the twisted-taped section. Contaminated tools may then be placed directly into next glovebag without cleaning.
- 4.3.17 Alternatively, tool pouch with the tools can be placed in a bucket of water, opened underwater, and tools cleaned and dried. Discard rags and scrub brush with asbestos waste.
- 4.3.18 With removed insulation in the bottom of the bag, twist the bag several times and tape it to keep the material in the bottom during removal of the glovebag from the pipe.
- 4.3.19 Slip a 6-mil disposal bag over the glovebag (still attached to the pipe). Remove tape or cut bag and open the top of the glovebag and fold it down into disposal bag.

- 4.3.20 HEPA vacuum the drop cloth and place into disposal bag.
- 4.3.21 If a removal encapsulant is used, test to insure it will neither leave a residue that will impede visual inspection nor become gummy during cleaning.
- 4.3.22 Seal exposed ends of remaining pipe insulation.
- 4.3.23 Remove disposable suits and place these into bag with waste.
- 4.3.24 Collapse the bag with a HEPA vacuum, twist top of bag, seal with at least three wraps of adhesive tape, bend over the neck of the bag and seal again with at least three wraps of adhesive tape.
- 4.3.25 Request that the Asbestos Consultant conduct a visual inspection of the removal area.
- 4.4 Class II work:
 - 4.4.1 The CAC must supervise all Class II work. Contractor must use critical barriers over all openings to the regulated area. All Class II work shall use the same work practices and requirements as Class I asbestos jobs, including the containment and monometer requirements.
- 4.5 Class II Work - Vinyl and Asphalt Flooring Materials
 - 4.5.1 For removing vinyl and asphalt flooring materials containing asbestos Contractor must ensure that employees:
 - 4.5.1.1 Do not sand flooring or its backing
 - 4.5.1.2 Do not rip up resilient sheeting
 - 4.5.1.3 Do not dry sweep
 - 4.5.1.4 Do not use mechanical chipping unless performed in a negative pressure enclosure
 - 4.5.1.5 Use vacuums equipped with HEPA filters to clean floors
 - 4.5.1.6 Use wet methods when removing resilient sheeting by cutting
 - 4.5.1.7 Use wet methods to scrape residual adhesives and/or backing
 - 4.5.1.8 Remove tiles as intact as possible
 - 4.5.1.9 May omit wetting when tiles are heated and removed intact
 - 4.5.1.10 Assume resilient flooring material - including associated mastic and backing, are ACM, unless an asbestos survey or Certified Asbestos Consultant determines it asbestos free
- 4.6 Class II Work - Roofing Materials
 - 4.6.1 To remove asbestos containing roofing materials, Contractor must ensure that employees:

- 4.6.1.1 Remove them intact
 - 4.6.1.2 Use wet methods when possible
 - 4.6.1.3 Continuously mist cutting machines during use, unless the retained CAC determines misting to be unsafe
 - 4.6.1.4 Immediately HEPA vacuum all loose dust along the cut
 - 4.6.1.5 Lower as soon as possible or by the end of the work shift any bagged or wrapped roofing material to the ground via a covered, dust-tight chute, crane, or hoist
 - 4.6.1.6 Transfer unwrapped materials to a closed receptacle to prevent dispersing the dust when lowered
 - 4.6.1.7 Isolate roof level heating and ventilation air intake sources or shut down the ventilation system
- 4.7 Class II Work - Cementitious Asbestos Containing Siding and Shingles or Transite Panels
- 4.7.1 When removing cementitious asbestos containing siding and shingles or transite panels, Contractor must ensure that employees:
 - 4.7.1.1 Do not cut, abrade or break siding, shingles or transite panels when possible.
 - 4.7.1.2 Spray each panel or shingle with amended water before removing
 - 4.7.1.3 Lower to the ground any wrapped or bagged panels or shingles via a covered dust-tight chute, crane, or hoist, as soon as possible or by the end of the work shift
 - 4.7.1.4 Cut nails with flat, sharp instruments
- 4.8 Removal of Class II Materials - Asbestos Containing Gaskets
- 4.8.1 When removing asbestos containing gaskets, Contractor must ensure that employees:
 - 4.8.1.1 Remove gaskets within glove bags if they are visibly deteriorated and unlikely to be removed intact
 - 4.8.1.2 Thoroughly wet the gaskets with amended water prior to removing
 - 4.8.1.3 Immediately place the wet gaskets in a disposal container
 - 4.8.1.4 Scrape using wet methods to remove residue
- 4.9 Removal of Other Class II Asbestos Containing Material
- 4.9.1 For removal of any other Class II ACM, Contractor must ensure employees:
 - 4.9.1.1 Do not cut, abrade, or break the material where feasible

4.9.1.2 Thoroughly wet the material with amended water before and during removal

4.9.1.3 Immediately bag or wrap removed ACM and transfer to a closed receptacle at the end of the work shift

4.9.2 Contractor may use different or modified engineering and work practice controls if:

4.9.2.1 They can demonstrate, by employee exposure data during the use of such methods and under similar conditions, that employee exposure will not exceed the PEL under any anticipated circumstances

4.9.2.2 The retained CAC evaluates the work area, the projected work practices, and the engineering controls **and certifies, in writing**, that they will reduce **all** employee exposure to below the PEL under expected conditions. The evaluation must be based on exposure data for conditions closely resembling those of the current job and for employees with equivalent training and experience

4.10 Class III Work

4.10.1 Contractor must use wet methods and local exhaust ventilation, when feasible, during Class III work. Where drilling, cutting, abrading, sanding, chipping, breaking, or sawing thermal insulation or surfacing materials occurs, Contractor must use impermeable drop cloths as well as mini-enclosures, glove bag systems, or other effective isolation methods including creating critical barriers and ensuring that employees wear respirators. (See also the respirator requirements elsewhere in these specifications) Class IV Work:

4.11 Class IV Work

4.11.1 Employees conducting Class IV asbestos work must have attended an asbestos awareness training program. Employees must use wet methods and HEPA vacuums to promptly clean ACM or PACM debris. In areas where thermal system insulation or surfacing material is present, employees must assume that all waste and debris contains asbestos.

4.11.2 For unusual situations and/or asbestos containing materials not covered herein consult with the retained CAC for additional instructions.

PART 5 CLOSURE

- 5.1 ACM should be placed in labeled, leak-tight containers and/or wrapping. The labels shall contain all information as specified by the Occupational Safety and Health Standards of the Department of Labor, OSHA under 1926.1101(k)(2)(iii) and CCR Title 8, Section 5229, and any local regulations.
- 5.2 For temporary storage on site, ACM shall be stored in a secured area. The area shall be demarcated with Asbestos Warning Signs and caution tape.
- 5.3 Work areas and all other decontaminated areas and cleaned areas shall be considered clean when a) the Work area passes a visual inspection by the consultant and b) air testing performed by the consultant employed by the County, shows 0.01 or less fibers/cc (or background levels) of air using standard test methods of Phase Contrast Microscopy (PCM), NIOSH Analytical Method Number 7400.
- 5.4 Areas that do not comply with the standard of cleaning for final clearance shall continue to be cleaned by and at the Contractor's expense until the specified standard is achieved by results of air sampling tests by A Certified Asbestos Consultant. The costs of all follow-up tests necessitated by the failure of the air tests to meet the cleaning criteria shall be borne by the Contractor; the County will deduct the cost of such follow-up tests from whatever moneys remain due to the Contractor. Follow-up testing shall occur within the time allotted for gross removal or all costs to the County of the building attributable to delayed occupancy or usage shall be borne by the Contractor.
- 5.5 When an inspection determines that the area has been visually decontaminated, and the clearance of 0.01 f/cc (or less) is achieved and, the decontamination enclosure systems shall be removed, the area thoroughly wet cleaned, and materials from the equipment room and shower disposed of as contaminated waste. The remaining barriers between contaminated and clean areas and all seals on openings into the Work area and fixtures shall be removed and disposed of as contaminated waste.
- 5.6 All plastic sheeting, tape, cleaning material, clothing, and all other disposable material used in the asbestos removal operation or items used in the Work area shall be packed into sealable 6-mil plastic bags. These bags must be marked with labels as required by Cal/OSHA in CCR Title 8, Section 1529.

APPENDIX A
SCHEDULE OF ACM TO BE REMOVED AND
TABLE (AND FIGURES)

APPENDIX B
RESPIRATORY PROTECTION FORM

County of Los Angeles

Appendix B – General Asbestos Abatement Specification

RESPIRATORY PROTECTION FORM

Project Name: _____

Location: _____

Date : _____

The following level of respiratory protection is proposed for the indicated operations to maintain concentrations of asbestos below the specified Permissible Exposure Limit (PEL) inside the respirator facepiece.

Operation	Anticipated Exposure (f/cc)	Respiratory Protection	Protection Factor	f/cc in Mask
<u>Preparation</u> Asbestos:				
<u>Abatement</u> Asbestos:				
<u>Decontamination</u> Asbestos:				
<u>Other</u> Asbestos:				

The Contractor certifies that to the best of the Contractor's knowledge and belief the above represent a true and accurate representation of airborne concentrations to be expected for the operations indicated, and are based upon airborne data from past projects with similar materials and operations.

Contractor: _____

Signed by:

Signature : _____ Date _____

Print Name : _____

Title: _____

APPENDIX C
CERTIFICATE OF WORKERS ACKNOWLEDGEMENT

Appendix C – County of Los Angeles General Asbestos Abatement Specification

CERTIFICATE OF WORKER’S ACKNOWLEDGEMENT

Project Name: _____ Date: _____

Project Address: _____

Contractor: _____

WORKING WITH ASBESTOS CAN BE DANGEROUS. INHALING ASBESTOS FIBERS HAS BEEN LINKED WITH VARIOUS TYPES OF CANCER. IF YOU SMOKE AND INHALE ASBESTOS FIBERS THE CHANCE THAT YOU WILL DEVELOP LUNG CANCER IS GREATER THAN THAT OF THE NON-SMOKING PUBLIC.

Your employer's contract with the County for the above project requires that: You be supplied with the proper respirator and be trained in its use. You be trained in safe work practices and in the use of the equipment found on the job. You receive a medical examination. The former practices shall be implemented at no cost to you. By signing this certification, you are assuring the County that your employer has met these obligations to you.

RESPIRATORY PROTECTION: Within the past 12 months, I have been trained in the proper use of respirators, and have been informed of the respirator type to be used on the above referenced project. I have a copy of the written respiratory protection manual issued by my employer. I have been equipped at no cost with the respirator to be used on the above project. Within the past 12 months, I have received, and passed a fit test for my respirator.

TRAINING COURSE: Within the past 12 months, I have been trained, by an accredited training provider, in the dangers inherent in handling asbestos. I have been trained in the dangers associated with the inhalation of breathing asbestos. I have been trained in the proper work procedures and personal and area protective measures for working with asbestos.

MEDICAL EXAMINATION: I have had, and passed a medical examination within the last 12 months which was paid for by my employer, and met the criteria required by T8CCR, 1529.

Signature: _____

Printed Name: _____ I.D. Number: _____

Witness: _____