BRADY
Environmental Services, Inc.
Consulting - Engineering - Inspections - Remediation

TECHNICAL SPECIFICATIONS
ASBESTOS AND LEAD HAZARD ABATEMENT

of the

Hotel Grim
301 North State Line Avenue
Texarkana, Texas 75501

Prepared for:

Sari and Company
406 4th Street
Winston Salem, NC 27101

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TECHNICAL SPECIFICATIONS
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INFORMATION FOR CONTRACTORS
CONTRACTOR QUALIFICATIONS AND SUBMITTALS
PROJECT ADMINISTRATION
JOB SITE FACILITIES
KEY PERSONNEL
SUB-CONTRACTORS
INTRODUCTION

- Scope of Work
- Asbestos-Containing Materials
- Lead Based Paint Hazards
- Other Job Site Hazards
- Work Plan

REFERENCES

SECTION 1 SAFETY

- 1.1 Safety Management
- 1.2 Job Site Safety and Environmental Requirements
- 1.3 Emergency Response
- 1.4 Unsafe and Hazardous Conditions, Housekeeping
- 1.5 Personal Protective Equipment
- 1.6 Lifeline, Safety Belts, and Lanyards
- 1.7 Safety Nets
- 1.8 Fire Protection and Prevention
- 1.9 Signs and Barricades
- 1.10 Material Handling, Wastes and Disposal
- 1.11 Hand and Power Tools
- 1.12 Welding and Cutting
- 1.13 Electrical Safety Requirements
- 1.14 Scaffolding and Platforms
- 1.15 Fall Protection
- 1.16 Demolition
- 1.17 Stairways and Ladders
- 1.18 Heat Injury and Illness Prevention Plan

SECTION 2 - ASBESTOS

2.1 General
2.2 Definitions
2.3 System Description
2.4 Consulting Agency and Testing Laboratory
2.5 Quality Assurance / Submittals
2.6 Security
2.7 Medical Surveillance Requirements
2.8 Hygiene
2.9 Training Program
2.10 Encapsulants
2.11 Encasement Products
2.12 Expendable Supplies
2.13 Equipment
2.14 Protection of Adjacent Work or Areas to Remain
2.15 Objects
2.16 Ventilation Systems and Critical Barriers
2.17 Pre-Cleaning
2.18 Method of Compliance
2.19 Final Cleaning and Visual Inspection
2.20 Lockdown
2.21 Exposure Assessment and Air Monitoring
2.21 Clearance Certification
2.22 Clean-up and Disposal

SECTION 3 - LEAD HAZARD ABATEMENT

3.1 General Requirement
3.2 Lead Cleaning and Stabilization
3.3 Definitions
3.4 System Description
3.5 Contractor Personnel and Management
3.6 Permissible Exposure Limit
3.7 Exposure Assessment
3.8 Methods of Compliance
3.9 Respiratory Protection
3.10 Protective Work Clothing and Equipment
3.11 Housekeeping
3.12 Hygiene Facilities and Practices
3.13 Materials and Supplies
3.14 Equipment
3.15 Work Procedures and Methods
3.16 Furnishings
3.17 Clearance Procedures

3.18 Medical Surveillance
3.19 Hazard Communications
3.20 Training
3.21 Signs
3.22 Record Keeping
3.23 Certification of Visual Inspection

ATTACHMENTS:
Certificate of Worker's Acknowledgement
Asbestos Inspection Records, 2015
Lead Paint Report, 2015

INFORMATION FOR CONTRACTORS

GENERAL These instructions apply to proposals for the asbestos and lead hazard abatement services for the Hotel Grim Building Project in Texarkana, Texas.

CONTRACT DOCUMENTS The contract documents for the work proposed will include:

1. The specifications and documents including the drawings and attachments included in this request for proposal, together with changes, if any, based on the contractor's proposal or other submittals to the extent incorporated in this document prior to its execution.
2. All engineering information and other data submitted by the contractor and reviewed by owner.
3. Contractor's proposal.
4. The owner's purchase orders and other supplemental written documents which may be issued as amendments to the contract.

These documents collectively shall form the contract between the owner and the successful contractor for the contract duration.

DOCUMENTS FOR PROPOSAL Prospective contractors invited to make a direct proposal to owner will be furnished one copy of the contract documents.

Site Location	Hotel Grim Building 301 North State Line Road Texarkana, Texas
Owner of Record	Sari and Company 406 4th Street Winston Salem, NC 27101
Owner's Representative	Swift Creek Environmental Mr. Tom Houghton 8201 County Drive Disputanta, VA 23842 Office 804-991-3213 Fax: 804-991-2194 Email: swiftcreekinc@aol.com
Consultant of Record/ Consulting Agency	Brady Environmental Services, Inc. Mr. J. Mark Swinnea, P.E. P.O. Box 2623 Lindale, Texas 75771 Office: 903-882-6865 Fax: 903-882-6867 Email: mark@bradyenvironmental.com

PROPOSALS Contractors shall prepare and submit four (4) identical proposals. Each proposal shall contain a complete bound copy of the required supplemental data. Proposals which are not prepared and submitted in accordance with these instructions will be considered irregular and may be rejected at the discretion of the owner.

1. Preparation - Each proposal shall be carefully prepared using identical proposal forms bound herewith. Entries on the proposal forms shall be typed or legibly written in black ink. All prices shall be stated in words and figures except where the forms provide figures only.

   The contractor shall bind, with each proposal copy submitted, a signed copy of each addendum issued for the contract documents during the proposal period. The contractor shall assemble all supplementary information required and shall attach such information to the proposal.

2. Signatures - Contractor shall sign each proposal with contractor's usual signature and shall give contractor's full business address. Proposals by partnerships shall be signed with the partnership name followed by the signature and designation of one of the partners or other authorized representative.

   Proposals by a corporation shall be signed in the name of the corporation followed by the signature and designation of the president, secretary, or other person authorized to offer a proposal for the corporation. The names of all persons signing should also be typed or printed below the signature.

   When requested, satisfactory evidence of the authority of the officer signing on behalf of the corporation shall be furnished. Proposing corporations shall designate the state in which they are incorporated and the address of their principal office.

3. Submittal - Proposals shall be submitted in sealed envelopes each endorsed on the outside with the contractor's name, the owner's contract number, and the title of the project.

   Contractor's four (4) signed identical proposals, complete with four (4) copies of all required supplemental information, shall be submitted at the time and place named in these contract documents. These proposals shall be addressed to Owner of Record, at the address as indicated.

4. Firm Proposal - Each proposal shall be firm, not subject to escalation. Proposals may not be withdrawn for ninety (90) days after the date of submission.

TAXES The owner may qualify as exempt from federal, state and municipal sales taxes. Upon request, the successful contractor will be furnished the certification necessary to obtain the tax exemption.

TIME OF COMPLETION The contractor understands that the work under this Agreement shall be performed as directed by owner. The time set for completion of the work scope is a critical element of the project. The Contractor shall do everything within his power to complete the work within the agreed time period. It will be necessary that the contractor satisfy owner of contractor's ability to complete the work within the stipulated time.

INTERPRETATION OF CONTRACT DOCUMENTS If any prospective contractor is in doubt as to the true meaning of any part of the proposed contract documents, contractor may submit to owner a written request for an interpretation thereof. The person submitting the request will be responsible for its prompt delivery, and all requests must be received by owner at least five (5) working days before the scheduled proposal opening. Any interpretation of the contract documents will be made only by addendum duly issued, and a copy of such addendum will be mailed or delivered to each person receiving a set of the contract documents. The owner will not be responsible for any other explanations or interpretations of the proposed documents.

It shall be the responsibility of the contractor to advise the owner of conflicting requirements or omissions of information which are necessary for a clear understanding of the work, before the date set for opening proposals. Those questions not resolved by addenda shall be listed in the contractor's proposal, together with statements of the basis upon which the proposal is made as affected by each question.

PERFORMANCE AND PAYMENT BONDS The contractor may be required to furnish good and sufficient Performance and Payment Bonds prior to performance of services. A cost line item on the Contractor's proposal documents shall indicate bonding costs. All provisions of the bonds shall be complete and in full accordance with statutory requirements including Vernon's Texas Government Code Title 10, Chapter 2253. The bonds shall be executed with the proper sureties through a company or companies licensed and qualified to operate in the State of Texas and acceptable to the owner. The cost of the bonds shall be included on the proposal.

ACCEPTANCE AND REJECTION OF PROPOSALS A contract will be awarded to a responsible contractor after analysis and evaluation of the proposals by the owner. The owner reserves the right to accept the proposal which, in its judgment, is the evaluated best proposal, to reject any and all proposals, and to waive irregularities and informalities in any proposal that is submitted. It is agreed that the contract between the owner and the successful contractor shall not come into existence until the actual signing of the contract.

OWNERSHIP OF DRAWINGS AND SPECIFICATIONS Title to all Specifications and other contract documents are here with the Consultant and Owner. All contractors and the successful contractor awarded the contract agree that these documents and/or materials will not be used in any manner other than for the preparation of proposals and for the services covered by the contract documents. Documents referred to other firms for proposals on subcontracts will be subject to the same provisions.

METHOD OF EVALUATION In addition to cost considerations, award of the contract to perform this work will be based upon the owner's evaluation of the following:

a.) Contractor's ability to prove strict compliance to contract specifications.

b.) Previous asbestos and lead abatement/installation experience of the contractor and its employees.

c.) The number, seriousness and resolution of any citations/terminations issued to contractor or its personnel.

d.) Contractor's ability to perform the majority of the work with contractor's own forces and under the management of contractor's own organization.

e.) Quality of contractor's Asbestos and Lead Hazard Abatement Plan.

f.) Quality of contractor's compliance record program.

g.) Quality of Contractor's safety program and resulting safety record.

h.) Quality of contractor's safety program and safety record as indicated by Workman's Compensation modification ratings.

i.) Quality of contractor's drug screening program.

j.) Quality of contractor's proposed work methods.

k.) Qualifications of proposed Subcontractors and the specific job roles of each.

CONTRACTOR QUALIFICATIONS AND SUBMITTALS

GENERAL Each contractor shall submit with its proposal, information for owner's use in evaluating the contractor's proposal and its ability to satisfactorily perform the work. Contractors not meeting the minimum qualifications are subject to rejection of proposal.

The information submitted with the contractor's proposal will become part of the contract documents if the contractor's proposal is accepted. Any changes or substitutions shall be made only with the written acceptance of the owner, and such change or substitution shall not be cause for additional financial compensation nor shall they invalidate the contract in any way.

QUALIFICATIONS The minimum qualifications necessary for eligibility to perform services under this contract are stated within the following information to be submitted.

INFORMATION TO BE SUBMITTED The following information shall be submitted:

a.) Licenses - The number and description of any licenses for asbestos and lead abatement-related work (including Texas Department of State Health Services) held by the firm, any subcontractor to the firm, or any employee of the firm, or of a subcontractor who shall perform services under this contract. The firm must hold all necessary licenses and training for asbestos and lead related work (including Texas Department of State Health Services) as well as subcontractors to the firm and employees of a subcontractor who shall perform abatement-related work under this contract.

b.) Experience - The firm must have performed asbestos and lead abatement work for a minimum of three (3) years on large and small scale projects including city/county/school/commercial/retail/office facilities. Similar project references with contract names and man hours worked shall be listed. Company management and job supervisory personnel must show abatement experience of at least five (5) years with two (2) of the years in a supervisory capacity with contractor and must meet the state licensing requirements. Organizational charts showing corporate and intended jobsite supervisory personnel shall be submitted with resumes of each individual.

c.) Citations/Terminations - The Contractor and all subcontractors shall submit a statement, signed by an officer of the company, containing a record of any citations issued by Federal, State or local regulatory agencies relating to asbestos and lead activities (including projects, dates, and resolutions); a list of penalties incurred through non-compliance with asbestos and/or lead project specifications, including liquidated damages, overruns in scheduled time limitations and resolutions; and situations in which an asbestos/lead-

related contract has been terminated (including projects, dates, and reasons for terminations). If there are none, a negative declaration signed by an officer of the company shall be provided. The firm must be free of any active claims or civil citations, notices of violations, legal proceedings, and project terminations from any federal, state, or local regulatory agency or department issued to or served upon the firm.

d.) Subcontractors – A list of all proposed Subcontractors anticipated.

e.) Organization Report - The Contractor shall submit a qualification and organization report. The report shall describe the qualifications of the certified supervisor, and certified abatement workers. Include in the report an organization chart showing the Contractor's personnel by name and title and project specific responsibilities and authorities. The report shall be signed by the Contractor and the certified abatement supervisor to indicate that all personnel comply with certification and experience requirements of this section and that project personnel have been given the authority to complete the tasks assigned to them.

f.) Safety Record and Program - The contractor shall supply Workman's Compensation modification ratings for the last three (3) years and a log of accident reports showing any injuries occurring on all jobs in the last three (3) years. Proposals must also include detailed descriptions of safety and safety training programs. A well-established safety program and clean safety record are required to be considered an acceptable contractor for this contract. The contractor must have an effective, well established safety program and clean safety record.

g.) Drug Screening Program - The contractor shall have an established drug screening program for all workers to be employed on the Hotel Grim job site. Description and evidence of this program shall be included in the proposal.

h.) Asbestos and Lead Hazard Abatement Plan (ALHAP) – Contractor's shall prepare a work plan detailing Contractor's planned approach for completing abatement activities. This plan shall address means and methods including containment areas and sequencing of abatement and clearance.

ADDITIONAL INFORMATION TO BE SUBMITTED

a.) Surety – A letter of certification from a surety company to confirm that the contractor is qualified to execute a valid performance bond and a valid payment bond for the project.

b.) Exceptions – Any exception to the specifications, requirements or the terms and conditions of this contract must be clearly acknowledged and explained on a separate page and must accompany the proposal.

REJECTION OF PROPOSAL Failure to submit information detailed in this section under Qualifications, Information to be submitted, and Additional Information to be submitted may be cause for rejection of contractor's proposal. Contractor's submittals will be used, at the sole discretion of the owner, in determining whether the contractor's proposal is accepted or rejected.

PROJECT ADMINISTRATION

The Prime Contractor, also identified as the Abatement Contractor, shall be identified in these documents as "Contractor". The Prime Contractor is responsible for assuring that all site personnel under their authority adhere to the Contractor's Project Safety & Health Programs, job specifications and all local, state and federal rules, regulations and procedures.

Project administration is one of the key elements in communicating and coordinating site activities and Safety & Health obligations. The Contractor shall develop a site specific written "Project Safety and Health Program: to ensure all persons on site shall work in a safe environment where job tasks are coordinated and organized.

Weekly project coordination and safety meetings will be held at the Contractor's job trailer. Representatives from each active Subcontractor, building Owner Representative and Consultant's Representative shall attend.

All work site personnel, including Owner's Representatives, Contractor's Project Superintendent, Environmental Consultant's Personnel, Abatement Contractor Competent Person and Subcontractors, will familiarize themselves with these specifications, and the Prime Contractor's Accident Prevention Plan.

Visitor(s) accessing the site for less than an eight (8) hour period shall be accompanied by an authorized person - one who has been trained on the project hazards and who is familiar with the project throughout the entirety of his/her visit.

The Prime Contractor and all lower tier Subcontractors shall take all necessary precautions to protect all on-site personnel from any hazards involving safety & health arising from the scope of work and/or in the course of completing the scope of work.

Any person on site may shut down a work operation that poses imminent danger or a situation arises which is immediately dangerous to life or health on site. When such precautions must be immediately taken, the Project Superintendent and/or Competent Person shall be immediately notified and actions to remedy the situation shall be implemented.

The Prime Contractor shall hold Subcontractors responsible and accountable for safety compliance on the project site with the Project Safety & Health Program.

The Prime Contractor shall assure all onsite personnel have in the possession at the job site, the necessary safety equipment such as fall protection safety harnesses and lanyards, hard hats, respirators, safety glasses, safety shoes and other safety equipment and require their use as needed.

All incidents / accidents shall be immediately communicated to the Contractor's Project Superintendent and Consultant's Project Manager. An incident / accident investigation report shall be submitted within twenty-four (24) hours of the incident. A copy of any supportive material utilized in the investigation shall also be submitted along with the report (i.e. photographs, drawings and witness statements).

All "recordable" accidents, incidents or fatalities as per OSHA 29 CFR 1904 Subpart C should be immediately communicated to the Consultant and Owner's Representative.

For compliance with applicable state and federal regulatory requirements, a state notification should be filed with the Texas Department of State Health Services. This notification should be filed at least ten working days prior to commencement of abatement.

JOB SITE FACILITIES

The Prime Contractor shall set up a temporary job site trailer for the project duration. These facilities shall have electric service and include heating and air conditioning. The job trailer shall have a minimum of two work stations and a meeting area to accommodate weekly project site coordination meetings. One full work station will be available to the Environmental Consultant's Project Manager, for daily on-site analysis of PCM air samples.

Utilities, including electricity and water are not presently available at the site. The Contractor shall arrange such services at his expense and pay for the use. The Contractor shall set up GFCI distribution panels to provide distribution for the project.

KEY PERSONNEL

The term "Contractor" as referred to in these contract documents and specifications shall apply to the Prime Contractor, and/or any and all Subcontractors in the performance of their scope of services. The Prime Contractor shall hold Subcontractors accountable and responsible for compliance with the project specifications and regulatory standards as may be applicable to the Subcontractor's scope of services. The following information defines the obligations and requirements of key personnel for Owner Representatives, Abatement Contractor and all Subcontractor personnel who play a vital role in the Project Execution and Safety.

The Project Superintendent is the on-site coordinator and overseer of Primer Contractor's operations. It is the duty of the Project Superintendent to see to the maintenance of site security, the coordination of activities by all Subcontractors, and to verify that all activities are performed in a safe manner. The Project Superintendent is responsible for adherence to the plans and specification and the safety & health practices and conditions on site.

The Project Superintendent's responsibilities shall also include the following:

1. The Project Superintendent shall ensure all personnel of Subcontractors are in compliance with safe work practices and attend all weekly safety meetings.

2. Give on-going input into necessary changes to the Project Safety & Health Program.

3. Hold Subcontractors responsible and accountable for compliance with project specifications as well as their own Project Specific Safety & Health Program.

4. Schedule and direct weekly Safety & Health meetings.

5. Require submittal of a written plan from all Subcontractors regarding how work processes will be safely performed.

6. Maintain copies of all safety data sheets (SDS) and start job specific files for SDS' and provide access of such to all Subcontractors.

7. Take immediate action to correct unsatisfactory conditions and work practices personally observed or brought to his attention arising from Subcontractor activities. Immediately discontinue work around the unsafe area until concerns are properly addressed.

8. Assure that all injuries are reported and treated.

9. Assure that OSHA recordkeeping requirements are maintained.

10. Complete weekly job safety walk-through assessments.

OSHA defines a Competent Person as "one who is capable of identifying 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". This individual must have an OSHA 30-hour training for the construction industry under the outreach program.

The Designated Competent Persons for the Prime Contractor and all lower tier Subcontractors shall be submitted by each Contractor prior to the start of project site activities.

Job site employees of Prime Contractor as well as Subcontractors shall have Stop Work Authority. Any person on site may shut down a work operation that poses imminent danger or a situation arises which in immediately dangerous to life or health on site. When such precautions must be immediately taken, the Project Superintendent and / or Competent Persons shall be immediately notified and actions to correct the situation shall be implemented. All employees of any Contractor must take the OSHA 10-hour training for the Construction Industry under the outreach program.

The Project Consultant as referred to in the specifications refers to the Texas licensed Consultant retained by the Owner to provide oversight and testing services. The Consultant will designate licensed Project Managers and Air Monitoring Technicians (AMT) to provide daily monitoring of contractor's abatement activities. These individuals are referred to in these documents as Project Manager and/or AMT.

SUB-CONTRACTORS

Subcontractors are responsible for the training of workers, safety inspections, necessary safety documentation and coordinating of work for safe means through the Prime Contractor.

Copies of the Project Safety & Health Program will be included in the Subcontractor's pre-construction submittals. Each Subcontractor shall keep a copy of the Project Safety & Health Program in their company's on-site facilities. Each contractor is responsible for training and familiarization of their workers with the minimum requirements set forth in this manual and any changes which are made to it.

All Subcontractors to the Prime Abatement Contractor are responsible for administering project orientation training for their workers. Safety is the responsibility of everyone on site, requiring everyone to work together to achieve a safe workplace.

INTRODUCTION

The Hotel Grim building, constructed in 1925, consists of eight floors and a full basement. Current plans call for extensive repairs and renovations to the structure. During March 2015, an asbestos survey was conducted by HEC Environmental Group. During May 2015, lead based paint sampling was performed by Terracon. These inspections identified asbestos and lead hazards are present throughout the building. Brady Environmental Services was retained by Swift Creek Environmental in March 2017 to review asbestos and lead inspection records and reassess materials and site conditions.

Scope of Work

Work covered by these specifications shall include the following:

1) Remove and dispose all identified asbestos-containing materials.
2) Remove and dispose all asbestos-containing debris and furnishings.
3) Decontaminate all remaining interior surfaces from asbestos fibers.
4) Obtain final clearance air levels by PCM and/or TEM in accordance with these specifications.
5) Remove and dispose all lead contaminated debris and furnishings.
6) Remove and dispose all damaged and flaking lead based paints.
7) Remove and dispose all lead painted components not scheduled for reuse. Components to include doors, door trim, trim work, molding, window components, wanes coating and other damaged components having lead based paints.
8) Remove and dispense of non-structural ceiling and walls as lead contaminated where specified for removal in architectural demolition plans.
9) Obtain final HUD level clearance for lead dust from each room equivalent space.
10) Partial stripping of lead based paints from remaining surfaces as needed to facilitate general building repairs and renovations.
11) Apply prime coat of paint to seal all remaining walls and ceilings where lead paints are not removed in their entirety.
12) Removal of all damaged structural components and damaged sub-structural components as needed to complete asbestos and lead hazard abatement.

Asbestos Containing Materials

The asbestos inspection records identify floor tile and mastics, TSI on piping and boiler systems, and asphaltic roofing as asbestos containing materials. In addition to the 2015 asbestos inspection, transite boards were identified on the upper levels during the 2017 reassessment. Current site conditions reveal significant damage to asbestos containing materials that are present on every level of the building.

Lead Based Paint Hazards

The paint testing performed in 2015 involved the sampling of seven predominate paints found throughout the structure. Analytical results indicated lead content was greater than the 300-ppm level set by the Consumer Product Safety Commission for all samples. Five of the seven samples were in excess of 5,000-ppm. Lead based paints are found on each floor of the building and were applied to walls, ceilings, columns, pillars, trim, doors, windows and railing. All lead based paints are in poor condition with extensive flaking, peeling and chalking throughout the entire structure.

Other Job Site Hazards

Water damage from compromised roofing and open doors/windows has led to significant damage to interior finishes. Vandalism has led to a large amount of asbestos piping insulation being exposed and displaced. The building contains a large amount of debris on each level resulting from contents and furnishings left in place.
These conditions have resulted in the wide spread distribution of asbestos and lead contaminants throughout the building.

These technical specifications address safeguards and procedures to be followed during the abatement of the asbestos and lead hazards. The scope of work shall include removal of all debris, contents and damaged building finishes as asbestos and lead containing. Exceptions shall be limited to hard non-porous surface items which can be cleaned for disposal as general construction debris.

Water damage and general deterioration has resulted in a partial collapse of the roof system on the top level, and first floor kitchen areas. This damage has compromised portions of the stairways.

Work Plan

The Contractor shall first establish a first-floor safe zone as an access and staging area for the project. This zone must be in a structurally sound area and shall be abated to remove asbestos and lead hazards. This safe zone shall be large enough to accommodate workers egress and project supplies. Following the establishment of the safe zone, the Contractor shall begin shoring, railing installations and sign placement as required to secure and properly mark hazards and provide safe egress throughout the structure.

REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to within the text by the basic designation only.

AMERICAN SOCIETY OF SANITARY ENGINEERING (ASSE)

ASSE Z9.2	(2012) Fundamentals Governing the Design and Operation of Local Exhaust Ventilation Systems

ASTM INTERNATIONAL (ASTM)

ASTM D4397	(2016) Standard Specification for Polyethylene Sheeting for Construction, Industrial, and Agricultural Applications
ASTM E1368	(2014) Visual Inspection of Asbestos Abatement Projects
ASTM E1727	(2016) Standard Practice for Field Collection of Soil Samples for Subsequent Lead Determination
ASTM E1728	(2016) Collection of Settled Dust Samples Using Wipe Sampling Methods for Subsequent Lead Determination
ASTM E1792	(2003; R 2016) Standard Specification for Wipe Sampling Materials for Lead in Surface Dust

INTERNATIONAL SAFETY EQUIPMENT ASSOCIATION (ISEA)

ANSI/ISEA Z87.1	(2015) Occupational and Educational Personal Eye and Face Protection Devices

NATIONAL FIRE PROTECTION ASSOCIATION (NFPA)

NFPA 701	(2015) Standard Methods of Fire Tests for Flame Propagation of Textiles and Films

NATIONAL INSTITUTE FOR OCCUPATIONAL SAFETY AND HEALTH (NIOSH)

NIOSH NMAM	(2016; 5th Ed) NIOSH Manual of Analytical Methods
29 CFR 1910.134	Respiratory Protection

29 CFR 1910.141	Sanitation
29 CFR 1910.147	Control of Hazardous Energy (Lock Out/Tag Out)
29 CFR 1926.1101	Asbestos
29 CFR 1926.62	Lead Construction Standard
40 CFR 61	National Emission Standards for Hazardous Air Pollutants
40 CFR 745	Lead-Based Paint Poisoning Prevention in Certain Residential Structures
40 CFR 763	Asbestos
42 CFR 84	Approval of Respiratory Protective Devices
49 CFR 107	Hazardous Materials Program Procedures
49 CFR 171	General Information, Regulations, and
49 CFR 172	Hazardous Materials Table, Special Provisions, Hazardous Materials Communications, Emergency Response Information, and Training Requirements

UNDERWRITERS LABORATORIES (UL)

UL 586	(2009; Reprint Sep 2014) Standard for High-Efficiency Particulate, Air Filter Units

U.S. DEPARTMENT OF HOUSING AND URBAN DEVELOPMENT (HUD)

(1995; Errata Aug 1996; Rev Ch. 7 - 1997) Guidelines for the Evaluation and Control of Lead-Based Paint Hazards in Housing

U.S. NATIONAL ARCHIVES AND RECORDS ADMINISTRATION (NARA)

Lead-Based Paint Poisoning Prevention in Certain Residential Structures

Texas Environmental Lead Reduction Rules

Toxic Substances Control Act (15 United States Code §2681 et seq.) Title IV, and the rules adopted by the EPA under that law for authorization of state programs.

Title X, Residential Lead-Based Paint Hazard Reduction Act of 1992.

SECTION I – SAFETY

1.1 Safety Management

The Contractor shall be required to provide, maintain, and implement various safety related requirement including submittal of a site-specific Accident Prevention Plan (APP) that will be utilized for all abatement related activities at the Hotel Grim site. This plan shall include all Contractor personnel, as well as Subcontractors and Subcontractor personnel under his direction. The APP shall be in accordance with the format and requirements of all applicable OSHA standards for the anticipated job site hazards.

Activity Hazard Analyses

AHAs for each major phase of work, shall be submitted and updated during the project. The analysis shall define the activities to be performed for a major phase of work, identify the sequence of work, the specific hazard anticipated, and the control measures to be implemented to eliminate or reduce each hazard to an acceptable level. Work shall not proceed on that phase until the AHA has been accepted and a preparatory meeting has been conducted by the Contractor to discuss its contents with everyone engaged in the activities, including the onsite owner's representatives. The AHAs shall be continuously reviewed and, when appropriate, modified to address changing site conditions or operations.

Asbestos and Lead Hazard Abatement Plan

The Contractor shall prepare and maintain an asbestos and lead abatement plan that conforms to these specifications and shall at a minimum contain and address the following elements:

a) The personal protective equipment to be used;
b) The location and description of each regulated area including clean and dirty areas, access tunnels, and decontamination unit (clean room, shower room, equipment room, storage areas such as load-out unit);
c) Initial exposure assessment in accordance with 29 CFR 1926.1101;
d) Initial exposure assessment in accordance with 29 CFR 1926.62;
e) Level of supervision;
f) Method of notification of other employers at the worksite;
g) Abatement method to include containment and control procedures;
h) Interface of trades;
i) Sequencing of asbestos and lead related work;
j) Storage and disposal procedures and plan;
k) Type of wetting agent and asbestos encapsulant;
l) Type of chemical stripper and application plan for lead removal;
m) Location of local exhaust equipment;

n) Air monitoring methods and records (personal, environmental and clearance);
o) Bulk sampling and analytical methods and results;
p) A detailed description of the method to be employed in order to control the spread of ACM wastes and airborne fiber;
q) Detailed description of method to be employed to minimize lead dust hazards;
r) Detailed description of lead waste containment and TCLP testing and hazardous materials disposal plan;
s) Fire and medical emergency response procedures;
t) The security procedures to be used for all regulated areas.

1.2 Job Site Safety and Environmental Requirements

The Contractor will be solely and completely responsible for conditions on the Job Site, including safety of all persons and property during performance of Contractor's work. This requirement will apply continuously and not be limited to normal working hours.

The Contractor shall assign a designated, competent person as "Safety Manager", for all phases of Contractor's services. The Safety Manager must have the training and experience to recognize unsafe conditions whenever contractor's work is in progress. The Safety Manager shall also be responsible for implementing, maintaining, and recording of Site Specific Safety Plan. The designated Safety Manager shall have and executive oversite for all Subcontractors under prime Contractor's control.

The Contractor shall conduct on-site safety meetings and provide the Consultant's Project Manager with appropriate documentation.

The Owner may hire a third-party safety audit of the job site and work in progress at any time and on as many occasions as deemed necessary by the Owner. Any deficiencies discovered may subject the Contractor to a work shut down until such matters are properly addressed and corrected. The Owner shall not be responsible for effects and financial impact to the Contractor of safety related shut downs.

The Contractor shall maintain an adequately stocked first aid kit in a convenient and accessible location at the premises.

1.3 **Emergency Response**

In the event of a jobsite EMERGENCY the Contractor's Competent Person will call 911 and give the details of an EMERGENCY and provide assistance as needed to Emergency Responders.

EMERGENCY SERVICES NOTIFICATION
It will be the Competent Person responsibility to notify by telephone the local fire department, emergency medical service (or ambulance company), and police department prior to start of construction / abatement activities at the Hotel Grim project.

The responsibility of the Contractor's Competent Person during emergency and/or potential emergency situations shall include the following:

a) Assessing the situation and determining whether an emergency exists that requires activating the emergency procedures.
b) Directing the efforts in the area including personnel to minimize injury and property loss.
c) Ensuring that outside emergency services such as medical aid and local fire departments are called in when necessary.
d) Directing the shutdown of operations and building evaluation when necessary.

1.4 Unsafe and Hazardous Conditions, Housekeeping

The Contractor shall instruct each employee in the recognition and avoidance of unsafe conditions and the regulations applicable to his work environment to control or eliminate any hazards or other exposure to illness or injury.

1.4.2 During the course of construction, alteration, or repairs, debris, glass and lumber with protruding nails shall be kept cleared from work areas, passageways, and stairs. 29 CFR 1926.25 (a)

1.4.2 Construction areas, aisles, stairs, ramps, runways, corridors, offices, shops, and storage areas where work is in progress shall be lighted with either natural or artificial illumination. The minimum illumination requirements for work areas shall meet or exceed the OSHA construction Industry Standards. 29 CFR 1926.56 (a) Table D-3

1.4.3 Good housekeeping is essential for creating a safe work place and is the responsibility of each person on the construction site. Removal of trash slipping, and tripping hazards will be on-going throughout each day. Materials will be disposed of in their designated receptacles places throughout the construction site. Electrical cords, hoses, tools and supplies will be placed so as not to create a tripping or overhead hazard. 29 CFR 1926.25

1.5 Personal Protective Equipment – 29 CFR 1926 Subpart E

The Contractor is responsible for requiring the wearing of appropriate personal protective equipment in all operations where there is an exposure to hazardous conditions.

1.5.1 “Application”
Protective equipment, including personal protective equipment for eyes, face, head, and extremities, protective clothing, respiratory devices, and protective shields and barriers, shall be provided, used, and maintained in a sanitary and reliable condition wherever it is necessary by reason of hazards encountered in a manner capable of causing injury or impairment in the function of any part of the body through absorption, inhalation or physical contact. – 29 CFR 1926.95 (a)

1.5.2 "Design."
All personal protective equipment shall be of safe design and construction for the work to be performed. - 29 CFR 1926.95 (c)

1.5.3 Head Protection - 29 CFR 1926.100
Employees working in areas where there is a possible danger of head injury from impact, or from falling or flying objects, or from electrical shock and burns, shall be protected by protective helmets. The Contractor must provide each employee with head protection that meets the specifications contained in any of the following consensus standards:

American National Standards Institute (ANSI) Z89.1-2009, "American National Standard for Industrial Head Protection.

American National Standards Institute (ANSI) Z89.1-2003, "American National Standard for Industrial Head Protection,"

American National Standards Institute (ANSI) Z89.1-1997, "American National Standard for Personnel Protection-Protective Headwear for Industrial Workers-Requirements."

1.5.4 Hearing Protection 29 CFR 1926.101
Wherever it is not feasible to reduce the noise levels or duration of exposures to those specified in Table D-2, Permissible Noise Exposures, in 1926.52, ear protective devices shall be provided and used. Ear protective devices inserted in the ear shall be fitted or determined individually by competent persons.

1.5.5 Eye and Face Protection 29 CFR 1926.102
The Contractor shall ensure that each affected employee uses appropriate eye and face protection throughout all phases of cleaning, debris removal, construction of temporary barriers and abatement / stabilization work.

The Contractor shall ensure that each affected employee who wears prescription lenses while engaged in operations that involve eye hazards wears eye protection that incorporates the prescription in its design, or wears eye protection that can be worn over the prescription lenses without disturbing the proper position of the prescription lenses or the protective lenses.

Protective eye and face protection devices must comply with any of the following consensus standards:

ANSI/ISEA Z87.1-2010, Occupational and Educational Personal Eye and Face Protection Devices.

ANSI Z87.1-2003, Occupational and Educational Personal Eye and Face Protection Devices.

ANSI Z87.1-1989 (R-1998), Practice for Occupational and Educational Eye and Face Protection.

1.5.6 Hand Protection
The Contractor / Subcontractor employees shall be required to use appropriate hand protection at all times while on the project site. Appropriate hand protection shall be selected based upon the task(s) to be performed, conditions present, duration of use, as well as the hazards and potential hazards identified.

1.5.7 "Employee-Owned Equipment"
Where employees provide their own protective equipment, the Contractor shall be responsible to assure its adequacy, including proper maintenance, and sanitation of such equipment.

1.6 Lifelines, Safety Belts, and Lanyards 29 CFR 1926.104

Lifelines, safety belts, and lanyards shall be used only for employee safeguarding. Lifelines shall be secured above the point of operation to an anchorage or structural member capable of supporting a minimum dead weight of 5,400 pounds. Safety belt lanyard shall be a minimum of 1/2-inch nylon, or equivalent, with a maximum length to provide for a fall of no greater than 6 feet. The rope shall have a nominal breaking strength of 5,400 pounds.

1.7 Safety Nets 29 CFR 1926.105

Safety nets shall be provided where site conditions include working more than 25 feet above ground, or other surfaces where the use of ladders, scaffolds, catch platforms, temporary floors, safety lines, or safety belts is impractical. Where these conditions exist, all netting shall comply with 29 CFR 1926.105.

1.8 Fire Protection and Prevention

a) The contractor shall comply with and utilize all fire protection and prevention stands of the 29 CFR 126 Subpart F.

b) The Contractor shall be responsible for the development of a fire protection program to be followed throughout all phases of abatement work. As fire hazards occur, there shall be no delay in providing the necessary equipment.
c) Access to all available firefighting equipment shall be maintained at all times.
d) All firefighting equipment shall be conspicuously located.
e) All firefighting equipment shall be periodically inspected and maintained in operating condition. Defective equipment shall be immediately replaced.
f) Fire extinguishers, rated not less than 2A, shall be provided for each 3,000 square feet of the building area. Travel distance from any point of the protected area to the nearest fire extinguisher shall not exceed 100 feet.

1.9 Signs and Barricades

1.9.1 Signs and Symbols

Signs and symbols for the Grim Project shall be visible at all times when work is being performed, and shall be removed or covered promptly when the hazards no longer exist.

a) Danger signs shall be used only where an immediate hazard exists, and shall follow the specifications illustrated in Figure 1 of ANSI Z35.1-1968 or in Figures 1 to 13 of ANSI Z535.2-2011.
b) Danger signs shall have red as the predominating color for the upper panel; black outline on the borders; and a white lower panel for additional sign wording.
c) Caution signs shall be used only to warn against potential hazards or to caution against unsafe practices, and shall follow the specifications illustrated in Figure 4 of ANSI Z35.1-1968 or in Figures 1 to 13 of ANSI Z535.2-2011.
d) Caution signs shall have yellow as the predominating color; black upper panel and borders, yellow lettering of "caution" on the black panel; and the lower yellow panel for additional sign wording. Black lettering shall be used for additional wording.

1.9.2 Barricades

a) Barricades must be erected to prevent or limit access to an area where a temporary hazard exists or to warn personnel of a temporary hazard in an area.
b) Barricades must be located at all points of possible entry into the area in which the hazard exists for as long as the hazard exists.
c) Warning tags shall be attached to the barricade material and must be visible for all normal approaches to the protected area.
d) All personnel must identify the hazard and ensure safety before passing through a “caution” barricade.

1.10 Material Handling, Wastes and Disposal 29 CFR 1926.250

Whenever materials are dropped more than 20 feet to any point lying outside the exterior walls of the building, an enclosed chute of wood, or equivalent material, shall be used. For the purpose of these specifications, an enclosed chute is a slide, closed in on all sides, through which material is moved from a high place to a lower one.

When debris is dropped through holes in the floor without the use of chutes, the area onto which the material is dropped shall be completely enclosed with barricades not less than 42 inches high and not less than 6 feet back from the projected edge of the opening above. Signs warning of the hazard of falling materials shall be posted at each level. Removal shall not be permitted in this lower area until debris handling ceases above.

All scrap lumber, waste material, and rubbish shall be removed from the immediate work area as the work progresses.

Asbestos and lead containing materials shall be placed in air tight disposal containers and properly labeled as per the specific requirements of sections 2 and 3 of these Specifications. At no time shall these waste containers be allowed to free fall.

1.11 Hand and Power Tools

All hand and power tools and similar equipment, whether furnished by the Contractor or the employee, shall be maintained in a safe condition. All hand and power tools shall be operated in accordance with the manufacturer's precautions and directions. Use of guards, shields and electrical safety equipment shall be utilized as appropriate. Contractor shall review all applicable OSHA Stands of 29 CFR 1926 Subpart I.

a) All power tools and associated cords or hoses must be inspected prior to each use and removed from service if found to be defective.
b) All portable powered tools must be used for their intended purpose only.
c) Portable powered tools cannot be modified in any way.
d) Users of all tools must maintain positive control of the tool at all times and must assume a safe working position so as not to cause an injury to themselves or a co-worker.

1.12 Welding and Cutting

Where welding or torch-cutting operations are utilized the contractor shall incorporate a hot works permit system. Contractor shall follow all safety precautions and procedures and conform with all provisions of Subpart J of the OSHA Construction Standards. 29 CFR 1926

1.13 Electrical Safety Requirements

This subpart addresses electrical safety requirements that are necessary for the practical safeguarding of employees involved in construction, demolition and abatement work at the Hotel Grim project. All requirements of 29 CFR 1926.402 through section 29 CFR 1926.408 shall apply.

1.14 Scaffolding and Platforms

Scaffolding shall comply with Subpart L of the OSHA Construction Standard. Make shift platforms, such as stacked materials, boxes, drums, etc. shall not be allowed.

1.14.1 Rolling platforms shall be utilized according to the manufacturer's recommendations, not altered in any way and not ridden while being moved.

1.14.2 Scaffolds must be inspected by the user prior to each use.
Inspections for Contractor personnel must be conducted and documented on the scaffold tag by a Competent Person prior to use for each shift the scaffold is used.

1.14.3 Rolling tower scaffolds must be free material and equipment before being moved. Caster brakes on rolling tower scaffold must be locked while in use.

1.15 Fall Protection 29 CFR 1926 Subpart M

This subpart sets forth requirements and criteria for fall protection in construction workplaces covered under 29 CFR part 1926. Exception: The provisions of this subpart do not apply when employees are making an inspection, investigation, or assessment of workplace conditions prior to the actual start of construction work or after all construction work has been completed.

1.15.1 Fall protection must be used for elevated work and must be used 100% of the time when there is danger of employees falling from a distance of 6 feet or greater. The distance is based on the elevation where the person is standing or sitting. In order to achieve the 100% tie-off requirement, double lanyards must be used.

1.16 Demolition

The Hotel Grim Abatement Project will involve partial demolition in various areas of the building to accomplish abatement work and lead stabilization. Demolition work is anticipated within the basement level, first floor kitchen, compromised stairwells, upper level roof structure, upper level auditorium area, and various wall and ceiling finishes that have become compromised and require removal.

1.16.1 Engineering Survey

Prior to permitting employees to start demolition operations, the Owner shall provide an engineering survey to determine the condition of the framing, floors, and walls, and possibility of unplanned collapse of any portion of the structure.

1.16.2 Shoring and Bracing

Work within the structure may require shoring or bracing to ensure safe work areas. The contractor shall review structural reports and consult with the structural engineer as needed to identify structurally compromised areas. The contractor bears all responsibility for proper installation and use of shoring and bracing materials and equipment as needed the complete the project.

1.16.3 Utilities

All electric, gas, water, steam, sewer, and other service lines shall be located, shut off, capped, or otherwise disconnected. Temporary services may be utilized as needed, but must be connected as directed by a service provider and appropriately licensed electricians and plumbers for distribution at the project site. If it is necessary to maintain any power, water or other utilities during demolition, such lines shall be temporarily relocated, as necessary, and protected.

1.16.4 Hazardous Chemicals, Gases, Explosives

The Contractor shall make the Owner aware of hazardous chemicals, gases, explosives, flammable materials, or similarly dangerous substances where they are suspected in pipes, tanks, or other equipment on the property. When the presence of any such substances is apparent or suspected, testing and purging shall be performed, and the hazard eliminated.

1.16.5 Glass Hazards

Where a hazard exists from fragmentation of glass, such hazards shall be removed.

1.16.6 Falling Hazards

Where a hazard exists to employees falling through wall openings, the opening shall be protected to a height of approximately 42 inches.

1.16.7 Falling Material

When debris is dropped through holes in the floor without the use of chutes, the area onto which the material is dropped shall be completely enclosed with barricades not less than 42 inches high and not less than 6 feet back from the projected edge of the opening above. Signs, warning of the hazard of falling materials, shall be posted at each level. Removal shall not be permitted in this lower area until debris handling ceases above.

a) All floor openings, not used as material drops, shall be covered over with material substantial enough to support the weight of any load which may be imposed. Such material shall be properly secured to prevent its accidental movement.

1.17 Stairways and Ladders 29 CFR 1926 Subpart X

1.17.1 A stairway or ladder shall be provided at all personnel points of access where there is a break in elevation of 19 inches (48 cm) or more, and no ramp, runway, sloped embankment, or personnel hoist is provided.

1.17.2 A double-cleated ladder or two or more separate ladders shall be provided when ladders are the only mean of access or exit from a working area for 25 or more employees, or when a ladder is to serve simultaneous two-way traffic.

1.17.3 During abatement work, should the building be limited to only one point of access between levels, that point of access shall be kept clear to permit free passage of employees. When work must be performed or equipment must be used such that free passage at that point of access is restricted, a second point of access shall be provided and used. When a building or structure has two or more points of access between levels, at least one point of access shall be kept clear to permit free passage of employees.

1.17.4 Contractors shall provide and install all stairway and ladder fall protection systems required by subpart X of the OSHA Construction Industry Standards before employees begin the work that necessitates the installation and use of stairways, ladders, and their respective fall protection systems.

1.18 Heat Injury and Illness Prevention Plan

In areas where heat stress may impact employees' health and safety, acclimatization and heat stress shall be assessed to establish proper work / rest regimens and fluid replacement. Heat Stress and heat strain are conditions resulting from environmental factors including temperature, relative humidity, radiant heat transfer, and air movement, as they are affected by clothing.

1.18.1 Toolbox Safety Training

During hot environments, toolbox safety training will include recognizing, preventing, and treating the signs and symptoms of heat stress. During potential heat stress conditions, ice shall be readily available to rapidly cool victims.

1.18.2 Body Fluid Replacement

When heat stress is determined to be a concern, water will be made available at the Site for employee fluid replacement. Balanced, electrolyte solutions to replace fluid and electrolyte loss may be present but should not be substitute for water. Employees will be provided with replacement fluids at a minimum rate of 8 ounces each half hour per person.

SECTION II - ASBESTOS

2.1 General

These specifications cover the requirements for removal, encapsulation, enclosure encasement, and/or repair of friable and non-friable asbestos-containing material (ACM) which will be encountered during the demolition, alteration, renovation of the Hotel Grim building. These specifications include transportation, disposal, storage, containment of; and housekeeping activities on the site at which these activities are performed.

This specification includes asbestos abatement activities and requirements in accordance with 40 CFR Part 61, Subpart M (USEPA); Class I, Class II, Class III, and Class IV abatement operations per 29 CFR 1926.1101 (OSHA); training requirements in accordance with OSHA 29 CFR 1926.1101.

Asbestos abatement work tasks shall be performed following all applicable OSHA and TDSHS asbestos industry standards. Use the engineering controls and work practices required in 29 CFR 1926.1101(g) in all operations regardless of the levels of exposure. Personnel shall wear and utilize protective clothing and equipment. Do not permit eating, smoking, drinking, chewing or applying cosmetics in the regulated area. Personnel of other trades, shall not be exposed at any time to airborne concentrations of asbestos unless all the administrative and personal protective provisions of the Contractor's APP are complied with. Power to the regulated area shall be locked-out and tagged in accordance with 29 CFR 1910.147, and temporary electrical service with ground fault circuit interrupters shall be provided as needed. Temporary electrical service shall be disconnected when necessary for wet removal. Stop abatement work in the regulated area immediately when the airborne total fiber concentration: (1) equals or exceeds 0.01 f/cc, or the pre-abatement concentration, whichever is greater, outside the regulated area; or (2) equals or exceeds 1.0 f/cc inside the regulated area. Correct the condition to the satisfaction of the Consultant’s Project Manager, including visual inspection and air sampling. Work shall resume only upon notification by the Project Manager. All such corrective actions shall be documented.

2.2 Definitions

Abatement: Procedures to control fiber release from asbestos-containing materials, i.e., removal, encapsulation, or enclosure.

Aerosol: A system consisting of particles, solid or liquid, suspended in air.

Air Cell: Insulation normally used on pipes and duct work that is comprised of corrugated cardboard which is frequently made of asbestos combined with cellulose or refractory binders.

Air Lock: A system for permitting ingress and egress without permitting air movement between a contaminated area or an uncontaminated area, typically consisting of two contained doorways at least 6 feet (2 meters) apart.

Air Monitoring: The process of measuring the fiber content of a specific volume of air in a stated period of time. Phase-contrast microscopy in accordance with NIOSH method No. 7400 is the prescribed method of sampling and analysis.

Air Sampling Technician: A person trained and experienced in air sampling techniques and schemes who performs air sampling under the direction of the asbestos project manager or certified industrial hygienist.

Amended Water: Water to which a surfactant has been added.

Asbestos: The asbestiform varieties of serpentinite (chrysotile), riebeckite (crocidolite), cummingtonite-grunerite, anthophyllite, and actinolite-tremolite. For purposes of determining respiratory and worker protection both the asbestiform and non-materials that have been chemically treated and/or altered shall be considered as asbestos.

Asbestos-containing Material (ACM): Any material containing more than 1% by weight of asbestos of any type or mixture of types.

Asbestos-containing Waste Material: Any material which is or is suspected of being or any material contaminated with an asbestos-containing material which is to be removed from a work area for disposal.

Asbestos Project Manager: An individual qualified by virtue of experience and education, designated, as the Owner's representative and responsible for supervising the air sampling technician and helping to ensure compliance with the job specifications.

Authorized Person: Any person authorized by the Contractor and required by work duties to be present in the regulated areas.

Authorized Visitor: The building owner or his representatives, air sampling technician, asbestos project manager, consultant, or a representative of any regulatory or other agency having jurisdiction over the project.

Barrier: Plastic sheeting and/or other materials used along with the floors, ceilings, and walls of a structure to form an isolated work environment that separates the contaminated work area from the uncontaminated area.

Breathing Zone: A hemisphere forward of the shoulders with a radius of approximately 6 to 9 inches.

Building Inspector: Individual who inspects buildings for asbestos and has EPA Model

Accreditation Plan (MAP) "Building Inspector" training; accreditation required by 40 CFR 763, Subpart E, Appendix C, has EPA/State certification/license as a "Building Inspector".

Building Owner: The owner or his authorized representative.

Ceiling Concentration: The concentration of an airborne substance that shall not be exceeded.

Certified Industrial Hygienist (C.I.H.): Project/task management and technical support relating to building related services and programs focused on indoor air quality, asbestos, lead paint, hazardous materials, and H&S programs. This position also entails serving as Corporate H&S officer with assistance from experienced support staff located at the regional offices.

Class I Asbestos Work: Activities defined by OSHA involving the removal of thermal system insulation (TSI) and surfacing ACM.

Class II Asbestos Work: Activities defined by OSHA 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 mastic. Certain "incidental" roofing materials such as mastic, flashing and cements, when they are still intact, are excluded from Class II asbestos work. Removal of small amounts of these materials which would fit into a glovebag may be classified as a Class III job.

Class III Asbestos Work: Activities defined by OSHA that involve repair and maintenance operations, where ACM, including TSI and surfacing ACM, is likely to be disturbed. Operations may include drilling, abrading, cutting a hole, cable pulling, crawling through tunnels or attics and spaces above the ceiling, where asbestos is actively disturbed or asbestos-containing debris is actively disturbed.

Class IV Asbestos Work: Maintenance and custodial construction activities during which employees contact but do not disturb ACM and activities to clean-up dust, waste and debris resulting from Class I, II, and III activities. This may include dusting surfaces where ACM waste and debris and accompanying dust exists and cleaning up loose ACM debris from TSI or surfacing ACM following construction.

Clean Room: An uncontaminated area or room that is part of the worker's decontamination enclosure system, with provisions for storage of worker's street clothes and protective equipment.

Competent Person: A contractor's employee by virtue of his education and experience who is capable of operating an asbestos hazard abatement project in accordance with current EPA, OSHA, and NIOSH regulations, and standard work practices established for asbestos removal. Duties of the competent person are as defined in OSHA Regulations 29 CFR 1926.58(b) (www.osha.gov/complinks.html).

Contractor/Supervisor: Individual who supervises asbestos abatement work and has EPA Model Accreditation Plan "Contractor/Supervisor" training; has EPA/State certification as a "Contractor/Supervisor".

Consultant: A certified industrial hygienist (C.I.H.), the designated asbestos project manager, or an industrial hygiene technician under the supervision of the C.I.H. or the asbestos project manager.

Contaminated: Containing or coated with asbestos.

Curtained Doorway: A device to permit ingress or egress from one room to another while minimizing air movement between the rooms, typically constructed by placing two overlapping sheets of plastic over an existing or temporarily formed doorway, securing each along the top of the doorway, securing the vertical edge of one sheet along one vertical side of the doorway, and securing the vertical edge of the other sheet along the opposite vertical side of the doorway. Two curtained doorways spaced a minimum of 6 feet apart from the airlock.

Decontamination Enclosure System: A series of connected rooms, with curtained doorways between any two adjacent rooms, for the decontamination of workers or of materials and equipment. A decontamination enclosure system always contains at least one airlock.

Demolition: The wrecking or taking out of any structural materials of a facility together with any related handling operations.

Disposal bag: 6 mil thick leak-tight plastic bags used for transporting asbestos waste from work and to disposal site. Each is labeled as follows:

DANGER
CONTAINS ASBESTOS FIBERS
MAY CAUSE CANCER
CAUSES DAMAGE TO LUNGS
DO NOT BREATH DUST
AVOID CREATING DUST

Disturbance: Activities that disrupt the matrix of ACM, crumble or pulverize ACM, or generate visible debris from ACM. Disturbance includes cutting away small amounts of ACM, no greater than the amount which can be contained in 1 standard sized glovebag or waste bag, not larger than 1.5 m 60 inches in length and width in order to access a building component.

Encapsulant: A liquid material that can be applied to asbestos containing materials or cleaned substrates following the removal of asbestos containing materials to control the possible release of residual asbestos fibers from the material by creating a membrane over the surface or by penetrating into the material and binding its components together.

Encapsulation: The application of an encapsulant to asbestos-containing materials to control the release of asbestos fibers into the air.

Bridging Encapsulant: an encapsulant that forms a discrete layer on the surface of an asbestos matrix.

Penetrating Encapsulant: an encapsulant that is absorbed by the asbestos matrix without leaving a discrete surface layer.

Removal Encapsulant: a penetrating encapsulant specifically designed for removal of asbestos-containing materials rather than for in situ encapsulation.

Enclosure: The construction of an airtight impermeable, permanent barrier around asbestos-containing material to control the release of asbestos fibers into the air.

EPA: United States Environmental Protection Agency, 40l M Street, S.W., Washington, D.C. 20460.

Equipment Decontamination Enclosure System: That portion of a decontamination enclosure system designed for controlled transfer of materials and equipment into or out of the work area, typically consisting of a washroom and holding area.

Equipment Room: A contaminated area or room that is part of the worker decontamination enclosure system, with provisions for storage of contaminated clothing and equipment.
Facility: Any institutional, commercial, or industrial structure, installation or building.

Facility Component: Any pipe, duct, boiler, tank, fan, engines, or furnace at or in a facility, or any structural member of a facility.

Filter: A media component used in respirators to remove solid or liquid particles from the inspired air.

Fixed Object: A piece of equipment or furniture in the work area that cannot be removed from the work area.

Friable Asbestos Material: Material that contains more than 1.0 % asbestos by weight and that can be crumbled, pulverized, or reduced to powder by hand pressure when dry.

Glove-bag Technique: A method with limited applications for removing small amounts of asbestos containing material from HVAC ducts, piping runs, valves, joints, elbows, and other non-planar surfaces in an uncontaminated (plasticized) work area. The glove-bag assembly is a manufactured or fabricated device consisting of a glove-bag (typically constructed of 6-mil transparent plastic), two inward projecting, long sleeves, rubber gloves; one inward-projecting water wand sleeve; an internal tool pouch; and an attached-labeled receptacle for asbestos waste. The glove-bag is constructed and installed in such a manner that it surrounds the object or area to be decontaminated and contains all asbestos fibers released during the removal process. All workers, who are permitted to use the glove-bag technique, must be highly trained, experienced, and skilled in this method.

HVAC: Heating, ventilation, and air conditioning systems.

HEPA Filter: A high efficiency particulate air filter capable of removing particles greater than 0.3 microns in diameter with 99.97% efficiency.

HEPA Filter Vacuum Collection Equipment: High efficiency particulate air (absolute) filtered vacuum collection equipment with a filter system capable of collecting and retaining asbestos fibers of 0.3 microns or larger.

HEPA Vacuum: A vacuum system equipped with HEPA filtration.

High-Efficiency Filter: A filter which removes from air 99.97 % or more of monodisperse dioctyl phthalate (DOP) particles having a mean particle diameter of 0.3 microns.

Holding Area: A chamber between the washroom and an uncontaminated area in the equipment decontamination enclosure system. The holding area comprises an air lock.

Intact: ACM which has not crumbled, been pulverized, or otherwise deteriorated so that the asbestos is no longer likely to be bound with its matrix. Removal of "intact" asphaltic, resinous, cementitious products does not render the ACM non-intact simply by being separated into smaller pieces.
Model Accreditation Plan (MAP): USEPA training accreditation requirements for persons who work with asbestos as specified in 40 CFR 763

Movable Object: A piece of equipment or furniture in the work area which can be removed from the work area.

Negative Initial Exposure Assessment: A demonstration by the Contractor to show that employee exposure during an operation is expected to be consistently below the OSHA Permissible Exposure Limits (PELs).

Negative Pressure: A pressure lower than surrounding areas, generally caused by exhausting air from a sealed space (work area).

Negative Pressure Respirator: A respirator in which the air pressure inside the respiratory-inlet covering is positive during exhalation in relation to the air pressure of the outside atmosphere and negative during inhalation in relation to the air pressure of the outside atmosphere.

Negative-Pressure Ventilation System: A local exhaust system capable of maintaining a detectable pressure differential across containment barriers relative to adjacent unsealed areas.

NESHAPS: The National Emission Standards for Hazardous Air Pollutants (40 CFR Part 61)

NIOSH: The National Institute for Occupational Safety and Health.

Nonfriable ACM: A NESHAP term defined in 40 CFR 61, Subpart M and EPA 340/1-90/018 meaning any material containing more than 1 percent asbestos that, when dry, cannot be crumbled, pulverized or reduced to powder by hand pressure.

Nonfriable ACM (Category I): A NESHAP term defined in 40 CFR 61, Subpart E and EPA 340/1-90/018 meaning asbestos-containing packings, gaskets, resilient floor covering, and asphalt roofing products containing more than 1 percent asbestos.

Nonfriable ACM (Category II): A NESHAP term defined in 40 CFR 61, Subpart E and EPA 340/1-90/018 meaning any material, excluding Category I nonfriable ACM, containing more than 1 percent asbestos.

OSHA: Occupational Safety and Health Administration.

Outside Air: The air outside buildings and structures.

Penetrating Encapsulant: A liquid designed to saturate the material, thereby binding asbestos fibers to one another and to substances in the material.

Permissible Exposure Limits (PELs)

PEL-Time Weighted Average (TWA): Concentration of asbestos not in excess of 0.1 fibers per cubic centimeter of air (f/cc) as an 8-hour time weighted average (TWA).

PEL-Excursion Limit: An airborne concentration of asbestos not in excess of 1.0 f/cc of air as averaged over a sampling period of 30 minutes

Personal Monitoring: Sampling of the asbestos fiber concentrations within the breathing zone of an employee.

Plasticize: To cover floors, walls, etc., with plastic sheets as herein specified.

Protection Factor: The ratio of the ambient concentration of an airborne substance to the concentration of the substance inside the respiration at the breathing zone of the wearer. The protection factor is a measure of the degree of protection provided by a respirator to the wearer.

Regulated Area: An OSHA term defined in 29 CFR 1926.1101 meaning an area established by the Contractor to demarcate areas where Class I, II, and III asbestos work is conducted; also, any adjoining area where debris and waste from such asbestos work accumulates; and an area within which airborne concentrations of asbestos exceed, or there is a reasonable possibility they may exceed, the permissible exposure limit.

Removal: All herein specified procedures necessary to strip or clean up asbestos containing materials from designated areas and to dispose of these materials at an acceptable disposal site.

Repair: Overhauling, rebuilding, reconstructing, or reconditioning of structures or substrates, including encapsulation or other repair of ACM attached to structures or substrates.

Respirator: A device designed to protect the wearer from the inhalation of harmful atmospheres.

Shower Room: A room between the clean room and the equipment room in the worker decontamination enclosure system, with hot and cold or warm running water and suitably arranged for complete showering during decontamination. The shower room comprises an airlock between contaminated and clean areas.

Staging Area: Either the holding area or an area near the waste transfer airlock where containerized asbestos waste has been placed prior to removal from the work area.

Stripping: All herein specified procedures necessary to remove asbestos containing materials or asbestos contaminated materials from their substrate or from any component of the facility.

Substrate: The underlying surface or material to which asbestos-containing material has been applied.

Surfacing ACM: Asbestos-containing material which contains more than 1 percent asbestos and is sprayed-on, 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, or other purposes.

Surfactant: A chemical wetting agent added to water to improve penetration.

Time Weighted Average (TWA): The average concentration of a contaminant in air during a specific time period.

Thermal Insulation: Insulation used to prevent heat loss from pipes, boilers, tanks, breaching, heat exchangers, etc.

Visible Emissions: Any emissions containing particulate asbestos material that are visually detectable without the aid of instruments.

Washroom: A room between the work area and the holding area in the equipment decontamination enclosure system. A washroom comprises an air lock.

Wet Cleaning: The process of eliminating asbestos contamination from building surfaces and objects by using cloths, mops, or other cleaning tools that have been dampened with water and the disposing of these cleaning tools as asbestos contaminated waste.

Work Area: Designated rooms, spaces, or areas of the project in which asbestos abatement actions to be undertaken or which may be contaminated as a result of such abatement actions. A contained work area is one that has been sealed, plasticized and equipped with a decontamination enclosure system. An isolated work area is a controlled-access work area that has been isolated by plastic curtains and in which the openings to the outside are sealed with plastic sheeting. An isolated work area is not an airtight containment area and is not equipped with a decontamination enclosure system.

Worker: Individual (not designated as the Competent Person or a supervisor) who performs asbestos work and has completed asbestos worker training required by 29 CFR 1926.1101, to include EPA Model Accreditation Plan (MAP) "Worker" training; accreditation if required by the OSHA Class of work to be performed or by the state where the work is to be performed.

2.3 System Description

This section covers all operations in which asbestos-containing materials (ACM) are encountered. These procedures and equipment are required to protect workers and building occupants from airborne asbestos fibers and ACM dust and debris. Activities include OSHA [Class I] [Class II] [Class III] [Class IV] work operations. This section also includes containment, storage, transportation and disposal of the generated ACM wastes.

2.3.1 Discovery of Unexpected Asbestos:

Suspect asbestos containing material that is discovered during abatement and/or demolition (in particular buildings constructed no later than 1980), which was previously inaccessible, will be sampled and analyzed for its asbestos content by the Consulting Agency personnel. Sampling activities undertaken to determine the presence of additional ACM should be conducted by personnel who have successfully completed the EPA Model Accreditation (MAP) "Building Inspector" course and has EPA / State certification/license as a "Builder Inspector".

2.4 Consulting Agency and Testing Laboratory

The Consulting Agency shall be contracted by Owner completely independent from the Prime Contractor and all lower tier Subcontractors. The Consulting Agency shall identify the independent testing laboratory selected to perform the sample analyses. The testing laboratory shall be completely independent from the Contractor as recognized by federal, state or local regulations.

2.4.1 Phase Contrast Microscopy (PCM):

The laboratory shall be fully equipped and proficient in conducting PCM of airborne samples using the methods specified by 29 CFR 1926.1101, the most current version of NIOSH Method 7400. The laboratory shall be currently judged proficient (classified as acceptable) in counting airborne asbestos samples by PCM by successful participation in each of the last 4 rounds in the American Industrial Hygiene Association (AIHA) Proficiency Analytical Testing (PAT) Program or by participating in the AIHA PAT Program, and being judged proficient in counting samples.

2.4.2 Polarized Light Microscopy (PLM):

The PLM laboratory shall be fully equipped and proficient in conducting PLM analyses of suspect ACM bulk samples in accordance with 40 CFR 763, Subpart E, Appendix E; the laboratory shall be currently accredited by NIST under the NVLAP.

2.4.3 Transmission Electron Microscopy (TEM):

The laboratory shall be proficient in conducting TEM analysis of airborne samples using the mandatory method specified by 40 CFR 763, Subpart E, Appendix E; the laboratory is currently accredited by NIST under the NVLAP for airborne sample analysis of asbestos by TEM; the laboratory will use analysts with demonstrated proficiency under NVLAP.] [proficient in conducting analysis for low asbestos concentration, enhanced analysis of floor tiles and bulk materials where multiple layers are present, using an improved EPA test method titled, "Method for the Determination of Asbestos in Bulk Building Materials".]

2.4.4 PCM/TEM:

The laboratory is fully equipped and each analyst is proficient in conducting PCM and TEM analysis of airborne samples using NIOSH NMAM Method 7400 PCM and NIOSH NMAM Method 7402 (TEM confirmation of asbestos content of PCM results) from the same filter.

2.5 Quality Assurance / Submittals

In addition to detailed requirements of this specification, work performed under this contract shall comply with ALL applicable federal, state, and local laws, ordinances, criteria, rules and regulations regarding handling, storing, transporting, and disposing of asbestos waste materials. Matters of interpretation of standards shall be submitted to the appropriate administrative agency for resolution before starting work. Where the requirements of this specification, applicable laws, criteria, ordinances, regulations, and referenced documents vary, the most stringent requirements shall apply.

2.5.1 Specific Requirements

Designate in writing, personnel meeting the following qualifications:

a) Asbestos Abatement Contractor: Certified/licensed [by applicable state agencies] to perform asbestos-related activities.

b) Designated Competent Person: Qualified in accordance with 29 CFR 1926.32 and 29 CFR 1926.1101, has EPA MAP "Contractor/Supervisor" training accreditation, has EPA/State certification/license as a "Contractor/Supervisor" and is experienced in the administration and supervision of asbestos abatement projects, including exposure assessment and monitoring, work practices, abatement methods, protective measures for personnel, setting up and inspecting asbestos abatement work areas, evaluating the integrity of containment barriers, placement and operation of local exhaust systems, ACM generated waste containment and disposal procedures, decontamination units installation and maintenance requirements, site safety and health requirements, notification of other employees onsite, etc. The Designated Competent Person shall be responsible for compliance with applicable federal, state and local requirements, the Contractor's Accident Prevention Plan (APP) and Asbestos and Lead Hazard Abatement Plan (ALHAP). Submit the "Contractor/Supervisor" course completion certificate and the most recent certificate for required refresher training, [EPA/State certification/license] with the employee "Certificate of Worker Acknowledgment". Submit evidence that this person has a minimum of 2 Years of on-the-job asbestos abatement experience relevant to OSHA competent person requirements. The Designated Competent Person shall be onsite at all times during the conduct of this project.

c) Project and Other Supervisors: Have EPA MAP "Contractor/Supervisor" training accreditation. Submit the "Contractor/Supervisor" course completion certificate and the most recent certificate for required refresher training, EPA/State certification/license with the employee "Certificate of Worker Acknowledgment". Also submit evidence that the Project Supervisor has a minimum of 2 years of on-the-job asbestos abatement experience relevant to

project supervisor responsibilities and the other supervisors have a minimum of 1 year on-the-job asbestos abatement experience commensurate with the responsibilities they will have on this project.

d) Asbestos Abatement Workers: Meet the requirements contained in 29 CFR 1926.1101, 40 CFR 61, Subpart M, and other applicable federal, state and local requirements. Worker training documentation shall be provided as required on the "Certificate of Workers Acknowledgment". Training documentation is required for each employee who will perform OSHA Class I, Class II, Class III, or Class IV asbestos abatement operations. Such documentation shall be submitted on a Contractor generated form titled "Certificate of Workers Acknowledgment", to be completed for each employee. Training course completion certificates (initial and most recent update refresher) required by the information checked on the form shall be attached.

e) Physician: The physician shall be currently licensed by the state where the workers will be or have been examined, have expertise in asbestos exposure and shall be responsible for the determination of medical surveillance protocols and for review of examination/test results performed in compliance with 29 CFR 1926.1101. Submit for each worker the Texas Department of State Health Services Medical Evaluation Form.

f) Disposal Facility, Transporter: Written evidence that the landfill to be used is approved for asbestos disposal by the USEPA and state and local regulatory agencies. Copies of signed agreements between the Contractor (including subcontractors and transporters) and the asbestos waste disposal facility to accept and dispose of all asbestos containing waste shall be provided. The Contractor and transporters shall meet the DOT requirements of 49 CFR 171, 49 CFR 172, and 49 CFR 173 as well as registration requirements of 49 CFR 107 and other applicable state or local requirements. The disposal facility shall meet the requirements of 40 CFR 61, Sections .154 or .155, as required in 40 CFR 61 150(b), and other applicable state or local requirements.

2.5.2 Preconstruction Conference

The Contractor and the Contractor's Designated Competent Person, Project Superintendent, and Consultant’s Project Manager shall meet with the Owner’s Representative prior to beginning work at a safety preconstruction conference to discuss the details of the Contractor's submitted APP to include the ALHAP and AHAs. Deficiencies will be addressed and plans modified where required. Onsite work shall not begin until the plans have been accepted.

2.6 Security

Fenced and locked security area shall be provided for the project. A log book shall be kept documenting entry into and out of the job site. Entry into regulated areas shall only be by personnel authorized by the Owner's Representative. Personnel authorized to enter regulated areas shall be trained, medically evaluated, and wear the required personal protective equipment.

2.6.1 Licenses, Permits and Notifications

Obtain necessary licenses, permits and notifications in conjunction with the project's asbestos abatement, transportation and disposal actions and timely notification furnished of such actions as required by federal, state, regional, and local authorities. 10 days prior to the commencement of work, in accordance with 40 CFR 61, Subpart M, and state and local requirements to include the mandatory "Notification of Demolition and Renovation Record" form and other required notification documents.

2.6.2 Regulated Areas

All Class I, II, and III asbestos work shall be conducted within regulated areas. The regulated area shall be demarcated to minimize the number of persons within the area and to protect persons outside the area from exposure to airborne asbestos. Control access to regulated areas, ensure that only authorized personnel enter, and verify that Contractor required medical surveillance, training and respiratory protection program requirements are met prior to allowing entrance.

2.6.3 Warning Signs and Tape

Warning signs and tape printed bilingually in English and Spanish shall be provided at the regulated boundaries and entrances to regulated areas. Signs shall be located to allow personnel to read the signs and take the necessary protective steps required before entering the area.

Post "keep out" signs at the perimeter entrances or plywood barriers. In addition, post regulation asbestos caution signs at a level within the first perimeter. These signs should be printed with 3-inch block letters at a minimum. Where appropriate, equivalent signs printed in Spanish will be used in addition to English signs. Work areas that are in open space, which cannot feasibly be partitioned, will be sectioned off with 3-inch plastic tape with the printed warning, "CAUTION ASBESTOS HAZARD". This tape will be placed 3 to 4 feet from the ground.

2.6.4 Warning Labels

Warning labels shall be affixed to all asbestos disposal containers, asbestos materials, scrap, waste debris, and other products contaminated with asbestos. Containers with preprinted warning labels conforming to requirements are acceptable.

2.7 Medical Surveillance Requirement

Medical surveillance requirements shall conform to 29 CFR 1926.1101. Asbestos workers shall be enrolled in a medical surveillance program that meets 29 CFR 1926.1101 (m) requirements and other pertinent state or local requirements. This requirement shall have been satisfied within the last 12 months. Submit required medical certification and the Physician's written opinion.

2.7.1 Respiratory Protection Program

The Designated Competent Person shall establish in writing, and implement a respiratory protection program in accordance with 29 CFR 1926.1101 and 29 CFR 1910.134. The Consultant’s Project Manager shall establish minimum respiratory protection requirements based on measured or anticipated levels of airborne asbestos fiber concentrations.

2.7.2 Respiratory Fit Testing

The Contractor shall conduct a qualitative or quantitative fit test conforming to Appendix A of 29 CFR 1910.134 for each worker required to wear a respirator, and any authorized visitors who enter a regulated area where respirators are required to be worn. A respirator fit test shall be performed prior to initially wearing a respirator and every 12 months thereafter. If physical changes develop that will affect the fit, a new fit test shall be performed. Functional fit checks shall be performed each time a respirator is put on and in accordance with the manufacturer's recommendation.

2.7.3 Respirator Selection and Use Requirements

Provide respirators, and ensure that they are used as required by 29 CFR 1926.1101 and in accordance with the manufacturer's recommendations. Respirators shall be approved by the National Institute for Occupational Safety and Health NIOSH, under the provisions of 42 CFR 84, for use in environments containing airborne asbestos fibers. For air-purifying respirators, the particulate filter shall be high-efficiency particulate air P-100. The initial respirator selection and the decisions regarding the upgrading or downgrading of respirator type shall be made by the Consultant’s Project Manager based on the measured or anticipated airborne asbestos fiber concentrations to be encountered.

2.7.4 Personal Protective Equipment

Provide workers with personal protective clothing and equipment and ensure that it is worn properly. The Consultant's Project Manager and Designated Competent Person shall select and approve all the required personal protective clothing and equipment.

2.7.5 Whole Body Protection

Personnel exposed to or having the potential to be exposed to airborne concentrations of asbestos that exceed the PELs, or for all OSHA Classes of work for which a required negative exposure assessment is not produced, shall be provided with whole body protection and such protection shall be worn properly. Disposable whole body protection shall be disposed of as asbestos contaminated waste upon exiting from the regulated area. Reusable whole body protection worn shall be either disposed of as asbestos contaminated waste upon exiting from the regulated area or be properly laundered in accordance with 29 CFR 1926.1101. The Consultant's Project Manager, has the authority to take immediate action to upgrade or downgrade whole body protection when there is an immediate danger to the health and safety of the wearer.

2.7.6 Coveralls

Disposable-breathable coveralls with a zipper front shall be provided. Sleeves shall be secured at the wrists, and foot coverings secured at the ankles.

2.7.7 Gloves

Gloves shall be provided to protect the hands where there is the potential for hand injuries (i.e., scrapes, punctures, cuts, etc.).

2.7.8 Foot Coverings

Cloth socks shall be provided and worn next to the skin. Footwear, as required by OSHA and having steel toe protection, that is appropriate for safety and health hazards in the area shall be worn. Reusable footwear removed from the regulated area shall be thoroughly decontaminated or disposed of as ACM waste.

2.7.9 Head Covering

Hood type disposable or reusable head covering shall be provided. In addition, protective head gear (hard hats) shall be provided as required. Hard hats shall only be removed from the regulated area after being thoroughly decontaminated.

2.7.10 Protective Eye Wear

Eye protection shall be provided, when operations present a potential eye injury hazard, and shall meet the requirements of ANSI/ISEA Z87.1.

2.8 Hygiene

Establish a decontamination area for the decontamination of employees, material and equipment. Ensure that employees enter and exit the regulated area through the decontamination area.

2.8.1 3-Stage Decontamination Area

A temporary negative pressure decontamination unit that is adjacent and attached in a leak-tight manner to the regulated area shall be provided for each regulated area. Each decontamination unit shall have an equipment room and a clean room separated by a shower that complies with 29 CFR 1910.141, unless the Contractor can demonstrate that such facilities are not feasible. Equipment and surfaces of containers filled with ACM shall be cleaned prior to removing them from the equipment room or area. Two separate lockers shall be provided for each asbestos worker, one in the equipment room and one in the clean room. Provide the appropriate number of showers based on crew size. Wastewater shall be collected and filtered to remove asbestos contamination. Filters and residue shall be disposed of as asbestos contaminated material. Filtered water shall be discharged to the sanitary sewer system. Wastewater filters shall be installed in series with the first stage pore size of 20 microns and the second stage pore size of 5 microns. The floor of the decontamination unit's clean room shall be kept dry and clean at all times. Proper housekeeping and hygiene requirements shall be maintained. Soap and towels shall be provided for showering, washing and drying. Any cloth towels provided shall be disposed of as ACM waste or shall be laundered in accordance with 29 CFR 1926.1101.

2.8.2 Load-Out Unit

A temporary load-out unit that is adjacent and connected to all regulated areas. Each load-out unit shall be attached in a leak-tight manner to each regulated area.

2.8.3 Decontamination Area Exit Procedures

Ensure that the following procedures are followed:

a) Before leaving the regulated area, remove all gross contamination and debris from work clothing using a HEPA vacuum.

b) Employees shall remove their protective clothing in the equipment room and deposit the clothing in labeled impermeable bags or containers for disposal and/or laundering.
c) Employees shall not remove their respirators until showering.
d) Employees shall shower prior to entering the clean room. If a shower has not been located between the equipment room and the clean room or the work is performed outdoors, ensure that employees engaged in Class I asbestos jobs:

    1. Remove asbestos contamination from their work suits in the equipment room or decontamination area using a HEPA vacuum before proceeding to a shower that is not adjacent to the work area; or
    2. Remove their contaminated work suits in the equipment room, without cleaning work suits, and proceed to a shower that is not adjacent to the work area.

2.8.4 Smoking

Smoking shall only be permitted in designated areas outside the building.

2.9 Training Program

Establish and submit a training program as specified by EPA MAP, training requirements at 40 CFR 763, the Texas Asbestos Health Protection Act, and OSHA requirements at 29 CFR 1926.1101 (k)(9). Contractor employees shall complete the required training Class I and II operations 32 hours Asbestos Worker Training.

Prior to commencement of work the Contractor's Competent Person shall instruct each worker about:

a) The hazards and health effects of the specific types of ACM to be abated; and
b) The content and requirements of the Contractor's APP to include the ALHAP and AHAs and site-specific safety and health precautions.

2.10 Encapsulants

Encapsulates shall conform to USEPA requirements, shall contain no toxic or hazardous substances and no solvent. Submit certificates stating that encapsulates meet the applicable specified performance requirements.

2.11 Encasement Products

Encasement shall consist of primary cellular polymer coat, polymer finish coat, and any other finish coat as approved by the owner. Encasements are not anticipated for the Hotel Grim project.

2.12 Expendable Supplies

2.12.1 Glovebag

Glovebags shall be provided as described in 29 CFR 1926.1101. The glovebag assembly shall be 0.15 mm 6 mil thick plastic, prefabricated and seamless at the bottom with preprinted OSHA warning label.

2.12.2 Duct Tape

Industrial grade duct tape of appropriate widths suitable for bonding sheet plastic and disposal container.

2.12.3 Disposal Containers

Leak-tight (defined as solids, liquids, or dust that cannot escape or spill out) disposal containers shall be provided for ACM wastes as required by 29 CFR 1926.1101. Disposal containers can be in the form of:

a) Disposal Bags
b) Fiberboard Drums

2.12.4 Sheet Plastic

Sheet plastic shall be polyethylene of 0.15 mm 6 mil minimum thickness and shall be provided in the largest sheet size necessary to minimize seams. Film shall be clear or frosted and conform to ASTM D4397.

2.12.4.1 Flame Resistant

Where a potential for fire exists, flame-resistant sheets shall be provided. Film shall be frosted or black and shall conform to the requirements of NFPA 701.

2.12.4.2 Reinforced

Reinforced sheets shall be provided where high skin strength is required, such as where it constitutes the only barrier between the regulated area and the outdoor environment. The sheet stock shall consist of translucent, nylon-reinforced or woven-polyethylene thread laminated between 2 layers of polyethylene film. Film shall meet flame resistant standards of NFPA 701.

2.12.5 Mastic Removing Solvent

Mastic removing solvent shall be nonflammable and shall not contain methylene chloride, glycol ether, or halogenated hydrocarbons. Solvents used onsite shall have a flash point greater than 60 degrees C 140 degrees F.

2.12.6 Leak-tight Wrapping

Two layers of 0.15 mm 6 mil minimum thick polyethylene sheet stock shall be used for the containment of removed asbestos-containing components or materials such as reactor vessels, large tanks, boilers, insulated pipe segments and other materials too large to be placed in disposal bags. Upon placement of the ACM component or material, each layer shall be individually leak-tight sealed with duct tape.

2.12.7 Viewing Inspection Window

Where feasible, a minimum of 1 clear, 1/8-inch-thick (minimum thickness), acrylic sheet, 12 by 18 inches, shall be installed as a viewing inspection window at eye level on a wall in each containment enclosure. The windows shall be sealed leak-tight with industrial grade duct tape.

2.12.8 Wetting Agents

Removal encapsulant (a penetrating encapsulant) shall be provided when conducting debris removal and abatement activities that require a longer removal time or are subject to rapid evaporation of amended water. The removal encapsulant shall be capable of wetting the ACM and retarding fiber release during disturbance of the ACM greater than or equal to that provided by amended water.

2.13 Equipment

2.13.1 Local Exhaust System

Local exhaust units (negative air machines) shall conform to ASSE Z9.2 and 29 CFR 1926.1101. Filters on local exhaust system equipment shall conform to ASSE Z9.2 and UL 586. Filter shall be UL labeled. Submit pressure differential recordings and Manufacturer's certifications showing compliance with ASSE Z9.2 for:

1) Vacuums.
2) Water filtration equipment.
3) Ventilation equipment.
4) Other equipment required to contain airborne asbestos fibers.

2.13.2 Vacuums

Vacuums shall be equipped with HEPA filters, of sufficient capacity and necessary capture velocity at the nozzle or nozzle attachment to efficiently collect, transport and retain the ACM waste material. Power tools shall not be used to remove ACM unless the tool is equipped with effective, integral HEPA filtered exhaust ventilation capture and collection system. Reusable tools shall be thoroughly decontaminated prior to being removed from regulated areas.

2.13.3 Rental Equipment

If rental equipment is to be used, written notification shall be provided to the rental agency, concerning the intended use of the equipment, the possibility of asbestos contamination of the equipment and the steps that will be taken to decontaminate such equipment.

2.13.4 Air Monitoring Equipment

All testing and analysis (excluding personal exposure sampling and analysis) shall be at the Owner's expense. The Owner shall provide an independent third-party Consulting Agency to conduct baseline, ambient, clearance and waste characterization testing analysis and shall provide air monitoring equipment for use by the Project Manager and/or AMT. The testing equipment will include, but shall not be limited to:

a) High-volume sampling pumps that can be calibrated and operated at a constant airflow up to 16 liters per minute.
b) Low-volume, battery powered, body-attachable, portable personal pumps that can be calibrated to a constant airflow up to approximately 3.5 liters per minute, and a self-contained rechargeable power pack capable of sustaining the calibrated flow rate for a minimum of 10 hours. The pumps shall also be equipped with an automatic flow control unit which shall maintain a constant flow, even as filter resistance increases due to accumulation of fiber and debris on the filter surface.
c) Single use standard 25 mm diameter cassette, open face, 0.8-micron pore size, mixed cellulose ester membrane filters and cassettes with 50 mm electrically conductive extension cowl, and shrink bands for personal, ambient, and clearance sampling.
d) A flow calibrator capable of calibration to within plus or minus 2 percent of reading over a temperature range of minus 20 to plus 60 degrees C minus 4 to plus 140 degrees F and traceable to a NIST primary standard.

2.14 Protection of Adjacent Work or Areas to Remain

Perform asbestos abatement without damage to or contamination of adjacent work or area. Where such work or area is damaged or contaminated, it shall be restored to its original condition or decontaminated at no expense to the owner. When spills occur, work shall stop in all affected areas immediately and the spill shall be cleaned. When satisfactory visual inspection and air sampling analysis results are obtained, and have been evaluated by the Consultant's Project Manager, work shall proceed.

2.15 Objects

2.15.1 Removal of Mobile Objects

All furnishings and debris within the building are considered contaminated with asbestos fibers and lead based paints. Large non-porous furnishings shall be precleaned using HEPA filtered vacuum followed by wet wiping. These objects shall be removed to an area outside the building for disposal as general wastes. Carpets, draperies, and other items shall be disposed of as asbestos contaminated material.

2.15.2 Stationary Objects

Stationary objects and equipment where designated by owners shall remain in place and shall be precleaned using HEPA vacuum followed by adequate wet wiping. Stationary objects shall be covered with 2 layers of polyethylene and edges sealed with duct tape.

2.16 Ventilation Systems and Critical Barriers

Building ventilation system supply and return air ducts (not scheduled for disposal) shall be isolated by airtight seals to prevent the spread of contamination throughout the system.

2.17 Pre-Cleaning

Building components not affected by asbestos or lead removal shall be precleaned. Surfaces shall be cleaned by HEPA vacuum and adequately wet wiped, prior to establishment of containment.

2.18 Methods of Compliance

2.18.1 Mandated Practices

The specific abatement techniques and items identified shall be detailed in the Contractor's ALHAP. Use the following engineering controls and work practices in all operations, regardless of the levels of exposure:

a) Vacuum cleaners equipped with HEPA filters.
b) Wet methods or wetting agents except where it can be demonstrated that the use of wet methods is unfeasible due to the creation of electrical hazards, equipment malfunction, and in roofing.
c) Prompt clean-up and disposal.
d) Inspection and repair of polyethylene.
e) Cleaning of equipment and surfaces of containers prior to removing them from the equipment room or area.

2.18.2 Control Methods

Use the following control methods:

a) Local exhaust ventilation equipped with HEPA filter;
b) Enclosure or isolation of processes producing asbestos dust;
c) Where the feasible engineering and work practice controls are not sufficient to reduce employee exposure to or below the PELs, use them to reduce employee exposure to the lowest levels attainable and shall supplement them by the use of respiratory protection.

2.18.3 Unacceptable Practices

The following work practices shall not be used:

a) High-speed abrasive disc saws that are not equipped with point of cut ventilator or enclosures with HEPA filtered exhaust air.
b) Compressed air used to remove asbestos containing materials, unless the compressed air is used in conjunction with an enclosed ventilation system designed to capture the dust cloud created by the compressed air.
c) Dry sweeping, shoveling, or other dry clean up.
d) Employee rotation as a means of reducing employee exposure to asbestos.

2.18.4 Class I Work Procedures

In addition to requirements of paragraphs Mandated Practices and Control Methods, the following engineering controls and work practices shall be used:

a) The Contractor's Competent Person shall supervise the installation and operation of the control methods.
b) For jobs involving the removal of more than 25 feet or 10 square feet of TSI or surfacing material, place critical barriers over all openings to the regulated area.
c) HVAC systems shall be isolated in the regulated area by sealing with a double layer of plastic or air-tight rigid covers.
d) Impermeable drop cloths (0.15 mm 6 mil or greater thickness) shall be placed on surfaces beneath all removal activity.
e) Where a negative exposure assessment has not been provided or where exposure monitoring shows the PEL was exceeded, the regulated area shall be ventilated with a HEPA unit and employees must use PPE.

2.18.5 Specific Control Methods for Class I Work

2.18.5.1 Negative Pressure Enclosure (NPE) System

The system shall provide at least 4 air changes per hour inside the containment. The local exhaust unit equipment shall be operated 24 hours per day until the containment is cleared. The NPE shall be smoke tested for leaks at the beginning of each shift and be sufficient to maintain a minimum pressure differential of minus 0.5 mm 0.02 inch of water column relative to adjacent, unsealed areas. Pressure differential shall be monitored continuously, 24 hours per day, with an automatic manometric recording instrument and Records shall be provided daily on the same day collected to the Project Manager. The Project Manager shall be notified immediately if the pressure differential falls below the prescribed minimum. The building ventilation system shall not be used as the local exhaust system for the regulated area. The NPE shall terminate outdoors unless an alternate arrangement is allowed by the Consultant's Project Manager. All filters used shall be new at the beginning of the project and shall be periodically changed as necessary and disposed of as ACM waste.

2.18.5.2 Glovebag Systems

Glovebag systems shall be limited to TSI piping in good condition. All TSI piping insulation in poor condition shall be removed within a full containment. Glovebags shall be used without modification, smoke-tested for leaks, and completely cover the circumference of pipe or other structures where the work is to be done. Glovebags shall be used only once and shall not be moved. Glovebags shall not be used on surfaces that have temperatures exceeding 66 degrees C 150 degrees F. Prior to disposal, glovebags shall be collapsed using a HEPA vacuum. Before beginning the operation, loose and friable material adjacent to the glovebag operation shall be wrapped and sealed in 2 layers of plastic or otherwise rendered intact. At least 2 persons shall perform glovebag removal. Designated boundary limits for the asbestos work shall be established with rope or other continuous barriers and all other requirements for asbestos control areas shall be maintained, including area signage and boundary warning tape as specified in OSHA 29 CFR 1926.1101 k.

2.18.5.3 Glove Box Systems

Attach HEPA vacuum systems to the bag to prevent collapse during removal of ACM. The negative pressure glove boxes shall be fitted with gloved apertures and a bagging outlet and constructed with rigid sides from metal or other material which can withstand the weight of the ACM and water used during removal. A negative pressure shall be created in the system using a HEPA filtration system. The box shall be smoke tested for leaks prior to each use.

2.18.5.4 Mini-Enclosures
A mini-containment (small walk-in enclosure) to accommodate no more than 2 persons, may be used if the disturbance or removal can be completely contained by the enclosure. Each mini-enclosure shall be inspected for leaks and smoke tested before each use. Air movement shall be directed away from the employee's breathing zone within each mini-enclosure, by means of HEPA equipped negative air machines.

2.18.5.5 Wrap and Cut Operation – NOT APPLICABLE FOR THE HOTEL GRIM PROJECT.

2.18.6 Class II Work

Class II work may also be performed using a method allowed for Class I work, except that glovebags and glove boxes are allowed if they fully enclose the Class II material to be removed.

In addition to the requirements of paragraphs Mandated Practices and Control Methods, the following engineering controls and work practices shall be used:

a. The Contractor's Competent Person shall supervise the work.
b. For indoor work, critical barriers shall be placed over all openings to the regulated area.
c. Impermeable drop cloths shall be placed on surfaces beneath all removal activity.

2.18.7 Specific Control Methods for Class II Work

2.18.7.1 Vinyl and Asphalt Flooring Materials
When removing asbestos-containing vinyl and asphalt flooring materials use the following practices:

Resilient sheeting shall be removed by adequately wet methods. Tiles shall be removed intact (if possible); wetting is not required when tiles are heated and removed intact. Flooring or its backing shall not be sanded. Scraping of residual adhesive and/or backing shall be performed using wet methods. Mechanical chipping is prohibited unless performed in a negative pressure enclosure. Dry sweeping is prohibited. Use vacuums equipped with HEPA filter, disposable dust bag, and metal floor tool to clean floors.

2.18.7.2 Roofing Material
When removing roofing materials which contain ACM as described in 29 CFR 1926.1101(g)(8)(ii), use the following practices. Roofing material shall be removed in an intact state. Wet methods shall be used to remove roofing materials that are not intact, or that will be rendered not intact during removal, unless such wet methods are not feasible or will create safety hazards. When removing built-up roofs, with asbestos-containing roofing felts and an aggregate surface, using a power roof cutter, all dust resulting from the cutting operations shall be collected by a HEPA dust collector, or shall be HEPA vacuumed by vacuuming along the cut line. Asbestos-containing roofing material shall not be dropped or thrown to the ground, but shall be lowered to the ground via covered, dust-tight chute, crane, hoist or other method approved by the Project Manager. Any ACM that is not intact shall be lowered to the ground as soon as practicable, but not later than the end of the work shift. While the material remains on the roof it shall be kept wet or placed in an impermeable waste bag or wrapped in plastic sheeting. Intact ACM shall be lowered to the ground as soon as practicable, but not later than the end of the work shift. Unwrapped material shall be transferred to a closed receptacle. Critical barriers shall be placed over roof level heating and ventilation air intakes.

2.18.7.3 Cementitious Siding and Shingles or Transite Panels
When removing cementitious asbestos-containing siding, shingles or transite panels use the following work practices:

Intentionally cutting, abrading or breaking is prohibited. Each panel or shingle shall be sprayed with amended water prior to removal. Nails shall be cut with flat, sharp instruments. Unwrapped or unbagged panels or shingles shall be immediately lowered to the ground via covered dust-tight chute, crane or hoist, or placed in an impervious waste bag or wrapped in plastic sheeting and lowered to the ground no later than the end of the work shift.

2.18.7.4 Gaskets
Gaskets shall be thoroughly wetted with amended water prior to removal and immediately placed in a disposal container. If a gasket is visibly deteriorated and unlikely to be removed intact, removal shall be undertaken within a glovebag. Any scraping to remove residue shall be performed wet.

2.18.8 Specific Control Methods for Class III Work

Class III asbestos work shall be conducted using engineering and work practice controls which minimize the exposure to employees performing the asbestos work. The work shall be performed using wet methods and, to the extent feasible, using local exhaust. Use impermeable drop cloths and shall isolate the operation, using mini-enclosures or glovebag systems, where the disturbance involves drilling, cutting, abrading, sanding, chipping, breaking, or sawing of TSI or surfacing material.

2.18.9 Specific Control Methods for Class IV Work

Class IV jobs shall be conducted using wet methods and HEPA vacuums. Employees cleaning up debris and waste in a regulated area where respirators are required shall wear the selected respirators.

2.18.10 Class I Asbestos Work Response Action

The following Class I Asbestos Work Response Actions are anticipated for the Hotel Grim abatement project:

a) Asbestos-contaminated Masonry Wall or Thermal Insulation (Boiler Flue Chase)
b) Fireproofing or Thermal Surface Insulation
c) Piping and Fitting Insulation (Using a Glovebag)
d) Horizontal Pipe Insulation (Using a Containment Area)
e) Pipe Insulation (Using a Mini-Containment Area)
f) Storage Tank and Boiler Breeching Insulation (Boiler Room using Full Containment). Insulation shall be sprayed with a mist of amended water or removal encapsulant. Amended water or removal encapsulant shall be allowed to saturate material to substrate. Cover jackets shall be slit at seams, and sections removed and hand-placed in a polyethylene disposable bag. Exposed surfaces shall be continuously sprayed with amended water to minimize airborne dust. Insulation on tanks and boiler breeching shall not be allowed to drop to the floor. Lagging on piping and insulation on fittings shall be removed. A penetrating encapsulant shall be sprayed on all exposed tank, boiler and boiler breeching surfaces.

2.18.11 Class II Asbestos Work Response Actions

The following class II Asbestos work response actions are anticipated for the Hotel Grim Abatement Project:

a) Interior Asbestos Cement, Transite Boards.
b) Glued-on Acoustical Ceiling and Wall Tile Mastic.
c) Vinyl or Vinyl Asbestos Tile Adhered to Concrete Floor System by Asbestos-Containing Adhesive.
d) Vinyl or Vinyl Asbestos Tile Adhered to Wood Floor System by Asbestos Containing Adhesive.
e) Vinyl Asbestos Tile Adhered to Concrete Floor System by Asbestos Containing Adhesive.
f) Asbestos-Containing Sheet Flooring Adhered to Concrete Floor System by Asbestos-Containing Adhesive.
g) Carpeting (Asbestos-Containing or Contaminated).
h) Miscellaneous Asbestos-Containing Materials.
i) Built-Up Roofing and Flashing.

j) Electrical Wiring and Fixtures.
k) Boiler Firebox Insulation: Firebox lining shall be removed from out-of-service boilers before the boiler is dismantled.

2.18.12 Abatement of Asbestos Contaminated Soil – NOT APPLICABLE FOR THE GRIM PROJECT

2.18.13 Enclosure of ACM – NOT APPLICABLE FOR THE GRIM PROJECT

2.18.14 Encapsulation of ACM

Prior to applying any encapsulant, the entire surface area shall be inspected for loose, or damaged asbestos material:

a) *Penetrating Encapsulation*: Before penetrating encapsulation is applied, asbestos removal work in the area shall be complete. Substrate shall be evaluated before application to ensure that the encapsulant will not cause the substrate to fail in any way. Plug samples shall be taken to determine if full penetration has been achieved. If full penetration has not been achieved, surfaces shall be recoated while the matrix is still wet, until full penetration is achieved.
b) *Bridging Encapsulation*: The surface shall be encapsulated in sections 1000 square feet or less as recommended by the encapsulant manufacturer. Upon completion of each section, the dry thickness of the bridging encapsulation shall be measured. Additional bridging encapsulant shall be applied to obtain the desired encapsulant thickness. Additional coats shall blend with the original bridging encapsulant.

Bridging encapsulation where applicable shall include:

1) Troweled Wall Plaster
2) Troweled Ceiling Plaster
3) Acoustical Wall Plaster
4) Acoustical Ceiling Plaster
5) Asbestos Cement Wall, Fiberboard and Drywall Panels
6) Exterior Asbestos Stucco
7) Interior Asbestos Stucco
8) Storage Tank and Boiler Breeching
9) Boiler and Piping Gasket

2.18.15 Sealing Contaminated Items Designated for Disposal

Contaminated items designated for removal shall be coated with an asbestos lockdown encapsulant before being removed from the asbestos control area. The asbestos lockdown encapsulant shall be tinted a contrasting color and shall be spray applied by airless method. Thoroughness of sealing operation shall be visually gauged by the extent of colored coating on exposed surfaces.

2.19 Final Cleaning and Visual Inspection

After completion of all asbestos removal work and the gross amounts of asbestos have been removed from every surface, any remaining visible accumulations of asbestos shall be collected. For all classes of indoor asbestos abatement projects a final cleaning shall be performed using HEPA vacuum and wet cleaning of all exposed surfaces and objects in the regulated area. Upon completion of the cleaning, conduct a visual pre-inspection of the cleaned area in preparation for a final inspection before final air clearance monitoring. The Contractor and the Project Manager shall conduct a final visual inspection of the cleaned regulated area and document the results on the Final Cleaning and Visual Inspection. If the Project Manager rejects the clean regulated area as not meeting final cleaning requirements, reclean as necessary and have a follow-up inspection conducted with the Project Manager. Recleaning and follow-up re-inspection shall be at the Contractor's expense.

2.20 Lockdown

Prior to removal of plastic barriers and after final visual inspection, a (lockdown) encapsulant shall be spray applied to ceiling, walls, floors, and other surfaces for each affected regulated area.

2.21 Exposure Assessment and Air Monitoring

2.21.1 General Requirements

a) Exposure assessment, air monitoring and analysis of airborne concentration of asbestos fibers shall be performed in accordance with 29 CFR 1926.1101, and the Contractor's air monitoring plan. Results of breathing zone samples shall be posted at the job site and made available to the Project Manager. Submit all documentation regarding initial exposure assessments, negative exposure assessments, and air-monitoring results.

b) Worker Exposure.
   1) The Contractor's Designated AMT shall collect personal samples representative of the exposure of each employee who is assigned to work within a regulated area. Breathing zone samples shall be taken for at least 25 percent of the workers in each shift, or a minimum of 2, whichever is greater. Air monitoring results at the 95 percent confidence level.
   2) The Contractor will contract directly with an independent testing laboratory with qualified analysts and appropriate equipment to conduct sample analyses of air samples using the methods prescribed in 29 CFR 1926.1101, to include NIOSH Method 7400.
   3) Workers shall not be exposed to an airborne fiber concentration in excess of 1.0 f/cc, as averaged over a sampling period of 30 minutes. Should a personal excursion concentration of 1.0 f/cc expressed as a 30-minute

sample occur inside a regulated work area, stop work immediately, notify the Consultant's Project Manager, and implement additional engineering controls and work practice controls to reduce airborne fiber levels below prescribed limits in the work area. Do not restart work until authorized by the Project Manager.

c) Environmental Exposure
   1) All environmental air monitoring shall be performed by Owner's designated Consulting Agency.
   2) Environmental and final clearance air monitoring shall be performed using NIOSH Method 7400 (PCM) with optional confirmation of results by EPA AHERA TEM.
   3) For environmental and final clearance, air monitoring shall be conducted at a sufficient velocity and duration to establish the limit of detection of the method used at 0.005 f/cc.
   4) When confirming asbestos fiber concentrations (asbestos f/cc) from environmental and final clearance samples, Consultant may use TEM in accordance with NIOSH Method 7402. When such confirmation is conducted, it shall be from the same sample filter used for the NIOSH Method 7400 PCM analysis. All confirmation of asbestos fiber concentrations, using NIOSH Method 7402, shall be at the Contractor's expense.
   5) Maintain a fiber concentration inside a regulated area less than or equal to 0.1 f/cc expressed as an 8 hour, time-weighted average (TWA) during the conduct of the asbestos abatement.
   6) At the discretion of the Consultant's Project Manager, fiber concentration may exceed 0.1 f/cc but shall not exceed 1.0 f/cc expressed as an 8-hour TWA. Should an environmental concentration of 1.0 f/cc expressed as an 8-hour TWA occur inside a regulated work area, stop work immediately, and implement additional engineering controls and work practice controls to reduce airborne fiber levels below prescribed limits in the work area. Work shall not restart until authorized by the Project Manager.

2.21.2 Initial Exposure Assessment

The Owner has retained an independent Consulting and Air Monitoring Firm to perform pre-abatement, during abatement, and final clearance air monitoring. The Air Monitoring Consulting Firm has been provided a copy of the contract that includes this abatement work. The abatement Contractor will provide the Consulting Firm with an up-to-date copy of the accepted ALHAP, APP and pertinent detailed drawings.

The Consultant's Designated Project Manager and/or AMT shall conduct an exposure assessment at the initiation of an asbestos abatement operation to ascertain expected exposures during that operation. The assessment shall be completed in time to provide information necessary to assure that all control systems planned are appropriate for that operation. The assessment shall take into consideration both the monitoring results and

all observations, information or calculations which indicate employee exposure to asbestos, including any previous monitoring conducted in the workplace, or of the operations of the Contractor which indicate the levels of airborne asbestos likely to be encountered on the job. For Class I asbestos work, until the employer conducts exposure monitoring and documents that employees on that job will not be exposed in excess of PELs, or otherwise makes a negative exposure assessment, presume that employees are exposed in excess of the PEL-TWA and PEL-Excursion Limit.

a) Initial Exposure Monitoring: The results of initial exposure monitoring of the current job, made from breathing zone air samples that are representative of the 8-hour PEL-TWA and 30-minute short-term exposures of each employee. The monitoring covered exposure from operations which are most likely during the performance of the entire asbestos job to result in exposures over the PELs.

2.21.3 Negative Exposure Assessment – Will be based solely on data collected at the Hotel Grim Project.

2.21.4 Pre-abatement Environmental Air Monitoring

Pre-abatement environmental air monitoring shall be established (baseline) prior to the masking and sealing operations for each regulated area to determine background concentrations before abatement work begins. As a minimum, pre-abatement air samples shall be collected using NIOSH NMAM Method 7400, PCM at these locations: outside the building; inside the building, but outside the regulated area perimeter; and inside each regulated work area. One sample shall be collected for every 2000 square feet of floor space. At least 2 samples shall be collected outside the building: at the exhaust of the HEPA units; and downwind from the abatement site. The PCM samples shall be analyzed within 24 hours; and if any result in fiber concentration greater than 0.01 f/cc, asbestos fiber concentration, confirmed using NIOSH NMAM Method 7402 (TEM), may be requested by the Project Consultant or Building Owner.

2.21.5 Environmental Air Monitoring During Abatement

Environmental air monitoring shall be conducted at locations and frequencies that will accurately characterize any evolving airborne asbestos fiber concentrations. The monitoring shall be at least once per shift at locations including, but not limited to, close to the work inside a regulated area; pre-abatement sampling locations; outside entrances to a regulated area; close to glovebag operations; representative locations outside of the perimeter of a regulated area; inside clean room; and at the exhaust discharge point of local exhaust system ducted to the outside of a containment. If the sampling outside regulated area shows airborne fiber levels have exceeded background or 0.01 f/cc, whichever is greater, work shall be stopped immediately, and the Consultant notified. The condition causing the increase shall be corrected. Work shall not restart until authorized by the Consultant's Project Manager.

2.21.6 Final Clearance Air Monitoring

The Consultant's Project Manager and/or Air Monitoring Technician (AMT) shall perform clearance testing for each enclosed area. Final air clearance will be conducted using aggressive air sampling techniques as defined in 40 CFR 763, Subpart E, Appendix A, for all indoor asbestos abatement projects. Clearance air monitoring is not required for outside work.

2.21.6.1 Final Clearance Requirements
NIOSH PCM Method for PCM sampling and analysis using NIOSH NMAM Method 7400, the fiber concentration inside the abated regulated area, for each airborne sample, shall be less than 0.01 f/cc. The abatement inside the regulated area is considered complete when every PCM final clearance sample is below the clearance limit. If any confirmation sample result is greater than 0.01 f/cc, abatement is incomplete and cleaning shall be repeated. Upon completion of any required recleaning, re-sampling with results to meet the above clearance criteria shall be done.

2.21.6.2 Final Clearance Requirements, EPA TEM Method
For EPA TEM sampling and analysis, using the EPA Method specified in 40 CFR 763 appendix A, abatement inside the regulated area is considered complete when the arithmetic mean asbestos concentration of the 5 inside samples is less than or equal to 70 structures per square millimeter (70 S/mm). When the arithmetic mean is greater than 70 S/mm, the 3 blank samples shall be analyzed. If the 3 blank samples are greater than 70 S/mm, resampling shall be done. If less than 70 S/mm, the 5 outside samples shall be analyzed and a Z-test analysis performed. When the Z-test results are less than 1.65, the decontamination shall be considered complete. If the Z-test results are more than 1.65, the abatement is incomplete and cleaning shall be repeated. Upon completion of any required recleaning, resampling with results to meet the above clearance criteria shall be done.

2.21.6.3 Air Clearance Failure
Where clearance sampling results fail to meet the final clearance requirements, the contractor shall incur all costs associated with the required recleaning, resampling, and analysis, until final clearance requirements are met.

2.21.7 OSHA Personal Air-Monitoring Results and Documentation

Air sample fiber counting shall be completed and results provided within 24 hours after completion of a sampling period. The Project Manager shall be notified immediately of any airborne levels of asbestos fibers in excess of established requirements. Written sampling results shall be provided within 5 working days of the date of collection. The written results shall be signed by testing laboratory analyst, testing laboratory. The air sampling results shall be documented on a Contractor's daily air monitoring log.

The daily air monitoring log shall contain the following information for each sample:

a) Sampling and analytical method used;
b) Date sample collected;
c) Sample number;
d) Location/activity/name where sample collected;
e) Sampling pump beginning flow rate, end flow rate, average flow rate (L/min);
f) Calibration date, time, method, location, name of calibrator, signature;
g) Sample period (start time, stop time, elapsed time (minutes);
h) Total air volume sampled (liters);
i) Sample results (f/cc and S/mm square) if EPA methods are required for final clearance;
j) Laboratory name, location, analytical method, analyst, confidence level. In addition, the printed name and a signature and date block for the Project Manager / AMT who conducted the sampling.

2.22 Clearance Certification

When asbestos abatement is complete, ACM waste is removed from the regulated areas, and final clean-up is completed, the Project Manager will allow the warning signs and boundary warning tape to be removed. After final clean-up and acceptable airborne concentrations are attained, but before the HEPA unit is turned off and the containment removed, the Contractor shall remove all pre-filters on the building HVAC system and provide new pre-filters. Dispose of such filters as asbestos contaminated materials. HVAC, mechanical, and electrical systems shall be re-established in proper working order. The Contractor and the Project Manager shall visually inspect all surfaces within the containment for residual material or accumulated debris. Reclean all areas showing dust or residual materials. The Project Manager will certify in writing that the area is safe before unrestricted entry is permitted.

2.23 Clean-up and Disposal

2.23.1 Title to ACM Materials

ACM material resulting from abatement work, except as specified otherwise, shall be labeled as the building Owner's and shall be disposed of as specified and in accordance with applicable federal, state and local regulations.

2.23.2 Collection and Disposal of Asbestos

All ACM waste shall be collected including contaminated wastewater filters, scrap, debris, bags, containers, equipment, and asbestos contaminated clothing and placed in leak-tight containers. Waste within the containers shall be wetted in case the container is breeched. Asbestos-containing waste shall be disposed of at an EPA, state and local

approved asbestos landfill. For temporary storage, sealed impermeable containers shall be stored in an asbestos waste load-out unit or in a storage/transportation conveyance (i.e., dumpster, roll-off waste boxes, etc.) in a manner acceptable to and in an area assigned by the Consultant's Project Manager. Procedure for hauling and disposal shall comply with 40 CFR 61, Subpart M, state, regional, and local standards.

2.23.3 Records

2.23.3.1 Asbestos Waste Shipment Records
Complete and provide the Consultant's Project Manager's and/or Owner's representative final completed copies of the Waste Shipment Record for all shipments of waste material as specified in 40 CFR 61, Subpart M and other required state waste manifest shipment records, within 3 days of delivery to the landfill. Each Waste Shipment Record shall be signed and dated by the Owner's Designated Person, the waste transporter and disposal facility operator.

2.23.3.2 Abatement Supply Records
Submit manufacturer's catalog data for all materials and equipment to be used, including brand name, model, capacity, performance characteristics and any other pertinent information. Test results and certificates from the manufacturer of encapsulants substantiating compliance with performance requirements of this specification. Material Safety Data Sheets for all chemicals to be used onsite in the same format as implemented in the Contractor's HAZARD COMMUNICATION PROGRAM. Data shall include, but shall not be limited to, the following items:

a) High Efficiency Filtered Air (HEPA) local exhaust equipment
b) Vacuum cleaning equipment
c) Pressure differential monitor for HEPA local exhaust equipment
d) Air monitoring equipment
e) Respirators
f) Personal protective clothing and equipment
g) Glovebags. Written manufacturer's proof that glovebags will not break down under expected temperatures and conditions.
h) Duct Tape
i) Disposal Containers
j) Sheet Plastic
k) Wetting Agent
l) Strippable Coating
m) Prefabricated Decontamination Unit
n) Material Safety Data Sheets (for all chemicals proposed)

SECTION III - LEAD HAZARD ABATEMENT

3.1 General Requirements

This section shall cover all activities involving the disturbance of lead based paints and/or lead dust hazards including cleaning and removal of lead contaminated debris. It is anticipated that the majority of all initial site work in each area of the Hotel Grim building will involve the disturbance of lead paints and/or lead dust. The requirements and procedures within this section shall be implemented to safeguard workers and establish a building meeting HUD clearance level standards from which new construction and renovations can safely be completed by others.

3.2 Lead Cleaning and Stabilization

These requirements and procedures shall apply to all cleaning, stabilization and abatement work where an employee may be occupationally exposed to lead. Construction work is defined as work for construction, alteration and/or repair, including painting and decorating. It includes but is not limited to the following:

a) Demolition or salvage of structures where lead or materials containing lead are present;
b) Cleaning, removal or encapsulation of materials containing lead;
c) New construction, alteration, repair, or renovation of structures, substrates, or portions thereof, that contain lead, or materials containing lead;
d) Installation of products containing lead;
e) Lead contamination/emergency cleanup;
f) Transportation, disposal, storage, or containment of lead or materials containing lead on the site or location at which construction activities are performed, and
g) Maintenance operations associated with the construction activities described in this paragraph.

3.3 Definitions

3.3.1 Abatement - Measures defined in 40 CFR 745, Section 223, designed to permanently eliminate lead-based paint hazards.

3.3.2 Action Level - Means employee exposure, without regard to the use of respirators, to an airborne concentration of lead of 30 micrograms per cubic meter of air (30 ug/m3) calculated as an 8-hour time-weighted average (TWA).

3.3.3 Bare Soil - Soil not covered with grass, sod, or some other similar vegetation. Bare soil includes sand.

3.3.4 Child-Occupied Facility - A building, or part of a building, constructed before 1978 that is visited regularly by the same child, six years of age or younger, on at least two different days in any seven-day period beginning on Sunday and ending on Saturday, if each day's visit lasts at least three (3) hours, the combined weekly visits at least six (6) hours, and the combined annual visits last at least 60 hours. The term may include, but is not limited to, day-care centers, preschools, or kindergarten classrooms.

3.3.5 Clearance Levels - Values that indicate the maximum amount of lead permitted in dust on a surface following completion of an abatement activity. Clearance levels that are appropriate for the purposes of these regulations may be found in the Environmental Protection Agency Guidance on Residential Lead Based Paint, Lead-Contaminated Soil (60 Federal Register 47248 (1995).

3.3.6 Component or Building Component - Specific design or structural elements or fixtures of target housing or a child-occupied facility that are distinguished from each other by form, function, and location. These include, but are not limited to, interior components such as: ceiling, crown molding, walls, chair rails, doors, door trim, floors, fireplaces, radiators and other heating units, shelves, shelf supports, stair treads, stair risers, stair stringers, newel posts, railing caps, balustrades, windows and trim (including vanities, counter tops, and air conditioners; and exterior components such as: painted roofing, chimneys, flashing, gutters and downspouts, ceilings, soffits, facias, rake boards, corner boards, bulkheads, doors and door trim, fences, floors, joists, lattice work, railings and railing caps, siding, handrails, stair risers and treads, stair stringers, columns, balustrades, window sills or stools and troughs, casings, sashes and wells, and air conditioners.

3.3.7 Competent Person - Defined as one who is capable of identifying existing and predictable lead hazards in the surroundings or working conditions and who has authorization to take prompt corrective measures to eliminate them.

3.3.8 Containment - A regulated area that has been sealed and designed to prevent the release of lead-containing dust or materials into surrounding areas

3.3.9 Deteriorated Paint - Any interior or exterior paint or other coating that is peeling, chipping, chalking or cracking, or any paint or coating located on an interior or exterior surface or fixture that is otherwise damaged or separated from the substrate.

3.3.10 Encapsulant - A substance that forms a barrier between lead-based paint and the environment using a liquid-applied coating (with or without reinforcement materials) or an adhesively bonded covering material. Only encapsulant products that meet the performance standards developed by ASTM (E1796, E1795) shall be used for lead hazard reduction.

3.3.11 Encapsulation - The application of an encapsulant.

3.3.12 Enclosure - A process that makes lead-based paint inaccessible by providing a physical barrier that is mechanically attached to a surface

3.3.13 EPA - The United States Environmental Protection Agency

3.3.14 HUD - The United States Department of Housing and Urban Development

3.3.15 HVAC - Heating, ventilation, and air conditioning systems

3.3.15 Impact Surface - An interior or exterior surface that is subject to damage by repeated sudden force such as certain parts of door frames.

3.3.17 Interim Controls - A set of measures designed to temporarily reduce human exposure or likely exposure to lead-based paint hazards, including specialized cleaning, repairs, maintenance, painting, temporary containment, ongoing monitoring of lead-based paint hazards or potential hazards, and the establishment and operation of management and resident education programs.

3.3.18 Lead - Means metallic lead, all inorganic lead compounds, and organic lead soaps. Excluded from this definition are all other organic lead compounds.

3.3.19 Lead Abatement –

(A) Includes any measure or set of measures designed to permanently eliminate lead-based paint hazards. Abatement includes, but is not limited to:

1) the removal of paint and dust, the permanent enclosure or encapsulation of lead-based paint, the replacement of painted surfaces or fixtures, or the removal or permanent covering of soil, when lead-based paint hazards are present in such paint, dust or soil; and

(B) Excludes:

1) renovation, remodeling, or landscaping activities, which are not designed to permanently eliminate lead-based paint hazards, but, instead, are designed to repair, restore, or remodel a given structure or dwelling, even though these activities may incidentally result in a reduction or elimination of lead-based paint hazards;
2) interim controls, operations and maintenance activities, or other measures and activities designed to temporarily, but not permanently, reduce lead-based paint hazards; and

3.3.20 Lead-Based Paint - Paint or other surface coatings that contain lead equal to or in excess of 1.0 milligrams per square centimeter or more than 0.5% by weight.

3.3.21 Lead-Based Paint Activity - Inspection, testing, risk assessment, risk reduction, lead abatement project design or planning, abatement or removal, or creation of lead-based paint hazards.

3.3.22 Lead-Based Paint Hazard
Hazardous lead-based paint, dust-lead hazard or soil-lead hazard as identified below.

(A) Paint-lead hazard. A paint-lead hazard is any of the following:

1) any lead-based paint on a friction surface that is subject to abrasion and where the lead dust levels on the nearest horizontal surface underneath the friction surface (e.g., the window sill, or floor) are equal to or greater than the dust-lead hazard levels identified as clearance levels in 40 CFR 745 section 65.

3.3.23 Target Housing - Residential real property which is housing constructed prior to 1978, except housing for the elderly or persons with disabilities (unless any one or more children age 6 years or under resides or is expected to reside in such housing for the elderly or persons with disabilities) or any 0-bedroom dwelling.

3.3.24 TSCA - Toxic Substances Control Act (15 United States Code §2681 et seq) Title IV.

3.3.25 Visual Inspection for Clearance Testing - The visual examination of a residential dwelling or a child-occupied facility following an abatement to determine whether or not the abatement has been successfully completed, as indicated by the absence of visible residue, dust, and debris.

3.4 System Description

3.4.1 Protection of Existing Areas to Remain

All project work including, but not limited to, lead hazard abatement work, storage, transportation, and disposal shall be performed without damaging or contaminating adjacent work and areas. Where such work or areas are damaged or contaminated, restore work and areas to the original condition.

3.4.2 Coordination with Other Work

Coordinate lead hazard abatement activities with work being performed in adjacent areas. Coordination procedures shall be explained in the Contractor's Accident Prevention Plan and describe how the Contractor will prevent lead exposure to other Contractors and/or Owner’s personnel performing work unrelated to lead hazard abatement activities.

3.4.3 Sampling and Analysis

Sampling and analysis will be performed by the Consultant throughout all phases of abatement and cleaning to continuously monitor the effectiveness of equipment and procedures to prevent migration of contamination while lead hazard abatement activities are performed and to assure clearance/cleanup requirements have been achieved.

The Consultant shall furnish a weekly record of the analytical results from sampling conducted during the abatement. The log of results shall be kept current with project activities and shall be briefed to the Contractor as analytical results are reported.

3.4.3.1 Lead air sampling shall be performed to evaluate worker exposure levels.

3.4.3.2 Soil Sampling and Analysis

Sampling shall conform to ASTM E1727. [Analysis shall conform to ASTM E1613 and ASTM E1726].

3.4.3.3 Clearance Monitoring

a. The Consultant shall collect dust wipe samples inside the lead hazard control area after the final visual inspection in the quantities and at the locations specified.
    1. Floors: one (1) sample for each room. Rooms scheduled for occupancy; take a minimum of two (2) samples and at least one (1) per 250 square feet of area.
    2. Interior Window Sills: one (1) sample per window.
    3. Window Troughs: one (1) sample per window.

b. The Consultant shall collect exterior bare soil samples inside the lead hazard control area after the final visual inspection in the quantities and at the locations specified.
    1. Near the building foundation: one (1) sample for each exterior wall where soil in present within 10’.
    2. Nearby Play areas: three (3) samples were soil is present.

3.4.4 Clearance Requirements

NOTE: Clearance criteria are as follows:
Target housing and child occupied facilities.
a) Building Interior:

Floors - 40 micrograms/square foot.
Interior Window Sills - 250 micrograms/square foot.

Window Troughs - 800 micrograms/square foot.

b) Building Exterior:
Bare soils in play areas used by children under the age of 6 - 400 mg/kg.
Bare soils, all other areas - 1200 mg/kg

3.5 Contractor Personnel and Management

3.5.1 Personnel Responsibilities and Qualifications

3.5.1.1 Certified Abatement Supervisor
The abatement supervisor shall be certified pursuant to 40 CFR 745, Section 226 and is responsible for development and implementation of the occupant protection plan, the abatement report and shall supervise lead hazard abatement work activities.

3.5.1.2 Lead Hazard Abatement Workers
Lead hazard abatement workers shall be certified pursuant to 40 CFR 745, Section 226 and shall be responsible for performing the labor necessary to complete the lead hazard abatement activities required for this project.

3.5.1.3 Testing Laboratories
The laboratory selected to perform analysis on air, dust wipe, paint chip and soil samples shall be recognized by the EPA's National Lead Laboratory Accreditation Program (NLLAP).

3.5.2 Occupant Protection Plan

The certified supervisor shall develop and implement an Occupant Protection Plan describing the measures and management procedures to be taken during lead hazard abatement activities to protect the building occupants/building facilities and the outside environment from exposure to any lead contamination while lead hazard abatement activities are performed.

3.5.3 Licenses, Permits and Notifications

The Contractor shall certify and submit in writing to the owner and Consultant at least ten (10) days prior to the commencement of work that all applicable licenses, permits and notifications have been obtained. All associated fees or costs incurred in obtaining the licenses, permits and notifications shall be included in the contract price.

3.6 Permissible Exposure Limit

The Contractor shall assure that no employee is exposed to lead at concentrations greater than fifty micrograms per cubic meter of air (50 ug/m3) averaged over an 8-hour period.

If an employee is exposed to lead for more than 8 hours in any work day the employees' allowable exposure, as a time weighted average (TWA) for that day, shall be reduced according to the following formula:

Allowable employee exposure (in ug/m3) = 400 divided by hours worked in the day.

3.7 Exposure Assessment

The Contractor shall initially determine if any employee may be exposed to lead at or above the action level.

The Contractor shall collect personal samples representative of a full shift including at least one sample for each job classification in each work area either for each shift or for the shift with the highest exposure level.

Full shift personal samples shall be representative of the monitored employee's regular, daily exposure to lead.

3.7.1 Protection of Employees During Assessment of Exposure

With respect to the lead related tasks, where lead is present, the Contractor shall treat the employee as if the employee were exposed above the PEL, and not in excess of ten (10) times the PEL, and shall implement employee protective measures prescribed in paragraph (d)(2)(v) 29 CFR 1926.62. The tasks covered by this requirement include all cleaning and stabilization activities where lead containing coatings or paint are present: Manual demolition of structures (e.g., dry wall), all HEPA vacuum cleanup and bagging procedures, manual scraping, manual sanding, heat gun applications, and power tool cleaning with dust collection systems;

In addition, with regard to tasks not listed above, where the Consultant’s Project Manager has any reason to believe that an employee performing the task may be exposed to lead in excess of the PEL, until the Contractor performs an employee exposure assessment and documents that the employee's lead exposure is not above the PEL the Contractor shall treat the employee as if the employee were exposed above the PEL and shall implement employee protective measures as prescribed in paragraph (d)(2)(v) of 29 CFR 1926.62.

Where lead and/or lead contamination is present, until the Contractor performs an employee exposure assessment, and documents that the employee performing any of the listed tasks is not exposed in excess of 2,500 ug/m (3), the Contractor shall treat the employee as if the employee were exposed to lead in excess of 2,500 ug/m (3) and shall implement employee protective measures. Where the Contractor does establish that the employee is exposed to levels of lead below 2,500 ug/m(3), the Contractor may provide the exposed employee with the appropriate respirator prescribed for such use at such lower exposures. The tasks covered by this requirement are:

a) Abrasive blasting
b) Welding
c) Cutting
d) Torch burning
e) Power tool cleaning

Contractor shall provide:

a) Appropriate personal protective clothing and equipment in accordance with paragraph (g) 29 CFR 1926.62.
b) Change areas in accordance with paragraph (i)(2) 29 CFR 1926.62.
c) Hand washing facilities in accordance with paragraph (i)(5) 29 CFR 1926.62.
d) Biological monitoring in accordance with paragraph (j)(1)(i) 29 CFR 1926.62, to consist of blood sampling and analysis for lead and zinc protoporphyrin levels, and
e) Training as required under paragraph (l)(1)(i) 29 CFR 1926.62 and in accordance with 29 CFR 1926.59, Hazard Communication; training as required under 29 CFR 1926.62, regarding use of respirators; and training in accordance with 29 CFR 1926.21, Safety training and education.

3.7.2 Basis of Initial Determination

3.7.2.1 The Contractor shall monitor employee exposures and shall base initial determinations on the employee exposure monitoring results and any of the following, relevant considerations:

Any information, observations, or calculations which would indicate employee exposure to lead;

Any previous measurements of airborne lead; and

Any employee complaints of symptoms which may be attributable to exposure to lead.

3.7.3 Positive Initial Determination and Initial Monitoring.

Where a determination conducted under paragraphs 3.3 of this section shows the possibility of any employee exposure at or above the action level the Contractor shall conduct monitoring which is representative of the exposure for each employee in the workplace who is exposed to lead.

3.7.4 Negative Initial Determination

Where a determination, conducted under paragraph 3.3 of this section is made that no employee is exposed to airborne concentrations of lead at or above the action level the Contractor shall make a written record of such determination.

3.7.5 Frequency

If the initial determination reveals employee exposure to be below the action level further exposure determination shall be repeated for each regulated area established to complete the project.

If the initial determination or subsequent determination reveals employee exposure to be at or above the action level the Contractor shall continue monitoring at the required frequency until at least three consecutive measurements, taken at least 4 days apart, are below the action level at which time the Contractor may discontinue monitoring for that employee except as otherwise provided in 29 CFR 1926.62.

3.7.6 Additional Exposure Assessments

Whenever there has been a change of equipment, process, control, personnel or a new task has been initiated that may result in additional employees being exposed to lead at or above the action level or may result in employees already exposed at or above the action level being exposed above the PEL, the Contractor shall conduct additional monitoring.

3.7.7 Employee Notification

The Contractor must, as soon as possible but no later than 3 working days after the receipt of the results of any monitoring performed during this project, notify each affected employee of these results either individually in writing or by posting the results in an appropriate location that is accessible to employees.

Whenever the results indicate that the representative employee exposure, without regard to respirators, is at or above the PEL the Contractor shall include in the written notice a statement that the employees' exposure was at or above that level and a description of the corrective action taken or to be taken to reduce exposure to below that level.

Accuracy of measurement. The Contractor shall ensure a method of monitoring and analysis which has an accuracy (to a confidence level of 95 percent) of not less than plus or minus 25 percent for airborne concentrations of lead equal to or greater than 30 ug/m(3).

3.7.8 Employee Observation

The Contractor shall provide affected employees or their designated representatives an opportunity to observe any monitoring of employee exposure to lead conducted pursuant to paragraph 3.3 of this section.

3.7.8.1 Observation procedures.

a) Whenever observation of the monitoring of employee exposure to lead requires entry into an area where the use of respirators, protective clothing or equipment is required, the Contractor shall provide the observer with and assure the use of such respirators, clothing and equipment, and shall require the observer to comply with all other applicable safety and health procedures.
b) Without interfering with the monitoring, observers shall be entitled to:

c) Receive an explanation of the measurement procedures;
d) Observe all steps related to the monitoring of lead cleaning, stabilization and/or abatement work performed at the Hotel Grim Project.
e) Record the results obtained or receive copies of the results when returned by the laboratory.

3.8 Methods of Compliance

3.8.1 Engineering and Work Practice Controls

The Contractor shall implement engineering and work practice controls, including administrative controls, to reduce and maintain employee exposure to lead to or below the permissible exposure limit to the extent that such controls are feasible. Wherever all feasible engineering and work practices controls that can be instituted are not sufficient to reduce employee exposure to or below the permissible exposure limit, the Contractor shall nonetheless use them to reduce employee exposure to the lowest feasible level and shall supplement them by the use of respiratory protection that complies with the requirements of paragraph (f) of 29 CFR 1926.62.

3.8.2 Compliance Program

Prior to commencement of the project each Contractor shall establish and implement a written compliance program to achieve compliance with the OSHA Lead PEL.

The compliance program shall provide for frequent and regular inspections of job sites, materials, and equipment to be made by a competent person.

Written programs shall be submitted upon request to any affected employee or authorized employee representatives and shall be available at the worksite for examination.

Written programs must be Site-Specific for the Grim Project.

Written plans for these compliance programs shall include at least the following:

3.8.2.1 A description of each activity in which lead is emitted; e.g. equipment used, material involved, controls in place, crew size, employee job responsibilities, operating procedures and maintenance practices;

3.8.2.2 A description of the specific means that will be employed to achieve compliance and, where engineering controls are required engineering plans and studies used to determine methods selected for controlling exposure to lead;

3.8.2.3 A report of the technology considered in meeting the PEL;

3.8.2.4 A detailed schedule for implementation of the program, including documentation such as copies of purchase orders for equipment, construction contracts, etc.;

3.8.2.5 A work practice program which protective clothing, housekeeping, hygiene facilities and safe work practices.

3.8.2.6 A description of arrangements made among contractors on multi-contractor sites with respect to informing affected employees of potential exposure to lead.

3.8.3 Mechanical Ventilation

When ventilation is used to control lead exposure, the Contractor shall evaluate the mechanical performance of the system in controlling exposure as necessary to maintain its effectiveness.

3.8.4 Administrative Controls

Administrative controls may not be as a means of reducing employees' exposure for the Grim Project.

3.8.5 Safe Work Practices

The Contractor shall ensure that, to the extent relevant, employees follow safe work practices such as described in Appendix B of 29 CFR 1926.62.

3.9 Respiratory Protection

General. For employees who use respirators required by this section, the Contractor must provide each employee an appropriate respirator that complies with the requirements of this paragraph.

3.9.1 Respirators Must Be Used During:

Periods when an employee's exposure to lead exceeds the PEL.

Work operations for which engineering and work-practice controls are not sufficient to reduce employee exposures to or below the PEL.

Periods when an employee requests a respirator.

Periods when respirators are required to provide interim protection of employees while they perform the operations specified in paragraph 3.3 of this section.

3.9.2 Respirator Program

The Contractor must implement a respiratory protection program in accordance with § 1910.134(b) through (d) (except (d)(1)(iii)), and (f) through (m), which covers each employee required by this section to use a respirator.

If an employee has breathing difficulty during fit testing or respirator use, the Contractor must provide the employee with a medical examination in accordance with paragraph (j)(3)(i)(B) of this section to determine whether or not the employee can use a respirator while performing the required duty.

3.9.3 Respirator Selection

The Contractor shall select, and provide to employees, the appropriate respirators specified in paragraph (d)(3)(i)(A) of 29 CFR 1910.134.

Provide employees with a full facepiece respirator instead of a half mask respirator for protection against lead aerosols that may cause eye or skin irritation at the use concentrations.

Provide HEPA filters for powered and non-powered air-purifying respirators.

The Contractor must provide a powered air-purifying respirator when an employee chooses to use such a respirator and it will provide adequate protection to the employee.

3.10 Protective Work Clothing and Equipment.

3.10.1 Provision and Use

Where an employee is exposed to lead above the PEL without regard to the use of respirators, where employees are exposed to lead compounds which may cause skin or eye irritation (e.g. lead arsenate, lead azide), and as interim protection for employees performing tasks as specified in section 3.3.1of this section, the Contractor shall provide at no cost to the employee and assure that the employee uses appropriate protective work clothing and equipment that prevents contamination of the employee and the employee's garments such as, but not limited to:

Coveralls or similar full-body work clothing;

Gloves, hats, and shoes or disposable shoe coverlets; and

Face shields, vented goggles, or other appropriate protective equipment which complies with 29 CFR 1910.133.

3.10.2 Cleaning and Replacement

The Contractor shall provide the protective clothing required in paragraph 3.6.1 of this section in a clean and dry condition at least weekly, and daily to employees whose exposure levels without regard to a respirator are over 200 ug/m(3) of lead as an 8-hour TWA.

The Contractor shall provide for the cleaning, laundering, and disposal of protective clothing and equipment required by paragraph 3.6.1 of this section.

The Contractor shall repair or replace required protective clothing and equipment as needed to maintain their effectiveness.

The Contractor shall assure that all protective clothing is removed at the completion of a work shift only in change areas provided for that purpose.

The Contractor shall assure that contaminated protective clothing which is to be cleaned, laundered, or disposed of, is placed in a closed container in the change area which prevents dispersion of lead outside the container.

The Contractor shall inform in writing any person who cleans or launders protective clothing or equipment of the potentially harmful effects of exposure to lead.

The Contractor shall ensure that the containers of contaminated protective clothing and equipment are labeled as follows:

DANGER: CLOTHING AND EQUIPMENT CONTAMINATED WITH LEAD. MAY DAMAGE FERTILITY OR THE UNBORN CHILD. CAUSES DAMAGE TO THE CENTRAL NERVOUS SYSTEM. DO NOT EAT, DRINK OR SMOKE WHEN HANDLING. DO NOT REMOVE DUST BY BLOWING OR SHAKING. DISPOSE OF LEAD CONTAMINATED WASH WATER IN ACCORDANCE WITH APPLICABLE LOCAL, STATE, OR FEDERAL REGULATIONS.

The Contractor shall prohibit the removal of lead from protective clothing or equipment by blowing, shaking, or any other means which disperses lead into the air.

3.11 Housekeeping

All surfaces shall be maintained as free as practicable of accumulations of lead.

Clean-up of floors and other surfaces where lead accumulates shall wherever possible, be cleaned by vacuuming or other methods that minimize the likelihood of lead becoming airborne.

Shoveling, dry or wet sweeping, and brushing may be used only where vacuuming or other equally effective methods have been tried and found not to be effective.

Where vacuuming methods are selected, the vacuums shall be equipped with HEPA filters and used and emptied in a manner which minimizes the reentry of lead into the workplace.

Compressed air shall not be used to remove lead from any surface unless the compressed air is used in conjunction with a ventilation system designed to capture the airborne dust created by the compressed air.

3.12 Hygiene Facilities and Practices

The Contractor shall assure that in areas where employees are exposed to lead above the Active Level without regard to the use of respirators, food or beverage is not present or consumed, tobacco products are not present or used, and cosmetics are not applied.

3.12.1 Change Areas

The Contractor shall provide clean change areas for employees whose airborne exposure to lead is above the PEL, and as interim protection for employees performing tasks as specified in paragraph 3.3.1 of this section, without regard to the use of respirators.

The Contractor shall assure that change areas are equipped with separate storage facilities for protective work clothing and equipment and for street clothes which prevent cross-contamination.

The Contractor shall assure that employees do not leave the workplace wearing any protective clothing or equipment that is required to be worn during the work shift.

3.12.2 Shower Facilities

The Contractor shall provide shower facilities, for use by employees whose airborne exposure to lead is above the PEL.

The Contractor shall assure, that employees shower at the end of the work shift and shall provide an adequate supply of cleansing agents and towels for use by affected employees.

3.12.3 Eating Facilities

The Contractor shall provide lunchroom facilities or eating areas for employees whose airborne exposure to lead is above the PEL, without regard to the use of respirators.

The Contractor shall assure that lunchroom facilities or eating areas are as free as practicable from lead contamination and are readily accessible to employees.

The Contractor shall assure that employees whose airborne exposure to lead is above the PEL, without regard to the use of a respirator, wash their hands and face prior to eating, drinking, smoking or applying cosmetics.

The Contractor shall assure that employees do not enter lunchroom facilities or eating areas with protective work clothing or equipment unless surface lead dust has been removed by vacuuming, downdraft booth, or other cleaning method that limits dispersion of lead dust.

3.12.4 Hand Washing Facilities

The Contractor shall provide adequate handwashing facilities for use by employees exposed to lead in accordance with 29 CFR 1926.51(f).

3.13 Materials and Supplies

Materials and equipment needed to complete the project, shall be available and kept on the site. The Contractor shall submit a description of the materials and equipment to be used; including Material Safety Data Sheets (MSDSs) for material brought onsite to perform the work.

3.13.1 Expendable Supplies

The Contractor shall submit a description of the expendable supplies required.

3.13.1.1 Polyethylene Bags
Disposable bags shall be polyethylene plastic and shall be a minimum of 0.15 mm 6 mils thick (0.1 mm 4 mils thick if double bags are used) or any other thick plastic material shown to demonstrate at least equivalent performance; and shall be capable of being made leak-tight. Leak-tight means that solids, liquids or dust cannot escape or spill out.

3.13.1.2 Polyethylene Leak-tight Wrapping
Wrapping used to wrap lead contaminated debris shall be polyethylene plastic that is a minimum of 0.15 mm 6 mils thick or any other thick plastic material shown to demonstrate at least equivalent performance.

3.13.1.3 Polyethylene Sheeting
Sheeting shall be polyethylene plastic with a minimum thickness of 0.15 mm 6 mil, or any other thick plastic material shown to demonstrate at least equivalent performance; and shall be provided in the largest sheet size reasonably accommodated by the project to minimize the number of seams. Where the project location constitutes an out of the ordinary potential for fire, or where unusual fire hazards cannot be eliminated, flame-resistant polyethylene sheets which conform to the requirements of NFPA 701 shall be provided.

3.13.1.4 Tape and Adhesive Spray
Tape and adhesive shall be capable of sealing joints between polyethylene sheets and for attachment of polyethylene sheets to adjacent surfaces. After dry application, tape or adhesive shall retain adhesion when exposed to wet conditions, including amended water. Tape shall be minimum 50 mm 2 inches wide, industrial strength.

3.13.1.5 Containers
When used, containers shall be leak-tight and shall be labeled in accordance with EPA, DOT and OSHA standards.

3.13.1.6 Chemical Paint Strippers
Chemical paint strippers shall not contain methylene chloride and shall be formulated to prevent stain, discoloration, or raising of the substrate materials.

3.13.1.7 Chemical Paint Stripper Neutralizer
Neutralizers for paint strippers shall be compatible with the substrate and suitable for use with the chemical stripper that has been applied to the surface.

3.13.1.8 Detergents and Cleaners
Detergents or cleaning agents shall not contain trisodium phosphate and shall have demonstrated effectiveness in lead control work using cleaning techniques specified by HUD 6780 guidelines.

3.14 Equipment

3.14.1 Abrasive Removal Equipment

The use of powered machine for vibrating, sanding, grinding, or abrasive blasting is prohibited unless equipped with local exhaust ventilation systems equipped with high efficiency particulate air (HEPA) filters.

3.14.3 Vacuum Systems

Vacuum systems shall be suitably sized for the project, and filters shall be capable of trapping and retaining all mono-disperse particles as small as 0.3 micrometers (mean aerodynamic diameter) at a minimum efficiency of 99.97 percent. Used filters that are being replaced shall be disposed in a proper manner.

3.14.4 Heat Blower Guns

Heat blower guns shall be flameless, electrical, paint-softener type with controls to limit temperature to 1,100 degrees F. Heat blower shall be DI (non-grounded) 120 volts ac, and shall be equipped with cone, fan, glass protector and spoon reflector nozzles.

3.15 Work Procedures and Methods

Perform work following practices and procedures in project work plans and the occupant protection plan.

3.15.1 Lead Hazard Control Areas, Equipment and Procedures

Set up lead hazard control areas and operate equipment within the lead hazard control area in a manner that will minimize migration of lead dust beyond the lead hazard control area boundaries.

3.15.2 Lead Hazard Control Areas

Access into lead hazard control areas by the general public shall be prohibited. Lead hazard control area preparation and restriction requirements follow:

a) Containment features for interior lead hazard control projects:
   Polyethylene sheeting sealed with spray adhesive and duct tape shall be used for each lead hazard control area. Each entry/exit shall be sealed with primitive air lock Openings. HVAC supply and return air vents, into the lead hazard control areas shall be sealed with polyethylene sheeting and duct tape or with sealed rigid coverings to form critical barriers.

b) Containment features for exterior lead hazard control projects:
A roped-off boundary perimeter, using caution tape or a barrier installed at 10' distance from where the lead control work is performed.

3.15.3 Negative Air Pressure System Containment

a) Each negative air pressure systems shall be operated to provide at least four (4) air changes per hour inside the containment. The local exhaust unit equipment shall be operated continuously until the containment is removed. The negative air pressure system shall be smoke tested for leaks at the beginning of each shift. The certified supervisor is responsible to continuously monitor and keep a pressure differential log with an automatic manometric recording instrument. The Consultant's Project Manager shall be notified immediately if the pressure differential falls below the prescribed minimum. Submit the continuously monitored pressure differential log, as specified. The building ventilation system shall not be used as the local exhaust system. The local exhaust system shall terminate out of doors unless the Consultant's Project Manager allows an alternate arrangement. All filters shall be new at the beginning of the project and shall be periodically changed as necessary to maintain specified pressure differential and shall be disposed of as lead contaminated waste.

b) Discontinuing Negative Air Pressure System. The negative air pressure system shall be operated continuously during abatement activities unless otherwise authorized by the Consultant's Project Manager. At the completion of the project, units shall be run until full cleanup has been completed and final clearance testing requirements have been met. Dismantling of the negative air pressure systems shall conform to written decontamination procedures. The HEPA filter machine intakes shall be sealed with polyethylene to prevent environmental contamination.

3.16 Furnishings

All furniture and equipment within the Hotel Grim shall be considered lead contaminated. All porous materials shall be collected, bagged or containerized for proper disposal. Large non-porous items that can be wet wiped and decontaminated may be discarded as general construction debris.

3.17 Clearance Procedures

3.17.1 Visual Inspection

The certified supervisor shall perform a visual inspection, to assure that lead hazard abatement activities, identified in the individual work task data elements, have been properly completed. The certified supervisor shall visually verify that lead hazards have been abated and the area is free of dust and paint chips generated by lead hazard cleaning and stabilization activities.

3.17.2 Analytical Demonstration of Clearance

After the visual inspection, the Consultant's Project Manager shall take clearance samples for laboratory analysis to verify clearance requirements specified in paragraph CLEARANCE REQUIREMENTS in PART 1 have been met.

3.17.3 Clearance

The Consultant's Certified Risk Assessor shall review analytical results for the samples taken to determine compliance with project specific clearance requirements. The following actions apply and shall be performed at the Contractor's expense if project specific clearance levels are exceeded:

Reclean surfaces.
Retest to determine clearance.

3.18 Medical Surveillance

The Contractor shall make available initial medical surveillance to employees occupationally exposed on any day to lead at or above the action level. Initial medical surveillance consists of biological monitoring in the form of blood sampling and analysis for lead and zinc protoporphyrin levels.

The medical surveillance program shall conform to the requirements set forth in 29 CFR 1926.62(j) and shall include: Biological Monitoring, Medical Examination and Consultations and Chelation.

3.18.1 Temporary medical removal and return of an employee

Contractor shall comply with all provisions of 29 CFR 1926.62 (k) related to medical protection.

3.19 Hazard Communication

The Contractor shall include lead in the program established to comply with the Hazard Communication Standard (HCS) 29 CFR.1910.1200. The Contractor shall ensure that each employee has access to labels and safety data sheets for job site supplies and is trained in accordance with the provisions of HCS and all provisions of this section. The Contractor shall ensure that at least the following lead hazards are addressed:

a) Reproductive/developmental toxicity;
b) Central nervous system effects;
c) Kidney effects;
d) Blood effects; and
e) Acute toxicity effects.

3.20 Training

The Contractor shall train each employee who is subject to exposure to lead at or above the action level on any day, or who is subject to exposure to lead compounds which may cause skin or eye irritation (e.g., lead arsenate, lead azide), in accordance with the requirements of this section. The Contractor shall institute a training program and ensure employee participation in the program.

The Contractor shall provide the training program as initial training prior to the time of job assignment or prior to the startup date for this requirement, whichever comes last.

The Contractor shall also provide the training program at least annually for each employee who is subject to lead exposure at or above the action level on any day.

3.20.1 Training Program

a) The Contractor shall assure that each employee is trained in the following:
b) The content and provisions of the OSHA Lead Construction Standard;
c) The specific nature of the operations which could result in exposure to lead above the action level;
d) The purpose, proper selection, fitting, use, and limitations of respirators;
e) The purpose and a description of the medical surveillance program, and the medical removal protection program including information concerning the adverse health effects associated with excessive exposure to lead (with particular attention to the adverse reproductive effects on both males and females and hazards to the fetus and additional precautions for employees who are pregnant);

f) The engineering controls and work practices associated with the employee's job assignment including training of employees to follow relevant good work practices described in Appendix B of 29 CFR 1926.62;
g) The contents of any compliance plan in effect;
h) Instructions to employees that chelating agents should not routinely be used to remove lead from their bodies and should not be used at all except under the direction of a licensed physician; and
i) The employee's right of access to records under 29 CFR 1910.20.

3.20.2 Access to Information and Training Materials

The Contractor shall make readily available to all affected employees a copy of all applicable Federal and State Lead Standards and include OSHA, EPA, HUD and the Texas Environmental Lead Reduction Rules.

The Contractor shall provide, upon request, all materials relating to the employee information and training program to affected employees and their designated representatives.

3.21 Signs

The Contractor shall post the following warning signs in each work area where an employee's exposure to lead is above the PEL.

DANGER
LEAD WORK AREA
MAY DAMAGE FERTILITY OR THE UNBORN CHILD
CAUSES DAMAGE TO THE CENTRAL NERVOUS SYSTEM
DO NOT EAT, DRINK OR SMOKE IN THIS AREA

The Contractor shall ensure that no statement appears on or near any sign that contradicts or detracts from the meaning of the required sign.

The Contractor shall ensure that signs are illuminated and cleaned as necessary so that the legend is readily visible.

The Contractor may use signs required by other statutes, regulations or ordinances in addition to, or in combination with this section.

3.22 Record Keeping

The Contractor shall submit the report, written by the certified supervisor, covering each element in 40 CFR 745, Section 227 (e) (10). Cover the following information in the abatement report:

a) Start and completion dates of lead hazard control activities.
b) The name and address of each firm conducting lead hazard control activities and the name of each supervisor assigned to the project.
c) The Occupant Protection Plan prepared pursuant to paragraph OCCUPANT PROTECTION PLAN in PART 1.
d) The name, address and signature of the certified risk assessor to indicating clearance requirements have been met.
e) Certification of each Final Cleaning and Visual Inspection performed by the certified supervisor.
f) The results of clearance testing and all soil analyses, and the name of each laboratory that conducted the analyses.
g) A detailed written description of the lead abatement including abatement methods used, locations of rooms and/or components where lead abatement activities occurred.
h) Hazardous waste disposal documentation.
i) Contractor provided installation/maintenance manuals.

3.22.1 Exposure Assessment

The Contractor shall establish and maintain an accurate record of all monitoring and other data used in conducting employee exposure assessments.

Exposure monitoring records shall include:

a) The date(s), number, duration, location and results of each of the samples taken if any, including a description of the sampling procedure used to determine representative employee exposure where applicable;
b) A description of the sampling and analytical methods used and evidence of their accuracy;
c) The type of respiratory protective devices worn, if any;
d) Name, social security number, and job classification of the employee monitored and of all other employees whose exposure the measurement is intended to represent; and
e) The environmental variables that could affect the measurement of employee exposure.
f) The Contractor shall maintain monitoring and other exposure assessment records in accordance with the provisions of 29 CFR 1926.33.

3.22.2 Medical Surveillance

The Contractor shall establish and maintain an accurate record for each employee subject to medical surveillance.

This record shall include:

a) The name, social security number, and description of the duties of the employee;
b) A copy of the physician's written opinions;
c) Results of any airborne exposure monitoring done on or for that employee and provided to the physician; and
d) Any employee medical complaints related to exposure to lead.
e) The Contractor shall keep, or assure that the examining physician keeps, the following medical records:
f) A copy of the medical examination results including medical and work history.
g) A description of the laboratory procedures and a copy of any standards or guidelines used to interpret the test results or references to that information;
h) A copy of the results of biological monitoring.

The Contractor shall maintain or assure that the physician maintains medical records in accordance with the provisions of 29 CFR 1926.33.

3.22.3 Medical Removals

The Contractor shall establish and maintain an accurate record for each employee removed from current exposure to lead pursuant to paragraph (k) of 29 CFR 1926.62.

Each record shall include:

a) The name and social security number of the employee;
b) The date of each occasion that the employee was removed from current exposure to lead as well as the corresponding date on which the employee was returned to his or her former job status;
c) A brief explanation of how each removal was or is being accomplished; and
d) A statement with respect to each removal indicating whether or not the reason for the removal was an elevated blood lead level.

The Contractor shall maintain each medical removal record for at least the duration of employee's employment.

3.22.4 Availability and Transfer of Records

The Contractor shall make available upon request all records required to be maintained by this section to affected employees, former employees, and their designated representatives.

Whenever the Contractor ceases to do business, the successor Contractor shall receive and retain all records relative to the Hotel Grim Project.

The Contractor shall also comply with any additional requirements involving the transfer of records set forth in 29 CFR 1910.1020(h).

3.23 Certification of Visual Inspection

Certify that the lead hazard control area(s) for each individual work task have passed visual clearance criteria and are ready for clearance sampling. To pass visual clearance, lead hazards have to be removed; control technology appropriately applied/installed; the lead hazard control area must be free from visible dust debris, paint chips or any other residue that may have been generated by the lead hazard control activities.

Certificate of Worker's Acknowledgement

HOTEL GRIM BUILDING, TEXARKANA, TEXAS
CERTIFICATE OF WORKER'S ACKNOWLEDGMENT

PROJECT NAME _____ CONTRACT NO. _____
PROJECT ADDRESS _____
CONTRACTOR FIRM NAME _____
EMPLOYEE'S NAME _____,_____,_____
(Print) (Last) (First) (MI)
Social Security Number: _____-_____-_____,__(Optional)

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

Your employer's contract for the above project requires that you be provided and you complete formal asbestos training specific to the type of work you will perform and project specific training; that you be supplied with proper personal protective equipment including a respirator, that you be trained in its use; and that you receive a medical examination to evaluate your physical capacity to perform your assigned work tasks, under the environmental conditions expected, while wearing the required personal protective equipment. These things are to be done at no cost to you. By signing this certification, you are acknowledging that your employer has met these obligations to you. The Contractor's Health and Safety Manager will check the block(s) for the type of formal training you have completed.

Review the checked blocks prior to signing this certification.

FORMAL TRAINING:
_____ a. For Competent Persons and Supervisors: I have completed EPA's Model Accreditation Program (MAP) training course, "Contractor/Supervisor", that meets Texas requirements.
b. For Workers:
_____ (1) For OSHA Class I work: I have completed EPA's MAP training course, "Worker", that meets Texas requirements.
_____ (2) For OSHA Class II work (where there will be abatement of more than one type of Class II materials, i.e., roofing, siding, floor tile, etc.): I have completed EPA's MAP training course, "Worker", that meets Texas requirements.
_____ (3) For OSHA Class III work: I have completed at least a 16-hour course consistent with EPA requirements for training of local education agency maintenance and custodial staff at 40 CFR 763, Section .92(a)(2) and the elements of 29 CFR 1926.1101(k)(9)(viii), in addition to the specific work practices and engineering controls at 29 CFR 1926.1101, and hands-on training.

HOTEL GRIM BUILDING, TEXARKANA, TEXAS
CERTIFICATE OF WORKER'S ACKNOWLEDGMENT
(page 2)

_____ (5) For OSHA Class IV work: I have completed at least a 2-hr course consistent with EPA requirements for training of local education agency maintenance and custodial staff at 40 CFR 763, (a)(1), and the elements of 29 CFR 1926.1101(k)(9)(viii), in addition to the specific work practices and engineering controls at 29 CFR 1926.1101(g) and hands-on training.

_____ c. Workers, Supervisors and the Designated Competent Person: I have completed annual refresher training as required by EPA's MAP that meets Texas requirements.

PROJECT SPECIFIC TRAINING:

_____ I have been provided and have completed the project specific training required by this Contract. My employer's Designated Health and Safety Manager and Designated Competent Person conducted the training.

RESPIRATORY PROTECTION:

_____ I have been trained in accordance with the criteria in the Contractor's Respiratory Protection program. I have been trained in the dangers of handling and breathing asbestos dust and in the proper work procedures and use and limitations of the respirator(s) I will wear. I have been trained in and will abide by the facial hair and contact lens use policy of my employer.

RESPIRATOR FIT-TEST TRAINING:

_____ I have been trained in the proper selection, fit, use, care, cleaning, maintenance, and storage of the respirator(s) that I will wear. I have been fit-tested in accordance with the criteria in the Contractor's Respiratory Program and have received a satisfactory fit. I have been assigned my individual respirator. I have been taught how to properly perform positive and negative pressure fit-check upon donning negative pressure respirators each time.

EPA/TEXAS CERTIFICATION/LICENSE AND TEXAS LICENSE / REGIISTRATION

I have an EPA/[_____] certification/license as:
Building Inspector/Management Planner; Certification #_____ Exp. Date _____
Contractor/Supervisor, Certification # _____ Exp. Date _____
Project Designer, Certification # _____ Exp. Date _____
Worker, Certification # _____ Exp. Date _____

HOTEL GRIM BUILDING, TEXARKANA, TEXAS
CERTIFICATE OF WORKER'S ACKNOWLEDGMENT
(page 3)

MEDICAL EXAMINATION:

_____ I have had a medical examination within the last twelve months which was paid for by my employer. The examination included: health history, pulmonary function tests, and may have included an evaluation of a chest x-ray. A physician made a determination regarding my physical capacity to perform work tasks on the project while wearing personal protective equipment including a respirator. I was personally provided a copy and informed of the results of that examination. My employer's Health and Safety Manager evaluated the medical certification provided by the physician and checked the appropriate blank below. The physician determined that there:

_____ were no limitations to performing the required work tasks.
_____ were identified physical limitations to performing the required work tasks.

CERTIFICATE OF WORKER'S ACKNOWLEDGMENT

Date of the medical examination _____

Employee Signature _____ date _____

Health and Safety Manager

Signature _____ date _____

Asbestos Inspection Records, 2015

ASBESTOS BULK ANALYSIS REPORT

Date: March 27, 2015

HEC Environmental Group, Inc.

Report: 2915-0868
T15147 / Grim Hotel

This document shall be considered a duly signed original report of the results obtained from the analyses performed. All analyses are done within government guidelines and regulations.

Gary R. Simmons
Laboratory Manager

Lab Comments on Project: N/A

306 W. Edgewood Dr., Suite D, Friendswood, TX 77546 www.apasi.net Office (281) 648-9918 | Fax (281) 648-9595

PLM (Bulk) - Asbestos Analysis Report - Visual ID
(EPA Method 600/R-93-116 Visual Area Estimation)

HEC Environmental Group, Inc.
409 Hazel Street
TexArkana, AR 71854
870-772-4700
Contact: Jerry Jones

Report Number: 2915-0868
Report Date: March 27, 2015
Samples Collected: March 17-18, 2015
Date Received: March 24, 2015
Turn-around time: 72 Hours

Job ID / Site: T15147 / Grim Hotel

Client Sample Number	Lab Sample Number (by layer)	Color / Description / Fibrous / NonFibrous / Homogeneity	Asbestos Content Type & %	Non-Asbestos Fibrous Type & %	Matrix
147-1	2915-0868-01	Green,White,Tan / Plaster / Fibrous / Homogeneous	None Detected	Synthetic 2%	Binder
147-2	2915-0868-02A	Black,Tan / Paint / NonFibrous / Homogeneous	None Detected	None Detected	Binder
	2915-0868-02B	White / Paint,Texture / NonFibrous / Homogeneous	None Detected	None Detected	Binder
147-3	2915-0868-03	Light Grey / Insulation / Fibrous / Homogeneous	Chrysotile 70%	Cellulose 10%	Binder
147-4	2915-0868-04	Brown,Off White / Drywall / Fibrous / Homogeneous	None Detected	Cellulose 10%	Binder
147-5	2915-0868-05	White,Tan / Plaster / Fibrous / Homogeneous	None Detected	Synthetic 2%	Binder
147-6	2915-0868-06	Light Grey / Insulation / Fibrous / Homogeneous	Chrysotile 70%	Cellulose 10%	Binder
147-7	2915-0868-07	Brown / Insulation / Fibrous / Homogeneous	None Detected	Cellulose 10% Synthetic 80%	Binder
147-8	2915-0868-08	White,Tan / Plaster / Fibrous / Homogeneous	None Detected	Synthetic 2%	Binder
147-9	2915-0868-09	Brown / Insulation / Fibrous / Homogeneous	None Detected	Synthetic 10%	Binder

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147-10	2915-0868-10	White,Tan / Plaster / Fibrous / Homogeneous	None Detected	Synthetic 2%	Binder
147-11	2915-0868-11	Tan / Insulation / Fibrous / Homogeneous	None Detected	Cellulose 95%	Binder
147-12	2915-0868-12	Green,White,Tan / Plaster / Fibrous / Homogeneous	None Detected	Synthetic 2%	Binder
147-13	2915-0868-13A	Black,Brown / 12x12 Floor Tile / Fibrous / Homogeneous	Chrysotile 5%	None Detected	Binder
	2915-0868-13B	Black / Mastic / Fibrous / Homogeneous	Chrysotile 5%	None Detected	Binder
147-14	2915-0868-14A	Black,Brown / 12x12 Floor Tile / Fibrous / Homogeneous	Chrysotile 5%	None Detected	Binder
	2915-0868-14B	Black / Mastic / Fibrous / Homogeneous	Chrysotile 5%	None Detected	Binder
147-15	2915-0868-15A	Black,Brown / 12x12 Floor Tile / Fibrous / Homogeneous	Chrysotile 5%	None Detected	Binder
	2915-0868-15B	Black / Mastic / Fibrous / Homogeneous	Chrysotile 5%	None Detected	Binder
147-16	2915-0868-16	White,Tan / Plaster / Fibrous / Homogeneous	None Detected	Synthetic 2%	Binder

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147-17	2915-0868-17	White / Plaster / NonFibrous / Homogeneous	None Detected	None Detected	Binder
147-18	2915-0868-18	White,Tan / Plaster / Fibrous / Homogeneous	None Detected	Synthetic 2%	Binder
147-19	2915-0868-19	Off White / Plaster / Fibrous / Homogeneous	None Detected	Synthetic 2%	Binder
147-20	2915-0868-20	White,Tan / Plaster / Fibrous / Homogeneous	None Detected	Synthetic 2%	Binder
147-21	2915-0868-21A	Black / 9x9 Floor Tile / Fibrous / Homogeneous	Chrysotile 3%	Cellulose 3%	Binder
	2915-0868-21B	Black / Mastic / Fibrous / Homogeneous	Chrysotile 5%	None Detected	Binder
147-22	2915-0868-22A	Black / 9x9 Floor Tile / Fibrous / Homogeneous	Chrysotile 3%	Cellulose 3%	Binder
	2915-0868-22B	Black / Mastic / Fibrous / Homogeneous	Chrysotile 5%	None Detected	Binder
147-23	2915-0868-23A	Black / 9x9 Floor Tile / Fibrous / Homogeneous	Chrysotile 3%	Cellulose 3%	Binder
	2915-0868-23B	Black / Mastic / Fibrous / Homogeneous	Chrysotile 5%	None Detected	Binder

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147-24	2915-0868-24A	White / Texture / NonFibrous / Homogeneous	None Detected	None Detected	Binder
	2915-0868-24B	Tan / Plaster / Fibrous / Homogeneous	None Detected	Synthetic 2%	Binder
147-25	2915-0868-25	Green / Vibration Damper / Fibrous / Homogeneous	None Detected	Cellulose 90%	Binder
147-26	2915-0868-26	Brown,Off White / Sheetrock / Fibrous / Homogeneous	None Detected	Cellulose 10%	Binder
147-27	2915-0868-27A	Off White / Paint / NonFibrous / Homogeneous	None Detected	None Detected	Binder
	2915-0868-27B	Brown,Off White / Sheetrock / Fibrous / Homogeneous	None Detected	Cellulose 10%	Binder
147-28	2915-0868-28A	Brown,White / 9x9 Floor Tile / NonFibrous / Homogeneous	None Detected	None Detected	Binder
	2915-0868-28B	Yellow,Tan / Mastic / NonFibrous / Homogeneous	None Detected	None Detected	Binder
147-29	2915-0868-29A	Brown,White / 9x9 Floor Tile / NonFibrous / Homogeneous	None Detected	None Detected	Binder
	2915-0868-29B	Yellow,Tan / Mastic / NonFibrous / Homogeneous	None Detected	None Detected	Binder

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147-30	2915-0868-30A	Brown,White / 9x9 Floor Tile / NonFibrous / Homogeneous	None Detected	None Detected	Binder
	2915-0868-30B	Yellow,Tan / Mastic / NonFibrous / Homogeneous	None Detected	None Detected	Binder
147-31	2915-0868-31A	Black,Brown / 9x9 Floor Tile / NonFibrous / Homogeneous	None Detected	None Detected	Binder
	2915-0868-31B	Yellow,Tan / Mastic / NonFibrous / Homogeneous	None Detected	None Detected	Binder
147-32	2915-0868-32A	Black,Brown / 9x9 Floor Tile / NonFibrous / Homogeneous	None Detected	None Detected	Binder
	2915-0868-32B	Yellow,Tan / Mastic / NonFibrous / Homogeneous	None Detected	None Detected	Binder
147-33	2915-0868-33A	Black,Brown / 9x9 Floor Tile / NonFibrous / Homogeneous	None Detected	None Detected	Binder
	2915-0868-33B	Yellow,Tan / Mastic / NonFibrous / Homogeneous	None Detected	None Detected	Binder
147-34	2915-0868-34A	Beige / Wrap / Fibrous / Homogeneous	None Detected	Cellulose 100%	
	2915-0868-34B	Off White / Insulation / Fibrous / Homogeneous	Chrysotile 70%	Cellulose 10%	Binder

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147-35	2915-0868-35	Green,Brown / Vibration Damper / Fibrous / Homogeneous	None Detected	Cellulose 90%	Binder
147-36	2915-0868-36	Tan,Off White / Linoleum / Fibrous / Homogeneous	None Detected	Cellulose 15% Fibrous Glass 2%	Binder
147-37	2915-0868-37	Tan,Off White / Linoleum / Fibrous / Homogeneous	None Detected	Cellulose 15% Fibrous Glass 2%	Binder
147-38	2915-0868-38A	Light Tan / 9x9 Floor Tile / Fibrous / Homogeneous	Chrysotile 5%	None Detected	Binder
	2915-0868-38B	Dark Brown,Grey / Mastic,Material / Fibrous / Homogeneous	None Detected	Cellulose 45% Synthetic 5%	Binder
147-39	2915-0868-39A	Light Tan / 9x9 Floor Tile / Fibrous / Homogeneous	Chrysotile 5%	None Detected	Binder
	2915-0868-39B	Dark Brown,Grey / Mastic,Material / Fibrous / Homogeneous	None Detected	Cellulose 45% Synthetic 5%	Binder
147-40	2915-0868-40A	Light Tan / 9x9 Floor Tile / Fibrous / Homogeneous	Chrysotile 5%	None Detected	Binder
	2915-0868-40B	Dark Brown,Grey / Mastic,Material / Fibrous / Homogeneous	None Detected	Cellulose 45% Synthetic 5%	Binder
147-41	2915-0868-41A	Grey,Red,Green / 9x9 Floor Tile / Fibrous / Homogeneous	Chrysotile 5%	None Detected	Binder

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147-41	2915-0868-41B	Dark Brown / Mastic / Fibrous / Homogeneous	None Detected	Cellulose 2%	Binder
147-42	2915-0868-42	White,Tan / Plaster / Fibrous / Homogeneous	None Detected	Synthetic 2%	Binder
147-43	2915-0868-43	White,Tan / Plaster / Fibrous / Homogeneous	None Detected	Synthetic 2%	Binder
147-44	2915-0868-44	White,Tan / Plaster / Fibrous / Homogeneous	None Detected	Synthetic 2%	Binder
147-45	2915-0868-45	White,Tan / Plaster / Fibrous / Homogeneous	None Detected	Synthetic 2%	Binder
147-46	2915-0868-46A	Light Green / 9x9 Floor Tile / Fibrous / Homogeneous	Chrysotile 15%	None Detected	Binder
	2915-0868-46B	Black,Brown / Mastic,Material / Fibrous / Homogeneous	Chrysotile 3%	Cellulose 70%	Binder
147-47	2915-0868-47	White,Brown / Plaster / Fibrous / Homogeneous	None Detected	Synthetic 2%	Binder
147-48	2915-0868-48A	Dark Brown / 9x9 Floor Tile / Fibrous / Homogeneous	Chrysotile 10%	None Detected	Binder
	2915-0868-48B	Black / Mastic / Fibrous / Homogeneous	Chrysotile 5%	None Detected	Binder

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Client Sample Number	Lab Sample Number (by layer)	Color / Description / Fibrous / NonFibrous / Homogeneity	Asbestos Content Type & %	Non-Asbestos Fibrous Type & %	Matrix
147-49	2915-0868-49A	Dark Brown / 9x9 Floor Tile / Fibrous / Homogeneous	Chrysotile 10%	None Detected	Binder
	2915-0868-49B	Black / Mastic / Fibrous / Homogeneous	Chrysotile 5%	None Detected	Binder
147-50	2915-0868-50A	Dark Brown / 9x9 Floor Tile / Fibrous / Homogeneous	Chrysotile 10%	None Detected	Binder
	2915-0868-50B	Black / Mastic / Fibrous / Homogeneous	Chrysotile 5%	None Detected	Binder
147-51	2915-0868-51A	Brown / 9x9 Floor Tile / Fibrous / Homogeneous	Chrysotile 10%	None Detected	Binder
	2915-0868-51B	Black / Mastic / Fibrous / Homogeneous	Chrysotile 5%	None Detected	Binder
147-52	2915-0868-52	White,Tan / Plaster / Fibrous / Homogeneous	None Detected	Synthetic 2%	Binder
147-53	2915-0868-53	White / Plaster / NonFibrous / Homogeneous	None Detected	None Detected	Binder
147-54	2915-0868-54A	Off White / Paint,Texture / NonFibrous / Homogeneous	None Detected	None Detected	Binder
	2915-0868-54B	Brown,Off White / Sheetrock / Fibrous / Homogeneous	None Detected	Cellulose 10%	Binder

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147-55	2915-0868-55A	Green / 9x9 Floor Tile / Fibrous / Homogeneous	Chrysotile 10%	None Detected	Binder
	2915-0868-55B	Black / Mastic / Fibrous / Homogeneous	Chrysotile 5%	None Detected	Binder
147-56	2915-0868-56A	Black,Off White / 9x9 Floor Tile / Fibrous / Homogeneous	Chrysotile 10%	None Detected	Binder
	2915-0868-56B	Black,Brown / Mastic,Material / Fibrous / Homogeneous	None Detected	Cellulose 60%	Binder
147-57	2915-0868-57A	Green / 9x9 Floor Tile / Fibrous / Homogeneous	Chrysotile 10%	None Detected	Binder
	2915-0868-57B	Black / Mastic / Fibrous / Homogeneous	Chrysotile 5%	None Detected	Binder
147-58	2915-0868-58A	Light Blue / 9x9 Floor Tile / Fibrous / Homogeneous	Chrysotile 10%	None Detected	Binder
	2915-0868-58B	Black / Mastic / Fibrous / Homogeneous	Chrysotile 5%	None Detected	Binder
147-59	2915-0868-59A	Light Red / 9x9 Floor Tile / Fibrous / Homogeneous	Chrysotile 5%	None Detected	Binder
	2915-0868-59B	Black / Mastic / Fibrous / Homogeneous	Chrysotile <1%	None Detected	Binder

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Client Sample Number	Lab Sample Number (by layer)	Color / Description / Fibrous / NonFibrous / Homogeneity	Asbestos Content Type & %	Non-Asbestos Fibrous Type & %	Matrix
147-60	2915-0868-60A	Light Blue / 9x9 Floor Tile / Fibrous / Homogeneous	Chrysotile 10%	None Detected	Binder
	2915-0868-60B	Black / Mastic / Fibrous / Homogeneous	Chrysotile 5%	None Detected	Binder
147-61	2915-0868-61A	Grey,Black / 9x9 Floor Tile / Fibrous / Homogeneous	Chrysotile 5%	None Detected	Binder
	2915-0868-61B	Black / Mastic / Fibrous / Homogeneous	Chrysotile <1%	None Detected	Binder
147-62	2915-0868-62A	Dark Brown / 9x9 Floor Tile / Fibrous / Homogeneous	Chrysotile 10%	None Detected	Binder
	2915-0868-62B	Black / Mastic / Fibrous / Homogeneous	None Detected	Cellulose 5%	Binder
147-63	2915-0868-63	Grey,Black / Wire Insulation / Fibrous / Homogeneous	None Detected	Cellulose 35%	Binder
147-64	2915-0868-64	Grey,Black / Wire Insulation / Fibrous / Homogeneous	None Detected	Cellulose 35%	Binder
147-65	2915-0868-65	Brown,Black / Wire Insulation / Fibrous / Homogeneous	None Detected	Cellulose 35%	Binder
147-66	2915-0868-66	Grey,Black / Roofing Mastic / Fibrous / Homogeneous	Chrysotile 10%	None Detected	Binder

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NVLAP Lab Code: 200633-0 PLM

TDSHS Asbestos License#: 30-0312 PLM/PCM

306 W. Edgewood Dr., Suite D, Friendswood, TX 77546 www.apasi.net Office (281) 648-9918 | Fax (281) 648-9595

PLM (Bulk) - Asbestos Analysis Report - Visual ID

(EPA Method 600/R-93-116 Visual Area Estimation)

HEC Environmental Group, Inc.
409 Hazel Street
TexArkana, AR 71854
870-772-4700
Contact: Jerry Jones

Report Number: 2915-0868
Report Date: March 27, 2015
Samples Collected: March 17-18, 2015
Date Received: March 24, 2015
Turn-around time: 72 Hours

Job ID / Site: T15147 / Grim Hotel

Client Sample Number	Lab Sample Number (by layer)	Color / Description / Fibrous / NonFibrous / Homogeneity	Asbestos Content Type & %	Non-Asbestos Fibrous Type & %	Matrix
147-67	2915-0868-67	White,Brown / Ceiling Tile / Fibrous / Homogeneous	None Detected	Cellulose 85%	Binder
147-68	2915-0868-68	White,Brown / Ceiling Tile / Fibrous / Homogeneous	None Detected	Cellulose 85%	Binder
147-69	2915-0868-69	White,Brown / Ceiling Tile / Fibrous / Homogeneous	None Detected	Cellulose 85%	Binder
147-70	2915-0868-70	White,Brown / Wallpaper / Fibrous / Homogeneous	None Detected	Cellulose 50%	Binder
147-71	2915-0868-71	White,Brown / Wallpaper / Fibrous / Homogeneous	None Detected	Cellulose 50%	Binder
147-72	2915-0868-72	White,Brown / Wallpaper / Fibrous / Homogeneous	None Detected	Cellulose 50%	Binder
147-73	2915-0868-73	White,Light Tan / Window Glazing / NonFibrous / Homogeneous	None Detected	None Detected	Binder
147-74	2915-0868-74	White,Light Tan / Window Glazing / NonFibrous / Homogeneous	None Detected	None Detected	Binder
147-75	2915-0868-75	White,Light Tan / Window Glazing / NonFibrous / Homogeneous	None Detected	None Detected	Binder
147-76	2915-0868-76	White,Light Tan / Window Glazing / NonFibrous / Homogeneous	None Detected	None Detected	Binder

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Client Sample Number	Lab Sample Number (by layer)	Color / Description / Fibrous / NonFibrous / Homogeneity	Asbestos Content Type & %	Non-Asbestos Fibrous Type & %	Matrix
147-77	2915-0868-77	White / Wall Texture / NonFibrous / Homogeneous	None Detected	None Detected	Binder
147-78	2915-0868-78	White / Wall Texture / NonFibrous / Homogeneous	None Detected	None Detected	Binder
147-79	2915-0868-79	White / Wall Texture / NonFibrous / Homogeneous	None Detected	None Detected	Binder
147-80	2915-0868-80	Tan / Silver / Pipe Wrap / Fibrous / Homogeneous	None Detected	Cellulose 95%	Binder
147-81	2915-0868-81A	Black / Pipe Insulation / Fibrous / Homogeneous	Chrysotile 30%	Cellulose 10% Synthetic 3%	Binder
	2915-0868-81B	Brown / Pipe Insulation / Fibrous / Homogeneous	None Detected	Cellulose 95%	Binder
147-82	2915-0868-82A	Black / Pipe Insulation / Fibrous / Homogeneous	Chrysotile 30%	Cellulose 10% Synthetic 5%	Binder
	2915-0868-82B	Brown / Pipe Insulation / Fibrous / Homogeneous	None Detected	Cellulose 95%	Binder
147-83	2915-0868-83	Black / 9x9 Floor Tile / Fibrous / Homogeneous	Chrysotile 5%	None Detected	Binder
147-84	2915-0868-84	Black / 9x9 Floor Tile / Fibrous / Homogeneous	Chrysotile 5%	None Detected	Binder

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Client Sample Number	Lab Sample Number (by layer)	Color / Description / Fibrous / NonFibrous / Homogeneity	Asbestos Content Type & %	Non-Asbestos Fibrous Type & %	Matrix
147-85	2915-0868-85	Black / 9x9 Floor Tile / Fibrous / Homogeneous	Chrysotile 5%	None Detected	Binder
147-86	2915-0868-86A	Red,Brown / 9x9 Floor Tile / Fibrous / Homogeneous	Chrysotile 15%	None Detected	Binder
	2915-0868-86B	Black / Mastic / Fibrous / Homogeneous	Chrysotile 5%	None Detected	Binder
147-87	2915-0868-87A	Red,Brown / 9x9 Floor Tile / Fibrous / Homogeneous	Chrysotile 15%	None Detected	Binder
	2915-0868-87B	Black / Mastic / Fibrous / Homogeneous	Chrysotile 5%	None Detected	Binder
147-88	2915-0868-88A	Red,Brown / 9x9 Floor Tile / Fibrous / Homogeneous	Chrysotile 15%	None Detected	Binder
	2915-0868-88B	Black / Mastic / Fibrous / Homogeneous	Chrysotile 5%	None Detected	Binder
147-89	2915-0868-89	White,Tan / Plaster / Fibrous / Homogeneous	None Detected	Synthetic 2%	Binder
147-90	2915-0868-90	White / Plaster / NonFibrous / Homogeneous	None Detected	None Detected	Binder
147-91	2915-0868-91	White / Plaster / NonFibrous / Homogeneous	None Detected	None Detected	Binder

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Lead Paint Report, 2015

LEAD-CONTAINING PAINT SAMPLE SUMMARY
GRIM HOTEL
301 NORTH STATE LINE AVENUE
TEXARKANA, TEXAS
May 8, 2015

Sample No.	Paint Color	Paint Substrate	Material Location	Surface Condition	Analytical Result (Concentration - ppm)
LBP-1	Pink	Wood	Column and walls – Lobby Entrance	Poor	**160,000**
LBP-2	Brown	Wood	Column base trim – Lobby Entrance	Poor	**13,000**
LBP-3	Green	Wood	Support Pillars – South Side Rooms	Poor	**5,100**
LBP-4	Blue	Plaster	Support Pillars – North Portion Of Lobby	Poor	**48,000**
LBP-5	White	Plaster	Walls throughout	Poor	**66,000**
LBP-6	Pink	Plaster	Walls throughout	Poor	1,900
LBP-7	Teal	Plaster	Three room walls – 3rd Floor	Poor	4,600

Sample Results in **bold** are Considered Lead Based Paint