The following additions, deletions, and revisions to the Drawings and Project Manual are a part of
the Contract Documents.

Each Bidder shall:
 Submit the information contained in this addendum to their subcontractors and suppliers.
 Acknowledge receipt of addenda on the Bid Form.
  Note: Failure to acknowledge addenda in the space provided on the Bid Form may subject the
Bidder to disqualification.

Item 2-1 Addendum #1, Division 0, Section 00 01 05 Part A – Notice to
Contractors

REPLACE BID DATE WITHIN THE FIRST TWO PARAGRAPHS OF THE NOTICE TO
CONTRACTORS AS FOLLOWS:

The Trustees of the California State University will receive sealed bid proposals in the Facilities Training
Room, Building 70, at the address above, before 2:00 p.m., on Thursday, May 26, 2016, for furnishing
all labor and materials for the construction of the Crandall Gym Structural Retrofit Project, Project
Number MAJ 13-MJ0056-SL-993, for the California Polytechnic State University, San Luis Obispo,
campus.

Proposals will be received in the above-mentioned room until 2:00 p.m. on Thursday, May 26, 2016, in
accordance with the contract documents, at which time proposals will be publicly opened and read.

Refer to attached Notice to Contractors (AD 2a).
REPLACE BID DATE IN THE SIXTH PARAGRAPH OF THE THIRD PAGE OF THE SAMPLE BID PROPOSAL FORM AS FOLLOWS:

The bid must be submitted on this Proposal Form, completely filled out and in a sealed envelope provided by the Trustees, and delivered to Facilities Planning & Capital Projects, Building 70, Room 114 at California Polytechnic State University, San Luis Obispo, before 2:00 p.m., on Thursday, May 26, 2016, or it will be disregarded. The Trustees will only accept bids from prequalified contractors with a current California License Board-issued B (General Building) license and current California Department of Industrial Relations Public Works Registration number.

Refer to attached Sample Bid Proposal Form (AD 2b).

ADD THE FOLLOWING EXHIBITS REFERRED TO IN NO. 9:

Refer to attached Exhibit D-1 “Lead-Containing Paint/Coating Abatement Work Plan” (AD 2c).
Refer to attached Exhibit D-2 “Asbestos Abatement Work Plan” (AD 2d).

ADD THE FOLLOWING PIGEON DROPPING CLEAN UP WORK:

Refer to attached “Pigeon Dropping Clean Up Work” (AD 2e).
NOTICE TO CONTRACTORS
CRANDALL GYM STRUCTURAL RETROFIT,
PROJECT NO. MAJ 13-MJ0056-SL-993
CALIFORNIA POLYTECHNIC STATE UNIVERSITY, SAN LUIS OBISPO
Facilities Planning & Capital Projects – Bldg. 70
San Luis Obispo, CA 93407

The Trustees of the California State University will receive sealed bid proposals in the Facilities Training Room, Building 70, at the above address, before 2:00 p.m., on Thursday, May 26, 2016, for furnishing all labor and materials for the construction of the Crandall Gym Structural Retrofit Project, Project Number MAJ 13-MJ0056-SL-993, for the California Polytechnic State University, San Luis Obispo, campus.

Proposals will be received in the above-mentioned room until 2:00 p.m. on Thursday, May 26, 2016, in accordance with the contract documents, at which time the proposals will be publicly opened and read.

In general, the work consists of the removal of interior finishes, installing additional sheathing and structural anchors and installing new wall finish, on the California Polytechnic State University campus in San Luis Obispo, California in accordance with the plans and specifications.

All work shall be in accordance with the plans and specifications prepared by Buehler & Buehler Structural Engineers, Inc., 600 Q Street, Sacramento, CA 95814. Contact Eric Fuller, Structural Engineer, at Ph. 916.443.0303. Plans and specifications may be seen at the office of the University and Plan Rooms. The architect’s construction estimate and budget for work of the Base Bid for this project is $700,000.00. The architect’s construction estimate and budget for work of the Base Bid and Additive Alternates No.’s 1 through 3 for this project is $776,000.00.

Plans and specifications will be available on compact disc (CD) only at no cost to contractors. Paper copies are not available. To receive a CD of the construction documents, submit a written request: by e-mail to rodonnel@calpoly.edu or fax 805.756.7566. Requests may also be mailed to: MAJ 13-MJ0056-SL-993, Crandall Gym Structural Retrofit, Facilities Planning & Capital Projects, Building 70, California Polytechnic State University, San Luis Obispo, San Luis Obispo, CA 93407-0690, Attention: Rory O’Donnell. Requests should include: project name, project number, firm name, mailing address, phone/fax numbers, contact name & email address.

Each bidder offering a proposal must comply with bidding provisions of Article 2.00 et seq. of the Contract General Conditions, and should be familiar with all the provisions of the Contract General Conditions and Supplementary General Conditions, especially Article 2.02, regarding the necessity to prequalify with the Trustees ten (10) business days prior to the bid date.

Bidders must be prequalified with the Trustees. Contractors shall register and log in to “PlanetBids” to apply for prequalification at http://www.calstate.edu/cpdc/cm/contractor_prequal_bidders.shtml.

This project is a public works project and is subject to prevailing wage rate laws (see Contract General Conditions, Article 4.02-c). All contractors and all tiers of subcontractors bidding on this project shall register to bid public works projects with the Department of Industrial Relations (DIR), and maintain current registration pursuant to Labor Code Section 1725.5. Please go to http://www.dir.ca.gov/Public-Works/PublicWorks.html for more information and to register. Bidders should familiarize themselves with all the provisions of the Contract General Conditions.

A mandatory pre-bid walkthrough has been scheduled for Tuesday, May 3, 2016, at 1:00 p.m. Interested bidders shall assemble in Facilities (Bldg. 70), room 109 on the campus. Parking on campus is by paid permit only. Obtain daily parking permit, campus map, and directions at the Grand Avenue Information Center.

Familiarity with the Site: Each bidder must be familiar with the site (Contract General Conditions Article 2.04 et seq.).
Notice to Contractors
Crandall Structural Retrofit Project
Project No. MAJ 13-MJ0056-SL-993

Plan Holders List: A list of all plan rooms and contractors who have received the plans and specifications is available at the Facilities Planning & Capital Projects website. The list is updated weekly. Click on 'Campus Projects,' then on 'Construction Projects Currently Bidding.' http://www.afd.calpoly.edu/facilities/project_currentbid.asp?pid=2

Small Business Preference: Preference will be granted to bidders properly approved as “Small Business” in accordance with Title 2, California Code of Regulations, Section 1896 et seq. and the application of the five percent small business bidding preference is also extended to any non-small business that commits to subcontracting at least 25% of its net bid price to California certified small businesses and/or microbusinesses (Contract General Conditions Article 2.11).

The Trustees require the successful bidder to achieve a minimum requirement of three percent (3%) DVBE participation in contracting construction projects as established in the bidding documents, and bidders shall identify the DVBEs to be used to satisfy this requirement in their bids. Achieving the minimum requirement must occur prior to the bid opening.

In accordance with Government Code section 14838(f), and Military and Veterans Code sections 999.5(a) and 999.5(d), the Trustees are granting a bid incentive for bid evaluation purposes only to Bidders that exceed the three percent DVBE participation requirement. The level of DVBE incentive will correlate to the level of participation; that is, the more DVBE participation proposed, the higher the incentive. The bid incentives are as follows:

<table>
<thead>
<tr>
<th>DVBE Participation</th>
<th>Incentive</th>
</tr>
</thead>
<tbody>
<tr>
<td>3.00% to 3.99%</td>
<td>None</td>
</tr>
<tr>
<td>4.00% to 4.99%</td>
<td>1%</td>
</tr>
<tr>
<td>5.00% to 5.99%</td>
<td>2%</td>
</tr>
<tr>
<td>6% or more</td>
<td>3%</td>
</tr>
</tbody>
</table>

The DVBE incentive may not exceed $100,000. When used on combination with the Small Business Preference, the cumulative adjustment amount shall not exceed $100,000. If the lowest responsive, responsible bid is a California certified small business, for bid evaluation purposes only, the only bidders eligible for the incentive will be California certified small businesses.

Bidders shall contact the Trustees’ DVBE Coordinator at 805/756-5190. Bidders can find California certified DVBE’s and additional DVBE information at the DGS's Small Business and DVBE Services webpage at: http://www.pd.dgs.ca.gov/smbus/default.htm.

Bonds: A bid security in an amount equal to at least 10% of the amount of the bid (see Article 2.06(c) of the Contract General Conditions) is required. Contractor must use Bid Bond Form supplied by the University without alteration. Payment and Performance Bonds in the amount of 100% of the awarded contract price will be required of the successful bidder.

It will be the responsibility of each bidder to obtain a bid proposal package in sufficient time to fulfill requirements therein. Bid proposal packages are obtainable only by prequalified contractors, licensed in the State of California with a B (General Building) license, and registered with the DIR to bid public works projects. The bid packages must be requested in writing from the Trustees, located at California Polytechnic State University, San Luis Obispo, Facilities Planning & Capital Projects, San Luis Obispo, CA 93407; Attention: Rory O'Donnell, e-mail rodonnel@calpoly.edu, fax no. 805.756.7566, phone no. 805/756-5376.

Contract Time: The time period for completion of the overall project shall be 197 calendar days from the construction start date on the Notice to Proceed.

Liquidated Damages: Liquidated damages shall be One Hundred Fifty Dollars ($150.00) for each calendar day completion is delayed beyond the time prescribed for the project.
To the Trustees of the California State University, on behalf of the State of California (hereinafter called the Trustees):

The undersigned bidder hereby offers, in the amount stated below, to furnish all labor, materials, tools, equipment, apparatus, facilities, transportation, and permits for the construction of Project Number MAJ 13-MJ0056-SL-993, Crandall Gym Structural Retrofit Project, at California Polytechnic State University, San Luis Obispo, and hereby agrees to enter into contract for Project Number MAJ 13-MJ0056-SL-993 if this offer is accepted by the Trustees.

TOTAL AMOUNT OF BASE BID: $      LUMP SUM
(Use figures only)

The above Base Bid amount is to be stated in figures only and is the total amount bid for the entire contract work including all applicable taxes. Any alteration, erasure, or change must be clearly indicated and initialed by the bidder. The bidder agrees that if there are any discrepancies or questions in the figures, the Trustees will use the lower figure despite the bidder's intent. The Trustees reserve the right to reject any and all bids and to waive any irregularities. The architect’s construction estimate and budget for work of the Base Bid for this project is $700,000.00. The architect’s construction estimate and budget for work of the Base Bid and Additive Alternates No.’s 1 through 3 for this project is $776,000.00.

Award of the contract, if awarded, shall be based on the following: The lowest bid shall be determined as the lowest total of the bid prices of the Base Bid (PCC 10780.5(a)). This methodology does not preclude the Trustees from adding to the contract any of the additive items after the lowest responsible bidder has been determined.

ADDITIVE ALTERNATES--The following additive alternates are an integral part of this proposal, and to be responsive, the bidder shall quote for the Base Bid and also for the following listed additive alternates.

| Additive Alternate No. 1 Window Type “J” Removal and Replacement: Provide removal and replacement of existing window Type “J” in Room 304, Director, as identified on plan sheets A2.13D and A2.13 (Ref. Division 1, Section 01230 , Part 1.6-A. and on Construction Drawings and Specifications.) | $ ____________ Lump Sum (use figures only) |
| Additive Alternate No. 2 Paint Grade Plywood Sheathing: Provide and install paintable grade plywood sheathing. Prime and paint exposed side. Refer to interior color schedule 09 06 00; P-6 (Ref. Division 1, Section 01230, Part 1.6-A.) | $ ____________ Lump Sum (use figures only) |
Additive Alternate No. 3 Simulated Wood Panels: $___________ Lump Sum
Provide and install simulated wood panels over plywood sheathing. Prime and paint simulated wood panels only. Refer to color schedule 09 06 00; P-6 per plans (Ref. Division 1, Section 01230, Part 1-6-C. and on Construction Drawings and Specifications.)

The above amounts are to be stated in figures only, and are the total amounts bid for all of the alternates including all applicable taxes. Any alterations, erasures, or changes must be clearly indicated and initialed by the bidder. The bidder agrees that if there are any discrepancies or questions in the additive alternate figures, the Trustees will use the lower figure despite the bidder’s intent.

The bidder shall hold the lump sum prices for all listed alternates for 60 calendar days after the start date of the Notice to Proceed. The Trustees reserve the right, within 60 calendar days after the start date of the Notice to Proceed, to add into the awarded contract amount by change order, any or all listed alternates that were not previously awarded, without any delay or impact to the project and with no mark-up or mark-down. The Trustees reserve the right to competitively bid the work contained in the additive alternates as separate projects, at any time.

SPECIFY THE NUMBER OF EACH ADDENDUM YOU HAVE RECEIVED ON THE LINE BELOW
(WRITE THE NUMBER OF EACH AND EVERY ADDENDUM THAT YOU HAVE RECEIVED)

The bid is subject to the provisions contained in the Contract General Conditions (note especially Article 2.00 et seq. regarding instructions to bidders), and the bidder agrees that failure to comply with the conditions thereof shall be basis for rejection of this bid.

The undersigned bidder is an approved Small Business Contractor and is hereby requesting the 5% Small Business Preference. Bidder has attached Small Business Preference and Certification Request. (Title 2, California Code of Regulations, Section 1896, et seq).

YES__________ NO__________

The undersigned bidder is a Non-Small Business and is hereby requesting the 5% Small Business Preference. Bidder has attached Small Business Preference and Certification Request and commits to subcontract at least 25% of its total bid price with one or more small business(es). (Title 2, California Code of Regulations, Section 1896, et seq).

YES__________ NO__________
The Trustees require the successful bidder to achieve a minimum requirement of three percent (3%) DVBE participation in contracting construction projects as established in the bidding documents, and bidders shall identify the DVBEs to be used to satisfy this requirement in their bids. Achieving the minimum requirement must occur prior to the bid opening.

In accordance with Government Code section 14838(f), and Military and Veterans Code sections 999.5(a) and 999.5(d), the Trustees are granting a bid incentive for bid evaluation purposes only to Bidders that exceed the three percent DVBE participation requirement. The level of DVBE incentive will correlate to the level of participation; that is, the more DVBE participation proposed, the higher the incentive. The bid incentives are as follows:

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The DVBE incentive may not exceed $100,000. When used on combination with the Small Business Preference, the cumulative adjustment amount shall not exceed $100,000. If the lowest responsive, responsible bid is a California certified small business, for bid evaluation purposes only, the only bidders eligible for the incentive will be California certified small businesses.

Bidders shall contact the Trustees’ DVBE Coordinator at 805/756-5190. Bidders can find California certified DVBE's and additional DVBE information at the DGS's Small Business and DVBE Services webpage at: http://www.pd.dgs.ca.gov/smbus/default.htm.

The undersigned bidder is hereby requesting the DVBE Bid Incentive for exceeding the 3% DVBE participation requirement. Bidder commits to subcontract at least the percentage of DVBE Participation of the total bid price under the Contract as stated below with one or more DVBE(s). (Government Code section 14838(f), and Military and Veterans Code sections 999.5(a) and 999.5(d)).

**YES__________ NO__________**

**DVBE Participation Percentage Commitment__________**

The bid must be submitted on this Proposal Form, completely filled out and in a sealed envelope provided by the Trustees, and delivered to Facilities Planning & Capital Projects, Building 70, Room 114 at California Polytechnic State University, San Luis Obispo, **before 2:00 p.m. on Thursday, May 26, 2016**, or it will be disregarded. The Trustees will only accept bids from prequalified contractors with a current California License Board-issued **B (General Building)** license and current California Department of Industrial Relations Public Works Registration number.

Bidder shall enclose with this Proposal Form bidder's security in the amount equal to at least ten (10) percent of the amount of bid (see Contract General Conditions, Article 2.06(c)). If the bidder is awarded the contract and then fails to execute the contract, this bidder's security shall be forfeited to the State.

The time period for completion of the overall project shall be **197 calendar days** from the construction start date as stated on the Notice to Proceed.

Liquidated Damages: Liquidated damages shall be **One Hundred Fifty Dollars ($150.00)** for each calendar day completion is delayed beyond the time prescribed for the project.
EXHIBIT D-1

TECHNICAL SPECIFICATIONS

Lead-Containing Paint/Coating Abatement Work Plan

FACILITIES PLANNING & CAPITAL PROJECTS
CALIFORNIA POLYTECHNIC STATE UNIVERSITY
SAN LUIS OBISPO, CA 93407
EXHIBIT D-1

TECHNICAL SPECIFICATIONS

Lead-Containing Paint/Coating Abatement Work Plan

BUILDING 60- CRANDALL GYM
STRUCTURAL UPGRADE

Contents

SECTION I - GENERAL REQUIREMENTS
1.01 Definitions and Standards
1.02 Codes and Regulations
1.03 Worker Protection
1.04 Worker Training
1.05 Work Schedule

SECTION II - ABATEMENT
2.01 Lead-Containing Paint/Coating Abatement
2.02 Product Handling
2.03 General Sequence of Work
2.04 General Guidelines
2.05 Control Access
2.06 Removal Procedures
2.07 Clean-up and Clearance Testing
2.08 Disposal of Lead Waste

Hazardous Materials Consultant
McKenna Environmental, Inc.
1121 ½ Stearns Drive
Los Angeles, CA 90035
Ph: 310.386.0974
SECTION I - GENERAL REQUIREMENTS

1.01 DEFINITIONS AND STANDARDS

**Abatement**: The processes used to control lead-based paint/coating and lead dust removal in and on buildings.

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

**Amended Water**: Water containing a wetting agent or surfactant.

**Area Monitoring**: Sampling of lead concentrations within the abatement work area and outside the work area which is representative of the airborne concentrations of lead which may reach the breathing zone. These are in the form of lead dust, wipe samples, and air samples.

**Lead Permissible Exposure Limit (PEL)**: 50 µg/m³ of air, based upon an 8-hour TWA.

**Clean Room**: An uncontaminated change room directly adjacent to the work area having facilities for storage of employees’ personal clothing and uncontaminated work clothes, materials and equipment provided when the airborne exposure to lead is above the PEL.

**Containment Barrier**: An airtight barrier, usually constructed with six-mil polyethylene sheeting and duct tape surrounding and sealing the outer perimeter of the work area which includes the decontamination area forming a contained work area.

**Decontamination Area**: A contained area adjacent to or connected to the abatement work area and consisting of an equipment room, shower area, and clean room which is used for decontamination of workers, materials and equipment.

**Environmental Consultant**: Person designated as responsible for clearance inspections, testing and daily compliance monitoring.

**HEPA Filter Equipment**: High efficiency particulate air (HEPA) filtered vacuuming or exhaust ventilation equipment with a UL 586 filter system. Filters shall be of 99.97 percent efficiency for retaining 0.3 micrometer diameter particles.

**Local Exhaust Ventilation System**: A pressure differential system utilizing HEPA filtration capable of maintaining a lower air pressure inside of the work area and a constant air flow from adjacent areas into the work area and exhausting that air outside the work area (used in full containment).

**Occupied Area**: Any area adjacent to the work area which is occupied or potentially accessible by unprotected employees, workers, or the public during any time abatement activities are performed.

**Prior Experience**: Experience required of the Contractor and its employees and subcontractors on lead or asbestos abatement projects of similar magnitude and scope to ensure capability of performing the abatement in a satisfactory manner. Similarities shall be in areas related to material composition, project size, number of employees and the engineering work practices and personal protection controls required.

**Sample Location**: Area or place where an air or wipe sample is taken.

**University**: California Polytechnic University, San Luis Obispo, California.
**Wet Cleaning:** The process of eliminating lead contamination from building surfaces, equipment and other objects by using cloths, mops, or other cleaning tools which have been dampened with water, and by afterwards disposing of these cleaning tools as lead contaminated wastes.

**Work Area:** A lead control area consisting of designated rooms, spaces or areas of the project in which lead or asbestos abatement actions are to be undertaken or which may be contaminated as a result of such abatement actions. A contained work area is a work area which has been sealed and equipped with a decontamination area for personnel and equipment. A non-contained work area is an isolated or controlled-access work area which has no plastic sheeting or other containment barriers erected, such as a building exterior or parking lot.

### 1.02 CODES AND REGULATIONS

A. The following documents are made applicable and a part of this Section:

1. **California Code of Regulations (CCR) References:**
   - Title 8, CCR, Section 1532.1 Lead in Construction Standard
   - Title 8, CCR, Section 5216 Lead Regulations – General Industry Safety Orders
   - Title 8, CCR, Section 3204 Access to Employee Exposure and Medical Records
   - Title 8, CCR, Section 5144 Respiratory Protection
   - Title 8, CCR, Section 5194 Hazard Communication
   - Title 8, CCR, Section 6003 Accident Prevention, Signs and Tags
   - Title 17, CCR, Division 1, Chapter 8 Accreditation, Certification, and Work Practices for Lead Related Construction
   - Title 22, CCR, All Applicable Sections Characterization, Handling and Transport of Hazardous Waste

2. **Code of Federal Regulations (CFR) Publications:**
   - 29 CFR 1910.20 Access to Employee Exposure and Medical Records
   - 29 CFR 1910.134 Respiratory Protection
   - 29 CFR 1910.145 Specifications for Accident Prevention Signs and Tags
   - 29 CFR 1910.1200 Hazard Communication
   - 29 CFR 1926.55 Gases, Vapors, Fumes, Dusts and Mists
   - 29 CFR 1926.57 Ventilation
   - 29 CFR 1926.62 Lead Exposure in Construction
29 CFR 1926.200  Signs, Signals, and Barricades
29 CFR Subpart T  Demolition
40 CFR 241  Guidelines for the Land Disposal of Solid Wastes
40 CFR 257  Criteria for Classification of Solid Waste
40 CFR 261 and 262  Waste Disposal Facilities and Practices

3. Federal Regulatory References:

U.S. Department of Housing and Urban Development (HUD), Guidelines for the Evaluation and Control of Lead-Based Paint Hazards in Housing, June 1995, and all current revisions.


4. American National Standards Institute (ANSI) Publications:

29.2-79  Fundamentals Governing the Design and Operation of Local Exhaust Systems
288.2-80  Practices for Respiratory Protection

5. National Institute of Occupational Safety and Health (NIOSH) Publications:

Manual of Analytical Methods, 4th Ed.
Physical and Chemical Analysis Method (P&CAM)

6. Underwriters Laboratories, Inc. (UL) Publications:

Fire Resistance Directory 586-77 (R 1982)
Test Performance of High Efficiency Particulate Air Filter Units

7. Local Regulations:

SLOAPCD Rule 302
SLOAPCD Rule 701
1.03 WORKER PROTECTION

A. It is the responsibility of the Contractor to maintain adequate protective equipment and procedures for all its employees, and those of subcontractors and suppliers, at all times, and to instill in them a high level of safety-consciousness for the duration of the Project.

B. Personal protection, in the form of disposable coveralls and NIOSH/MSHA approved respirators, are required for all workers, supervisors, and authorized visitors (visitors approved to use negative pressure respirators) entering the work area during the removal and cleaning operations.

C. Each worker shall be supplied with a minimum of two (2) complete disposable uniforms every day. Removal workers shall not be limited to two (2) uniforms, and the abatement Contractor will be required to supply additional uniforms as is necessary. Under no circumstances will anyone entering the removal area be allowed to reuse a contaminated uniform. In addition to uniforms for the workers, the abatement Contractor shall also supply uniforms for the Environmental Consultant and other personnel who are authorized to inspect the work site.

D. Work clothes shall consist of disposable full-body coveralls, head covers, gloves, boot or shoe covers, and eye protection.

E. Supply workers and supervisory personnel with NIOSH/MSHA approved respirators and HEPA filters. Respiratory protection shall be implemented for all work performed under this Section unless the Environmental Consultant approves lesser requirements. The respirators shall be sanitized and maintained according to the manufacturer's specifications and applicable regulations. Disposable respirators shall not be considered acceptable under any circumstances. Maintain on site a sufficient supply of HEPA filters to allow workers and supervisory personnel to change contaminated filters when needed. The Contractor is solely responsible for means and methods used and for compliance with applicable regulations and shall comply with the following:

1. Half-mask, negative pressure, air purifying respirators equipped with high efficiency filters shall be used during the use of caustics and during component removal and encapsulation abatement methods, with the exception of surface preparation for encapsulation method.

2. Type C Respirator (supplied air respirator) will be required during all abrasive blasting activities as required by OSHA. Type C Respirators are positive pressure respirators. The air coming through the hose pushes lead particles away from the mask.

A. Respirators shall be individually assigned to removal workers for their exclusive use. All respiratory protection shall be provided to workers in accordance with the written submitted respiratory protection program, which includes all items in Title 8, CCR, Section 5144. A copy of this program shall be kept at the work site, and shall be posted in the clean area.

B. Workers must perform negative and positive pressure fit checks each time a respirator is put on, whenever the respirator design so permits. Powered air purifying respirators shall be tested for adequate flow as specified by the manufacturer.

C. Workers shall be given a qualitative fit test in accordance with procedures detailed in OSHA 29 CFR 1910.1025, Appendix D, Qualitative Fit Test Protocols, Title 8, CCR, Section 5144, Appendix A, for all respirators to be used on this abatement project. An appropriately administered quantitative fit test may be substituted for the qualitative fit test.

D. The Contractor is responsible for conducting personal air sampling to monitor personal exposure levels.

E. Comply with all OSHA requirements of worker medical examinations for approval to wear respiratory protection.
F. Blood monitoring and medical surveillance of lead workers shall occur as follows:

1. Periodic medical exam and blood monitoring shall occur within two months prior to the start of the work of this Contract, for all workers and supervisors.

2. All workers on this project shall have blood tests performed after a maximum two months into the work of this Contract. Workers shall be removed from the work site as soon as three blood sample tests average 25 micrograms of lead per deciliter (ug/dl) or a single test averages 30 ug/dl or above.

3. All workers and supervisors shall have indicated prior to the start of work, a blood lead level of below 30 ug/dl.

4. More frequent medical exams are required upon notification that a worker is pregnant, a worker requests medical attention, a worker shows signs of difficulty in breathing during respirator fit test or use, or as appropriate for workers removed from the work due to lead exposure.

5. Worker shall not be sent back to perform de-leading work until three blood tests average below 25 ug/dl over a two week period.

1.04 WORKER TRAINING

An accredited State of California, Department of Health Services-lead supervisor shall oversee all abatement work and all abatement workers shall be accredited State of California, Department of Health Services-lead workers.

1.05 WORK SCHEDULE

Time of completion for this Contract is set at 30 calendar days. This time period allows for all material acquisition, material delivery, demo, pick-up work, testing and inspection, and disposal.

END OF SECTION
SECTION II - ABATEMENT

2.01 LEAD CONTAINING-PAINT/COATING ABATEMENT

2.01.1 RELATED DOCUMENTS

Contract Documents and other Technical Specifications sections apply to work of this section.

2.01.2 RELATED WORK

A. Section 1.01 - Definitions and Standards
B. Section 1.02 - Codes and Regulations
C. Section 1.03 - Worker Protection
D. Section 1.04 – Worker Training

2.01.3 CODES AND STANDARDS

A. All work shall conform to the standards as set forth in the applicable Federal, State and local laws, regulations, ordinances and guidelines, in such form that they exist at the time the work is conducted, and may be required by any subsequent regulations.

B. Waste Generator (The University) and Contractor responsibility: The University, per EPA and State of California regulations, is ultimately responsible for the disposition of hazardous waste materials. However, this does not relieve the Contractor from any liability with regard to compliance with all applicable Federal, State or local regulations pertaining to work practices, handling and packaging for disposal of wastes, and the protection of workers and the environment.

2.01.4 SUMMARY OF WORK

A. Perform all planning, administration, and work necessary to remove lead-containing paint as indicated by the Contract Documents. The Contractor shall exercise due care, and utilize all required and available protective measures, engineering controls and work practices to prevent personnel exposures and environmental contamination.

B. The Contractor shall furnish all labor, materials, services, insurance and equipment necessary to carry out lead abatement, including disposal of any lead-contaminated waste.

C. Contractors performing work in this facility are hereby notified that various building surfaces that may be impacted by building renovation and/or demolition under this Contract have been painted/coated with lead-containing paint/coating. Painted components may include, but are not limited to painted wood doors, wood door casing, wood windows, wood window casings, plaster walls, wood walls, wood paneling, wood floor, wood deck (ceiling), wood beams (ceiling), and metal radiators. Any paint “chips” or other similar debris that occurs as a result of the handling or disturbance of these components shall be treated as hazardous waste.

2.01.5 EXISTING CONDITIONS

A. Results of lead assessments (not part of the bid package) are available at the Contractor’s request, and are available through the Owner or it’s representatives. The Contractor is cautioned that any interpretations, conclusions or opinions made based on this information are done solely by the contractor.

B. The University and it’s representatives make no representation, warranty or guaranty that the conditions reflected by the testing data either are representative of those conditions existing throughout the project area, or that unforeseen developments may not occur, or lead-containing
paint/coatings (LCP), or lead containing components, other than, or in proportions or locations different than those indicated, may not exist.

C. The Contractor is advised that the locations of all LCP, or lead containing components may not be clearly known and that the Contractor shall proceed with caution in all phases of the work. If additional LCP, or lead containing components are uncovered during the course of the work, and these materials were not identified in the scope of work, the Contractor may be directed to include the removal or abatement of these additional items in the scope of work, at an agreed upon price or based on unit prices provided by the Contractor in its bid package, solely at the University’s option.

D. The Contractor shall plan to schedule the project in coordination with the Phasing Plan and the Owner and its representatives in a manner that would most benefit the owner and meet necessary deadlines. The project may require multiple periods of mobilization based on the phasing plan.

2.01.6 LUMP SUM PRICE

A. Contractor shall provide a lump sum price for the abatement of the following LCP, lead containing components or materials. Prices are to reflect the total costs for the removal, disposal, labor, testing, equipment, landfill fees, overhead, profit, etc.

Abatement Throughout $________________

2.01.7 SCOPE OF WORK

A. Work identification

**Lead-Containing Paint, Surfaces, and/or Components:** The following lead-containing painted materials are known to be present within the indicated work areas:

<table>
<thead>
<tr>
<th>Location</th>
<th>Type of Material</th>
<th>Level of Lead</th>
<th>Condition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Room 101- NE</td>
<td>White Wood Beam (Ceiling)</td>
<td>23.6%</td>
<td>Good-Poor</td>
</tr>
<tr>
<td>Room 101- NE</td>
<td>White Wood Deck (Ceiling)</td>
<td>0.073%</td>
<td>Good-Poor</td>
</tr>
<tr>
<td>Room 101- NE</td>
<td>White Wood Window Casing</td>
<td>19.6%</td>
<td>Good-Poor</td>
</tr>
<tr>
<td>Room 101- NE</td>
<td>White Metal Radiator</td>
<td>0.167%</td>
<td>Good-Poor</td>
</tr>
<tr>
<td>Room 101- South</td>
<td>White Wood Wall</td>
<td>0.242%</td>
<td>Good-Poor</td>
</tr>
<tr>
<td>Room 101- West</td>
<td>White Wood Wall Panel</td>
<td>0.175%</td>
<td>Good-Fair</td>
</tr>
<tr>
<td>Room 101- West</td>
<td>Brown Wood Floor</td>
<td>0.16%</td>
<td>Good-Poor</td>
</tr>
<tr>
<td>Room 101- North</td>
<td>Green/Yellow Wood Wall</td>
<td>0.396%</td>
<td>Good</td>
</tr>
<tr>
<td>Room 101A- South</td>
<td>Beige Plaster Wall</td>
<td>1.27%</td>
<td>Good</td>
</tr>
<tr>
<td>Room 202- South</td>
<td>Black Metal Window Sash</td>
<td>1.04%</td>
<td>Good-Poor</td>
</tr>
<tr>
<td>Room 203- South</td>
<td>White Wood Wall Panel</td>
<td>0.578%</td>
<td>Good-Poor</td>
</tr>
<tr>
<td>Room 200- SE</td>
<td>Beige Wood Door Casing</td>
<td>0.142%</td>
<td>Good</td>
</tr>
<tr>
<td>Room 200- West</td>
<td>Green Plaster Wall</td>
<td>9.7%</td>
<td>Good-Poor</td>
</tr>
<tr>
<td>Room 200- North</td>
<td>Pink/Beige Plaster Wall</td>
<td>4.44%</td>
<td>Good-Poor</td>
</tr>
</tbody>
</table>
B. Lead Abatement Scope of Work – Abbreviated Written Summary: Briefly, and without limiting the requirements of the Contract Documents, the work of the Contract includes the removal and disposal, as hazardous waste or non-hazardous waste, of identified lead-containing paint.

Additional removal and disposal requirements are addressed in Exhibit D.2, Technical Specifications for Asbestos Abatement Procedures.

All paint “chips” and other debris generated during removal operations shall be properly characterized for waste disposal.

1. Properly remove the lead-containing paint from the lead-painted/coated surfaces, as directed on the Plans, and by the University. Segregate paint and any stripping agent into separate waste streams. The Contractor shall be responsible for proper waste characterization testing of all generated waste. Prior to the removal of any waste materials from the Site, the Contractor shall submit copies of all waste testing results for review by the University and the Environmental Consultant.

2. Remove painted components or lead paint (which is in good to poor condition) from lead-painted surfaces only as necessary to provide enough room for the structural upgrade.

3. Properly package, transport and dispose of lead painted materials, paint “chips” and associated debris, cleaning materials and used personal protective equipment.

4. Transport the packaged lead waste to an approved landfill and dispose of hazardous or non-hazardous waste, in accordance with the waste characterization (performed by McKenna Environmental) and all applicable regulations. The contractor shall indicate the intended landfill by name and location, and any size requirements the landfill may have with regard to the dimensional size of the waste material or components. The contractor shall comply with the landfill's size guidelines by reducing the size of waste components during the abatement sequence.

5. Perform personnel lead exposure monitoring and biological monitoring, as required by applicable regulations, for the safety of the Contractor’s workers.

C. Work Not Included.

Environmental testing for the University by it’s Representatives or the Environmental Consultant.

2.01.8 SUBMITTALS

A. Provide submittals to the Owner’s representatives at least ten (10) working days prior to mobilization to the site to allow for sufficient and prompt review by the Owner’s representative. Revise and resubmit as necessary to establish compliance with the specified requirements.

B. Submit complete bound sets of the submittals as described in OWNER submittal requirements. Submit separate sets entitled “Pre-Job Submittals” and “Post-Job Submittals”.

2.01.9 POTENTIAL LEAD HAZARDS

A. Workers and Visitor Procedures: Contractor is hereby advised that the U.S. Government has determined lead to be a POISON. Contractor shall provide workers and authorized visitors with respirators and protective clothing which, as a minimum, shall meet the requirements of Cal-OSHA, during preparation of system of enclosures, prior to commencing abatement, during actual lead removal, and until final clearance tests are accepted by the Owner and/or it’s representatives.
B. The disturbance or dislocation of lead-based paint/coatings may cause lead contaminants to be released into the atmosphere, thereby creating a potential health hazard to workers and the public. Apprise all workers, supervisory personnel and subcontractors who will be at the job site of the existing lead and asbestos hazards. Additionally, advise all workers of the proper procedures to be followed, in accordance with Title 8 CCR, and all other applicable regulations.

C. Prohibited activities:

1. Open flame burning or torching without prior written approval of the Project Manager. Torch cutting also requires a Campus Hot Work permit and any lead-based paint/coating must be abated from 4" on either side of the proposed cut.

2. Chemical stripping with methylene chloride based paint strippers.

3. Unconfined abrasive blasting.

4. Any abrasive metal cutting requires prior written approval of the Project Manager and a Campus Hot Work Permit. All cut areas must be masked with duct tape prior to cutting.

5. Unconfined power washing.

6. Dry sanding, scraping or wire brushing.

7. Power sanding without HEPA filtration attachments.

8. Sanding of surfaces after chemical stripping.


2.01.10 WORKER PROTECTION

It is the responsibility of the Contractor to maintain adequate protective equipment and procedures for all of it’s employees, and those of the subcontractors and suppliers, at all times, and to instill in them a high level of safety-consciousness for the duration of the project.

2.02 PRODUCT HANDLING

A. Deliver all paint and associated debris in the original packages, containers, or bundles bearing the name of the manufacturer and the brand name.

B. Store all materials subject to damage off the ground, away from wet or damp surfaces, and under cover sufficient to prevent damage or contamination.

C. Remove from the premises damaged or deteriorating materials. Package for disposal materials that become contaminated in accordance with applicable regulatory standards.

2.03 GENERAL SEQUENCE OF WORK

A. For Lead Painted/Coated Substrates with Paint/Coating in Good Condition:

1. Prepare work area as specified in Section 2.06.

2. Place "drop sheets" around base of, or adjacent to, affected area to be abated.

3. Remove the painted components and/or paint from designated components impacted by the structural upgrade.
4. Package paint and debris and other generated waste in barrels for characterization and disposal as possible hazardous waste.

5. Remove packaged waste from work area.

6. Transport waste to approved landfill for disposal in accordance with all applicable guidelines.

B. For Lead Painted/Coated Substrates with Paint/Coating in Poor Condition:

1. Construct work area isolation and decontamination unit.

2. Prepare work area as specified in Section 2.06.

3. Remove flaking, cracked and chipped paint using manual methods (scrapers, etc.).

4. Spot-abate the paint using mechanical methods and/or chemical stripping methods.

5. Place paint, debris and other generated waste in barrels or other suitable containers, for characterization and disposal as possible hazardous waste.

6. Remove packaged waste from work area.

7. Decontaminate work area.

8. Remove work area isolation, drop sheet and decontamination unit.

9. Transport paint and other hazardous waste generated to approved landfill for disposal as hazardous waste.

2.04 GENERAL GUIDELINES

A. Place all tools, staging, etc. necessary for the work in the area to be isolated prior to construction of isolations.

B. Construct Temporary Facilities

1. Provide securable portable building pre-approved by the Owner's for the temporary storage of all solid, hazardous or contaminated wastes and waste water generated during the project. At their opinion, the Owner's representative's option may designate an area on-site for Contractor's use as a temporary hazardous waste storage location. Contractor is responsible for security of hazardous waste from the time it is generated until its ultimate disposal at the landfill.

2. Construct decontamination units for lead paint work as specified in Section 2.06.

3. Inspect containers for leaks or corrosion weekly and keep written records of inspection on site.

2.05 CONTROL ACCESS

A. Permit access to the lead-contaminated work areas only through the decontamination unit. All other means of access shall be closed off and sealed and warning signs displayed on the clean side of the sealed access.

B. Provide warning signs in accordance with OSHA 29 CFR 1926.62 and Title 8 CCR, Section 1532.1, outside critical barriers surrounding lead paint work area, reading as follows:
2.06 REMOVAL PROCEDURES

A. Work area Decontamination Facility Construction

1. Construct separate worker decontamination units in compliance with OSHA guidelines concerning number, size and placement etc. Construct decontamination units of appropriate materials (including plywood, PVC and plastic sheeting). Supply a Hudson sprayer to comply with OSHA regulations.

B. Lead-Containing Paint Abatement

1. Provide warning signs and barrier tape to demarcate the lead paint work area.

2. Provide drop sheets of six-mil polyethylene sheeting in abatement locations. Extend drop sheets a minimum of six feet beyond the area(s) where lead painted materials will be abated.

3. If Applicable, install HEPA filter equipped air filtration devices in the work area to continuously filter air in the work area. Duct exhausts a minimum of six feet beyond the work area and direct the exhaust away from the work.

4. On those surfaces from which paint has been removed, all visible paint shall be removed from the affected surface.

5. The paint shall be removed from the painted surface and the paint and associated shall be placed in bags or lined containers, and stored for waste stream characterization and disposal. The paint removal procedure shall follow the prescribed sequence:
   a. Removal of the paint from surfaces shall not damage or disturb existing adjacent surfaces beyond reasonable expectations.
   b. The Contractor shall clean-up any dust or paint chips using a combination of wet-wiping techniques and HEPA-filtered vacuum equipment. The Contractor shall not allow dust or paint chips to accumulate, and shall engage in ongoing clean-up of said debris.
   c. Care shall be taken to avoid damage to non-abatement items. Any damage to existing components or surfaces not subject to abatement shall be replaced or repaired by the Contractor at no additional cost to Owner.

7. A thorough cleaning of all adjacent and/or adjoining surfaces, fixtures or components shall be conducted following the removal sequence. Appropriate wet-cleaning techniques shall be utilized.

2.07 CLEAN UP AND CLEARANCE TESTING

A. Provide general clean-up of work area concurrent with the removal of lead paint. Do not permit accumulation of debris on workspace floor or horizontal surface.
B. The Environmental Consultant may conduct perimeter air monitoring prior to, and throughout, removal and cleaning operations. If air samples indicate airborne lead levels higher than background levels, Contractor will be required to perform clean up of contaminated areas at its own expense.

C. Lead Paint Removal Clean Up and Clearance Testing

1. HEPA-vacuum all surfaces to remove loose debris.

2. Wipe all surfaces as appropriate to remove dust and film. Dispose of wiping materials frequently to avoid spreading contamination.

3. Notify the Environmental Consultant for visual inspection to determine completeness of cleaning.

4. Upon acceptance from the Environmental Consultant that the work area is visibly clean, the Consultant may conduct (at discretion of the Consultant or University), any combination of the following testing and/or evaluation procedures in determining the acceptability and cleanliness of the abatement sequence:
   a. Wipe samples may be collected from horizontal surfaces inside any contained or interior work area to document the acceptability of cleaning. Samples will be collected and analyzed in accordance with the HUD Guidelines, and analyzed in accordance with SW 846/7420, EPA 239.1. The area will be considered clean if all samples indicate lead contamination of 40 micrograms of lead per square foot or less.
   b. Visual inspection for the presence of lead-paint/coating chip debris following abatement of any work area, including interior and containment work.
   c. Micro-vac samples may be collected from any rough, irregular, or otherwise uneven surface, and analyzed for the presence of residual lead dust. Samples will be collected and analyzed in accordance with ASTM Standard PS 46-96.

5. Upon notification from the Environmental Consultant that lead final clearance samples indicate acceptable clearance levels, the Contractor shall dismantle the decontamination enclosure systems, remove critical barriers, and thoroughly HEPA-vacuum and wipe area as appropriate.

D. Abatement Clean-Up and Clearance Testing

1. HEPA-vacuum all surfaces to remove loose debris.

2. Carefully remove drop cloth, folding inward to trap debris.

3. Wet mop all surfaces. Allow to dry and mop work area again. Dispose of mops frequently to avoid spreading contamination.

4. Notify the Environmental Consultant for observation to determine completeness of cleaning.

5. Upon acceptance from the Environmental Consultant that the work area is visibly clean, the Consultant will conduct final clearance evaluation and testing, as described in 2.07.C(4).

E. A preliminary visual observation will be performed in the work areas by the Environmental Consultant following notification by Contractor that said areas have been properly cleaned and are ready for final clearance testing. Such testing shall be conducted as described in 2.07.C(4).

F. Visual observation will be made by the Environmental Consultant or University’s Representative after final clean-up to determine the presence of visible dust, dirt, and other abatement-related debris.
G. The Contractor shall perform additional cleaning at no additional expense to the University, if, in the opinion of the Environmental Consultant or University’s Representative, based upon the final visual observation, previous clean-up operations were determined to be inadequate.

H. Tests will be performed in the work area after final clean up, if necessary as previously specified in this section.

I. Lead sample results will be reported in terms of micrograms of lead per cubic meter of air (air samples) or micrograms of lead per square foot of surface (wipe samples). Samples will be collected in accordance with EPA, OSHA, or HUD-recommended procedures for the type of sample being collected.

J. If any sample indicates contaminant levels higher than the specified clearance levels, full decontamination and clearance procedures (including re-sampling) shall be performed at Contractor's expense.  

2.08 DISPOSAL OF LEAD WASTE

A. For purposes of bidding, the Contractor shall consider all paint chips and other debris as hazardous waste, until demonstrated otherwise prior to the removal of waste from the site. Waste characterization sampling on painted wood and painted plaster revealed that they are California hazardous waste. All disposal costs shall be borne by the Contractor, and shall be included in the Contractor’s base bid.

B. Place all hazardous and potentially hazardous waste generated from lead paint work in drums lined with two six-mil polyethylene bags, or other suitable containers with two layers of six-mil poly sheeting.

C. Store all solid and hazardous waste with drum lids on wooden pallets at site until disposal characterization has been performed, and the results have been reviewed by the Environmental Consultant and the University’s representative prior to manifesting. Use drum lid covers on all drums to prevent accumulation of water on top of drums until drums are placed in covered storage.

D. Employ spill protection procedures to protect against leaks in temporary storage.

E. Dispose of the waste at designated landfills in accordance with the provisions of the Contract Documents, the waste characterization testing and in compliance with all applicable regulations. The Contractor shall submit the written manifest to Owner prior to removing any waste from the site, and shall submit completed manifests to Owner following disposal at an approved landfill.

F. The Contractor shall submit to the University a written description of the waste transfer procedure and route, and shall comply with all applicable State, local and DOT regulations regarding the handling and transfer and removal of hazardous waste. The Contractor shall be responsible for all actions of the waste hauler relating to waste removal and disposal under this Contract.

END OF SECTION
DISTRIBUTION

Lead-Containing Paint/Coating Abatement Workplan
Building 60- Crandall Gym- Structural Upgrade
California Polytechnic State University
San Luis Obispo, California

April 1, 2015

Rick McKenna
DPH Certified Lead Project Monitor, Inspector Assessor #377
EXHIBIT D-2

TECHNICAL SPECIFICATIONS

Asbestos Abatement Work Plan

FACILITIES PLANNING & CAPITAL PROJECTS
CALIFORNIA POLYTECHNIC STATE UNIVERSITY
SAN LUIS OBISPO, CA 93407
EXHIBIT D-2

TECHNICAL SPECIFICATIONS

Asbestos Abatement Work Plan

BUILDING 60 - CRANDALL GYM
STRUCTURAL UPGRADE

CONTENTS

PART 1 - GENERAL REQUIREMENTS

1.01 Summary of Work
   1.01.01 Project/Work Identification
   1.01.02 Work Included
   1.01.03 Existing Conditions
   1.01.04 Potential Asbestos Hazard
   1.01.05 Stop Work
   1.01.06 Contractor's Use of Existing Building
   1.01.07 Scheduling, Phasing and Working Days and Hours

1.02 Project Coordination
   1.02.01 Administrative and Supervisory Personnel
   1.02.02 Preconstruction Conference:

1.03 Notifications

1.04 Patent Notice

1.05 Definitions and Standards
   1.05.01 Definitions
   1.05.02 Industry Standards

1.06 Codes and Regulations

Hazardous Materials Consultant
McKenna Environmental, Inc.
1121 ½ Stearns Drive
Los Angeles, CA 90035
Ph: 310.386.0974
1.07 Submittals
   1.07.01 Work Included
   1.07.02 Quality Assurance
   1.07.03 Pre-Job Submittals
   1.07.04 Post-Job Submittals
   1.07.05 Identification of Submittals
   1.07.06 Manufacturer's Literature
   1.07.07 Timing of Submittals
   1.07.08 Owner and/or Environmental Consultant's Review

1.08 Air Monitoring by Environmental Consultant and Ceiling Levels
   1.08.01 Description of the Work
   1.08.02 Air Monitoring
   1.08.03 Airborne Fiber Counts - Ceiling Levels
   1.08.04 Analytical Methods
   1.08.05 Schedule of Air Samples
   1.08.06 Laboratory Testing

1.09 Air Monitoring by Contractor
   1.09.01 Worker Exposure Monitoring

1.10 Personnel Protection
   1.10.01 General
   1.10.02 Fit Testing
   1.10.03 Type of Respiratory Protection Required
   1.10.04 Air Purifying Respirators and Cartridges
   1.10.05 Protective Clothing
   1.10.06 Visitor Clothing

1.11 Decontamination Units
   1.11.01 Full Containment Areas
   1.11.02 Mini-Enclosures
   1.11.03 Construction
   1.11.04 Cleaning of Decontamination Units
   1.11.05 Equipment/Waste Load Out Decontamination Unit

1.12 Differential Air Pressure Systems

1.13 Waste Handling, Packaging, and Disposal
   1.13.01 Waste Definition
   1.13.02 Waste Disposal Requirements
   1.13.03 Waste Labeling

PART 2 - PRODUCTS, EQUIPMENT, AND SUPPLIES

2.01 General Requirements
2.02 Prohibited Products and Materials
2.03 Water Service
2.04 Electrical Service
2.05 First Aid
2.06 Fire Extinguishers
2.07 Polyethylene Film
2.08  Duct Tape
2.09  Spray Adhesive and Cement
2.10  Spray Foam
2.11  Wetting Materials
2.12  Disposal Bags
2.13  Post-Removal Lock Down Encapsulant
2.14  Airless Sprayer
2.15  Drums
2.16  Air Filtration Devices
2.17  Barrier Construction
2.18  Lumber

**PART 3 EXECUTION**

3.01  Work Area Preparation
     3.01.01  General
     3.01.02  Protect Heating, Ventilation, and Air Conditioning (HVAC) System
     3.01.03  Control Access
     3.01.04  Preparation of Water Sources
3.02  Full Containment Work Areas
     3.02.01  Establish Differential Air Pressure
     3.02.02  Install Critical Barriers
     3.02.03  Install Surface Barrier
3.03  Work Area Entry and Egress (Full Containment Work Areas)
     3.03.01  Entry Procedures
     3.03.02  Egress Procedures
3.04  Mobile/Mini-isolation Work Areas
3.05  Daily Cleaning
3.06  Waste Load-Out and Disposal
     3.06.01  Waste Container Pass-out Procedures
     3.06.02  Waste Transport and Disposal
3.07  Work Area Decontamination
3.08  Work Area Clearance Air Monitoring
     3.08.01  General
     3.08.02  Release Criteria
3.09  Containment Removal
3.10  Project Closeout
     3.10.01  Description of Requirements
     3.10.02  Prerequisites to Completion
PART 1 - GENERAL REQUIREMENTS

1.01 Summary of Work

This specification describes the required work practices and procedures for the abatement of designated asbestos-containing materials (ACM) at the Sierra Madre Residence Hall - Buildings 3, 4 & 5 Project Site, California Polytechnic State University (Cal Poly), San Luis Obispo, California, for the Facilities Planning & Capital Projects Department at Cal Poly. It is the intent of these specifications and drawings to show all of the work necessary to complete the project. Drawings, provisions of the contract, and other technical specifications sections apply to work of this section.

1.01.01 Project/Work Identification

A. General:

Project Name: Asbestos Abatement
California Polytechnic State University
Building 60- Crandall Gym - Structural Upgrade
San Luis Obispo, California

Cal Poly Contact: Mr. Perry Judd
(805) 756-5765
(805) 756-7566 (Fax)

Environmental Consultant: McKenna Environmental, Inc.
1121 ½ Stearns Drive
Los Angeles, California 90035

Contact: Richard J. McKenna, CAC
Ph: 310.386.0974

B. Asbestos-Containing Materials: The following asbestos-containing materials are known to be present within the indicated work areas:

<table>
<thead>
<tr>
<th>Location</th>
<th>Type of Material</th>
<th>Level of Asbestos</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Room 100C</td>
<td>Gray 12&quot; x 12&quot; Floor Tile</td>
<td>2% Chrysotile</td>
<td>125 SF</td>
</tr>
<tr>
<td>Under Bleacher Seats</td>
<td>Pipe Insulation-Hot Water Pipes</td>
<td>ACM*</td>
<td>Undet.</td>
</tr>
<tr>
<td>Under Gym Floor &amp; Bleachers</td>
<td>Pipe Insulation-Steam Pipes</td>
<td>ACM*</td>
<td>Undet.</td>
</tr>
<tr>
<td>All Flat Roofs</td>
<td>Built-up Roof</td>
<td>ACM*</td>
<td>Undet.</td>
</tr>
<tr>
<td>Roof Patches, Penetrations, Parapets &amp; Flashing</td>
<td>Roof Sealant w/ Silver Paint</td>
<td>ACM*</td>
<td>Undet.</td>
</tr>
</tbody>
</table>

* Determined by University in a Previous Investigation

C. Asbestos Abatement Scope of Work/Abbreviated Written Summary: Briefly, and without limiting the requirements of the Contract Documents, the work of the Contract includes the removal and disposal, as hazardous waste or non-hazardous waste, as per
applicable laws and regulations, of identified non-friable asbestos-containing material(s), including any existing debris, from each affected area, as indicated on the drawings:

**Common Areas**

Remove ACM impacted by the structural upgrade, as indicated on the drawings. Dispose of non-friable material as asbestos-containing non-hazardous waste and friable material as asbestos-containing hazardous waste.

### 1.02.1 WORK INCLUDED

A. Contractor shall coordinate abatement activities with other project team members including, but not limited to:

1. Cal Poly’s Project Manager
2. Environmental Consultant

   Contractor shall coordinate and schedule the work of these specifications in a manner that will expedite and transition to future work by others under separate contract.

B. Contractor shall maintain site security to assure that no member of the public is able to gain access to the asbestos work area at any time. The Contractor shall maintain secure access and egress routes at all times.

C. Contractor shall coordinate with Cal Poly’s Project Manager and make necessary connections to designated existing water sources to provide water for dust suppression and decontamination. The cost of water consumed will be paid for by Cal Poly.

D. Locations of critical barriers, air filtration devices, equipment/waste load out and decontamination units, etc. in full containment areas shall be coordinated with the Environmental Consultant and Cal Poly’s Project Manager prior to construction.

E. Contractor shall construct critical barriers as specified, and where applicable, so that entire work area is isolated from the outside environment. Critical barriers shall consist of 2 layers of 6-mil polyethylene sheeting.

F. Drawings are diagrammatic, and do not show all existing conditions or elements which may be encountered for the proper conduct of the work. Conditions shall be verified at the job site.

G. Contractor shall complete administrative tasks associated with assembly, compilation and provision of submittals, daily work site documentation, and employee exposure monitoring.

H. The Contractor shall be responsible for verifying that the transporter, subcontracted to haul waste, operates in compliance with all applicable regulations and in a prudent, cautious manner. The Contractor shall ensure that vehicles used to transport waste comply with California Highway Patrol requirements.

I. Contractor shall dispose of asbestos-containing waste (ACW) generated during the abatement, in a manner approved by the Cal Poly’s Project Manager or it's representatives, and consistent with current regulations, with appropriate waste manifests, thereby limiting Cal Poly’s liability. Materials are conveyed to the Contractor “as is,” without any warranty, expressed or implied, including but not limited to any warranty to marketability or fitness for a particular purpose, or any purpose. The asbestos waste shall be disposed at a facility approved by Cal Poly’s Project Manager or it's representatives.
J. Respiratory protection shall be powered air purifying respirators equipped with HEPA filters, as required for Class I work in accordance with DOSH's asbestos standard for construction codified in Title 8, CCR, Section 1529.

K. ACM removal and decontamination are complete when no visible dust, debris, or 3-dimensional residue suspected of containing or being contaminated with asbestos remains in the work area and airborne asbestos concentrations are less than 70 asbestos structures/square millimeter as measured by Transmission Electron Microscopy using the method specified in 40 CFR Part 763, Subpart E, Appendix A.

1.01.03 Existing Conditions

A. The results of environmental testing for ACM (not included in the contract documents) for materials within the scope of this project are available for review at the Cal Poly Project Manager's office. The contractor is cautioned that any interpretations, opinions or conclusions drawn as a result of examining the testing data will be those made, formed and drawn solely by the contractor.

B. The Environmental Consultant and Cal Poly make no representation, warranty or guaranty that the conditions indicated by the testing data are representative of those conditions existing throughout the area, or that unforeseen developments may not occur, or that materials other than, or in quantities different from those indicated, may not exist.

C. The contractor is advised that the locations of all existing ACM may not be clearly known, and that the contractor shall proceed with caution in all phases of work. If additional ACM is discovered during the course of work, the contractor may be directed by Cal Poly to include the removal of these additional materials in the work, at an agreed upon price or unit prices provided by the contractor in it's bid package, at Cal Poly's option.

D. The Contractor shall perform a thorough survey of the affected work areas with the Environmental Consultant and/or Cal Poly’s Project Manager prior to the start of work in order to document existing damage. Items identified on this list will not be the responsibility of the Contractor unless further damaged during the execution of the project. The Contractor shall document the existing conditions using photographs or video tape, as necessary.

Consider any damage to the building or property not identified in the pre-job damage survey as having resulted from the execution of this Contract, and shall be corrected at no additional expense to Cal Poly.

1.01.04 Potential Asbestos Hazard

A. The disturbance or dislocation of asbestos-containing materials may cause asbestos fibers to be released into the building's atmosphere creating a potential health hazard to workers and building occupants. Contractor shall advise its workers, supervisory personnel, subcontractors, and consultants who will be at the job site of the seriousness of the asbestos hazards and of proper work procedures which must be followed.

B. Where in the performance of work, workers, supervisory personnel, subcontractors or consultants may encounter, disturb or otherwise be in the vicinity of any identified asbestos-containing materials, appropriate measures shall be taken to protect all building occupants from the potential hazard of exposure to airborne asbestos. Such measures shall include the procedures and methods described herein, and shall be in compliance with all applicable federal, state and local regulations.
1.01.05 Stop Work

A. If Cal Poly's Project Manager or the Environmental Consultant presents a written stop work order, immediately and automatically stop all work. Do not recommence work until authorized in writing by Cal Poly’s Project Manager or the Environmental Consultant.

1.01.06 Contractor's Use of Existing Building

A. Cal Poly will occupy portions of the site during the entire period of construction. The Contractor shall cooperate fully with Cal Poly and its representatives during construction operations to minimize conflicts and to facilitate Cal Poly usage. Cal Poly has the right to place and install equipment, as necessary, in areas of the site where asbestos abatement has been completed, and to occupy such completed areas prior to substantial completion, provided that such occupancy does not substantially interfere with the completion of work. Such placing or partial occupancy shall not necessarily constitute acceptance of the work or any part thereof.

B. Maintain existing building in a safe and weather-tight condition throughout the construction period. Keep public areas free from accumulation of waste, rubbish or construction debris.

C. Contractor shall comply with site security procedures and limit work activities to designated areas. One service elevator will be dedicated to the Contractor and General Contractor's use. Contractor and General Contractor shall coordinate efficient use of the service elevator.

D. Lock all vehicles, such as passenger cars and trucks and other mechanized or motorized construction equipment, when parked and unattended, so as to prevent unauthorized use. Do not leave such vehicles or equipment unattended with the motor running or the ignition key in place or accessible to unauthorized persons.

E. No reserved parking will be provided for Contractors employees. Cal Poly Project Manager will designate a location for placement of waste bin.

F. The Contractor's employees shall be confined to the area in which work is taking place for the duration of their shift. Sufficient space for the taking of breaks and lunch shall be designated by Cal Poly. Smoking on site is not permitted.

G. Contractor may use only those existing public sanitary facilities designated by Cal Poly.

H. No phone service is provided.

I. Water for the decontamination unit will be supplied by Cal Poly. Contractor shall supply a holding tank and properly filter and dispose of the water generated at the decontamination unit and provide construction materials, and supplies for connections to water supply. Filtered water shall be discharged to the wastewater sewer.

J. Cal Poly's Project Manager will designate an existing power source adjacent to the work area. Where applicable, the Contractor's licensed electrician shall provide temporary connections and ensure the use of ground fault circuit interrupters.

K. Cal Poly utilities and other property used by Contractor shall be returned to equal or better condition upon completion of project and prior to final payment.

L. Contractor shall endeavor to stage all work and equipment such that it is not visible to the public. In particular, contractor shall segregate work areas from the surrounding occupied or unoccupied work areas, and contractor shall adequately visually and physically isolate exterior abatement work areas from the public.
1.01.07 Scheduling, Phasing and Working Days and Hours

A. Work shall be conducted in accordance with the schedule presented in the contract documents. The Contractor shall plan to schedule the project in coordination with Cal Poly’s Project Manager and Cal Poly in a manner that would most benefit Cal Poly and meet the necessary deadlines. The project is currently estimated on a one month time frame.

B. Work is anticipated to commence at the start date designated by Cal Poly. Prior to this time, all contracts and pre-work submittals will have been executed and insurance shall be in force.

C. Cal Poly will relinquish to the contractor all work areas for the duration of the abatement. During the entire construction period, the Contractor shall cooperate with Cal Poly and its Representatives to minimize conflicts, and to facilitate Cal Poly usage. Perform the work so as not to interfere with Cal Poly's operation. All work, unless otherwise noted herein, shall be performed between the hours 7:00 AM and 5:00 PM, Monday through Friday, with the total hours not to exceed 8 hours per day and 40 hours per week unless requested and approved by Cal Poly Project Manager or its Representatives in writing. Upon being given such approval, the Contractor shall be responsible for all additional costs incurred by Cal Poly, and such costs shall be deducted from the money due or to become due the Contractor.

D. Asbestos clearance air samples will be analyzed by Transmission Electron Microscopy (TEM), using the method specified in 40 CFR Part 763, Subpart E, Appendix A with verbal results available approximately 36 following a successful visual inspection.

1.02 Project Coordination

1.02.01 Administrative and Supervisory Personnel

A. **Project Superintendent:** Provide a full-time Project Superintendent for each shift. This person shall serve as the Competent Person and Certified Supervisor as required by OSHA in 29 CFR 1926.1101 and DOSH in 8 CCR 1529. Said individual is the Contractor’s representative responsible for compliance with the San Luis Obispo County Air Pollution Control District (SLOCAPCD) and the National Emission Standard for Hazardous Air Pollutants (NESHAP) and all applicable federal, state and local regulations, particularly those relating to asbestos-containing materials. This person must have completed an EPA-approved contractor/supervisor certificate course in asbestos abatement procedures, have had a minimum of two (2) years on-the-job training, meet any additional requirements set forth in 29 CFR 1926.1101 and 8 CCR 1529 for a Competent Person, and meet any additional state or local licensing, certification or registration requirements. Superintendent must be conversant in English and in the language spoken primarily by the work crew, if other than English.

B. **CPR and First Aid:** Provide two (2) workers per shift experienced in asbestos abatement procedures and related health and safety issues. These workers shall have completed and maintain current certification for an American Red Cross approved course in Cardio Pulmonary Resuscitation (CPR) and Basic First Aid.

1.02.02 Preconstruction Conference:

A. Cal Poly’s Project Manager will convene "Pre-construction Conference" prior to start of any work at the project site with Contractor, Cal Poly’s Project Manager, the Environmental Consultant, and other parties concerned with asbestos abatement work. This is an organizational meeting, to review schedules, responsibilities and personnel
assignments, and the location of the regulated and decontamination areas and temporary facilities including power, water, etc.

1.03 Notifications

A. GENERAL: Notify other entities at the job site of the nature of asbestos abatement activities, locations of the asbestos-containing materials, requirements relative to asbestos set forth in these specifications and applicable regulations.

B. SIGN REQUIREMENTS: Warning signs as required by OSHA regulations shall be posted at the job site. Warning signs in multiple languages may be required in certain instances.

C. EMERGENCY SERVICES AGENCIES: Notify emergency services agencies including fire, ambulance, police or other agency that may service the abatement work site in case of an emergency. Notification is to include methods of entering the work area, emergency entry and exit locations, modifications to fire alarm or sprinkler systems, and other information needed by agencies providing emergency services.

D. NOTIFICATION OF EMERGENCY: Any individual at the job site may notify emergency service agencies if necessary without effect on this Contract or the Contract Sum.

E. GOVERNMENT AGENCIES: The Contractor shall give proper notification to all Federal, State or local governing agencies which may require notification, prior to the commencement of asbestos abatement activities. Such notification shall be made in a prompt and timely manner following the execution of the contract, so as not to adversely affect the project schedule.

1.04 Patent Notice

A. Techniques, procedures and equipment required by these specifications may be covered by one or more U.S. and/or foreign patents. It is the sole responsibility of the Contractor to determine what, if any, patents are applicable and to meet the requirements of the patent, including fees regarding the use of these patents.

1.05 Definitions and Standards

1.05.01 Definitions

A. Abatement: Any one or a combination of response actions, programs, engineering procedures and/or administrative controls including but not limited to removal, encapsulation, enclosure, encasement, or management in place with an operations and maintenance program designed to reduce the risk of exposure to airborne asbestos fibers.

B. Accessible ACM: Asbestos-containing materials (ACM) that can be safely accessed, removed and replaced adequately if necessary by subsequent renovation activities as determined by Cal Poly’s Project Manager.

C. Adequately Wetted: Sufficiently mixed or penetrated with liquid to prevent the release of particles. If visible emissions are observed coming from asbestos-containing, then that material has not been adequately wetted, however, the absence of visible emissions is not sufficient evidence of being adequately wetted. Material that is crumbled as it is removed shall be penetrated. Material that is removed in units or parts of units shall be wet at all the exposed surfaces. If broken up, the material shall be wetted at all the exposed fracture surfaces. Material shall not be broken up intentionally to be made wet.

D. Aerosol: A system consisting of particles, solid or liquid, suspended in air.
E. **Air Cell**: Insulation normally used on pipes and duct work that is comprised of corrugated cardboard which is frequently comprised of asbestos combined with cellulose or refractory binders.

F. **Air Filtration Device**: A portable, powered HEPA-filtered system used to filter and exhaust air from the work area.

G. **Airlock**: A system for permitting ingress and egress with minimum air movement between a contaminated area and an uncontaminated area, typically consisting of two curtained doorways separated by a distance of at least 3 feet such that one passes through one doorway into the airlock, allowing the doorway sheeting to overlap and close off the opening before proceeding through the second doorway, thereby preventing flow-through contamination.

H. **Air Monitoring**: The process of measuring concentrations of airborne contaminants.

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

J. **Approve**: Where used in conjunction with Cal Poly’s Project Manager and/or Environmental Consultant's response to submittals, requests, applications, inquiries, reports and claims by Contractor, the meaning of term "approved" will be held to limitations of Cal Poly’s Project Manager and/or Environmental Consultant’s responsibilities and duties as specified in contract documents. In no case will "approval" by Cal Poly’s Project Manager or Environmental Consultant be interpreted as a release of Contractor from responsibilities to fulfill requirements of contract documents.

K. **Asbestos**: Any of the following asbestiform minerals alone or in combination: serpentinite (chrysotile), riebeckite (crocidolite), cummingtonite-grunerite (amosite), anthophyllite, and actinolite-tremolite. For purposes of determining respiratory and worker protection both the asbestiform and non-asbestiform varieties of the above minerals and any of these materials that have been chemically treated and/or altered shall be considered as asbestos.

L. **Asbestos-Containing Building Material (ACBM)**: Asbestos-containing materials that form an integral part of an architectural structure.

M. **Asbestos-Containing Construction Material (ACCM)**: Any manufactured construction material which contains more than 0.1 percent asbestos by weight.

N. **Asbestos-Containing Material (ACM)**: Asbestos or any materials containing more than 1.0 percent asbestos of any type or mixture.

O. **Asbestos-Containing Waste (ACW)**: Any material which is or is suspected of being or any material contaminated with an ACM or ACCM which is to be removed from a work area for disposal.

P. **Asbestos-Related Work**: Any activity which by disturbing asbestos-containing construction materials may release asbestos fibers into the air and which is not related to its manufacture, the mining or excavation of asbestos-bearing ore or materials, or the installation or repair of automotive materials containing asbestos.

Q. **Authorized Visitor**: Cal Poly’s Project Manager, the Environmental Consultant or representatives of any federal, state and local regulatory or other agency having authority over the project and any visitor authorized by Environmental Consultant to enter the work area.
R. **Barrier:** Any surface that separates or seals off the work area to demarcate designated work activity areas or inhibit the movement of fibers.

- **Construction** - Partial barrier installed to restrict access to areas adjacent to the project area.
- **Physical** - Airtight rigid barrier installed in areas where work area is adjacent to public areas.
- **Visual** - Opaque polyethylene sheeting installed so that work procedures are not visible to building occupants.
- **Critical** - A physical or visual barrier or other material installed at the interface of the work area and non-work areas.
- **Primary** - Two layers of polyethylene protective sheeting installed to protect interior surfaces of the work area and aid in the decontamination process.
- **Secondary** - One layer of polyethylene protective sheeting installed on top of the primary barrier to catch gross debris and aid in the decontamination sequence.

S. **Breach:** A rift or gap in the critical, primary or secondary barriers that allow egress of air from the containment to outside.

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

U. **Breaching:** A duct which transports combustion gases from a boiler or heater to a chimney or stack; also sometimes referred to as a flue.

V. **Category I Non-friable Asbestos-Containing Material:** Asbestos-containing packing, gaskets, resilient floor coverings, and asphalt roofing products.

W. **Category II Non-friable Asbestos-Containing Material:** Asbestos-containing material, excluding Category I nonfriable asbestos-containing material, that, when dry, and in its present form, cannot be crumbled, pulverized, or reduced to powder by hand pressure.

X. **Ceiling Level:** The airborne concentration of substance that may not be exceeded.

Y. **Certified Industrial Hygienist (C.I.H.)** An industrial hygienist certified in Comprehensive Practice by the American Board of Industrial Hygiene.

Z. **Certified Asbestos Consultant:** Any person who provides technical services or advice used to plan or monitor asbestos abatement projects, and who has been certified by DOSH for knowledge of regulations and safe work practices for safeguarding employees during asbestos related work.

AA. **Certified Supervisor:** An individual who is capable of identifying asbestos hazards in the workplace and who has sufficient experience and authority to take prompt corrective measures to eliminate them. The duties of the certified supervisor include at least the following: establishing the negative-pressure enclosure, ensuring its integrity, and controlling entry to and exit from the enclosure; supervising any employee exposure monitoring required by this section; ensuring that all employees working within such an enclosure wear the appropriate personal protective equipment, are trained in the use of appropriate methods of exposure control, and use the hygiene facilities and decontamination procedures specified in this section; and ensuring that engineering controls in use are in operating condition and are functioning properly.

BB. **Clean Room:** An uncontaminated area or room which is a part of the worker decontamination enclosure system with provisions for storage of worker's street clothes and clean protective equipment.
CC. Cleaning: The process of eliminating asbestos contamination from surfaces and objects. A surface is accepted to be clean if its accumulation of dust, residue, or debris can not be further removed by either of the following methods:

- Wet method - cleaning using a combination of cloths, mops, nylon bristle brushes, scouring pads, steel wool pads, or other tools which have been dampened with amended water.

- Dry method - cleaning using a HEPA-filtered vacuum cleaner with the proper attachments.

DD. Competent Person: A person capable of identifying and eliminating asbestos hazards as defined per 29 CFR Part 1910.1101 and Title 8 CCR, Section 1529.

EE. Contaminated Area: A work area where airborne concentrations of asbestos exceed or can reasonably be expected to exceed the PEL, if disturbed.

FF. Contractor: The individual and/or legal entity and its subcontractors and employees of the contractor and subcontractor awarded the contract for asbestos abatement.

GG. Curtained Doorway: A device to allow ingress or egress from one room to another while permitting minimal air movement between the rooms typically constructed by placing three overlapping sheets of plastic over an existing or temporarily framed doorway, securing all four edges of the middle sheet, and the top edge only of the other two sheets. A slit in the center of the middle sheet permits access while minimizing loss of pressure differential. Other effective designs are permissible.

HH. Decontamination Unit: A series of connected rooms, separated from the work area and from each other by air locks, for the decontamination of workers and equipment.

II. Demolition: The wrecking or taking out of any building component, system, finish or assembly of a facility together with any related handling operations.

JJ. Disposal Bag: 6-mil thick, leak-tight plastic bags used for transporting asbestos waste from the work area and to disposal site.

KK. Encapsulant: A material that surrounds or embeds asbestos fibers in an adhesive matrix, to prevent release of fibers.

LL. (Bridging)encapsulant: an encapsulant that forms a discrete layer on the surface of an in situ asbestos matrix.

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


OO. Encapsulation: Treatment of asbestos-containing materials, with an encapsulant.

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

QQ. Equipment Room: A contaminated area or room which is part of the worker decontamination enclosure system with provisions for storage of contaminated clothing and equipment.
RR. **Excursion Limit:** A level of airborne fibers specified by OSHA and DOSH as an occupational exposure limit for asbestos set at 1.0 total fibers per cubic centimeter as measured over a 30-minute period.

SS. **Fiber:** A particulate form of asbestos 5 microns or longer, with an aspect ratio of at least 3:1.

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

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

VV. **Friable Asbestos-Containing Material:** ACM that can be crumbled, pulverized, or reduced to powder by hand pressure when dry.

WW. **Furnish:** Except as otherwise defined in greater detail, term "furnish" is used to mean supply and deliver to project site, ready for unloading, unpacking, assembly, installation, etc., as applicable in each instance.

XX. **Glovebag:** An airtight sack (typically constructed of 6-mil transparent polyethylene or polyvinylchloride plastic) with two inward projecting long sleeve gloves, which are designed to enclose an object from which an asbestos-containing material is to be removed.

YY. **HEPA Filter:** A High Efficiency Particulate Air (HEPA) filter capable of trapping and retaining 99.97 percent of fibers and particulates approximately 0.3 microns or greater in diameter.

ZZ. **HEPA Filter Vacuum Collection Equipment (or Vacuum Cleaner):** High efficiency particulate air (absolute UL586 label) filtered vacuum collection equipment with a filter system capable of collecting and retaining fibers and particulate matter. Filters should be of 99.97 percent efficiency for retaining fibers of 0.3 microns or larger.

BA. **HVAC:** Heating, ventilating and air conditioning systems consisting of pipes, ducts, and equipment (air-conditioners, chillers, boilers, heaters, pumps, fans, controls, etc.) used to heat, cool, move and/or filter air in a building; also known as mechanical systems.

BB. **Inaccessible ACM:** ACM that cannot be removed due to its location and the configuration of adjacent building components, structures or fixtures as determined by Cal Poly's Project Manager.

BC. **Install:** Except as otherwise defined in greater detail, term "install" is used to describe operations at project site including unloading, unpacking, assembly, erection, placing, anchoring, applying, working to dimension, finishing, protecting, cleaning and similar operations, as applicable in each instance.

BD. **Leak-Tight:** Any method of containerization that prevents solids, liquids, or particles from escaping or spilling out.

BE. **Jobsite:** See Project Area.

BF. **Make-up Air:** Supplied or recirculated air to offset that which has been exhausted from an area.

BG. **Medical Surveillance:** A periodic comprehensive review of a worker's health status. The required elements of an acceptable medical surveillance program are listed in the OSHA standards for asbestos.
BH. **Movable Object**: A piece of equipment or furniture in the work area which can be removed from the work area.

BI. **MSDS**: Material Safety Data Sheet.

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

BK. **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.

BL. **Negative Pressure Ventilation System**: A local exhaust system, utilizing HEPA filtration capable of maintaining a negative pressure inside the work area and a constant air flow from adjacent areas into the work area and exhausting that air outside the work area.

BM. **Permissible Exposure Level (PEL)**: Asbestos - A level of airborne fibers specified by OSHA as an occupational exposure standard for asbestos, which represents the 8-hour time-weighted average (TWA) of 0.1 total fibers per cubic centimeter as measured by Phase Contrast Microscopy.

BN. **Personal Air Monitoring**: A method used to determine an individual's exposure to airborne fibers, dust or particles. The sample is collected outside the respirator in the person's breathing zone.

BO. **Phase Contrast Microscopy (PCM)**: A method of analysis of air samples for fibers using a light microscope.

BP. **Polarized Light Microscopy (PLM)**: An optical microscopic technique used to distinguish between different types of asbestos fibers by their shape and unique optical properties per EPA 600/R-93/116, July 1993.

BQ. **Positive Pressure Respiratory Check**: A form of fit testing in which the wearer covers the exhalation valve of a negative pressure air-purifying respirator to check for leaks around the face seal (required by each worker upon wearing a PAPR or negative pressure air-purifying respirator and prior to entering the work zone).

BR. **Powered Air Purifying Respirator (PAPR)**: Either a full facepiece, helmet, or hooded respirator that has the breathing air powered to the wearer after it has been purified through a filter.

BS. **Precleaning**: The process of cleaning (decontaminating) all objects, ceilings, wall and floors of a proposed work area using wet cleaning methods, HEPA vacuuming equipment, etc., before abatement work commences.

BT. **Project Area**: The term "project area" is defined as the space available to Contractor for performance of the work, either exclusively or in conjunction with others performing other work as part of the project. The extent of project area is shown on the drawings, and may or may not be identical with the description of land upon which the project is to be performed.

BU. **Protection Factor**: The ratio of the ambient concentration of an airborne substance to the concentration of the substance inside the respirator 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. Values to be used for purposes of determining protection factors are presented in 8 CCR 1529.
BV. **Provide:** Except as otherwise defined in greater detail, term "provide" means furnish and install, complete and ready for intended use, as applicable in each instance.

BW. **Regulated Asbestos-Containing Material (RACM):** Friable asbestos-containing material, or Category I nonfriable asbestos-containing material that has or will become friable, or Category II nonfriable asbestos-containing material that has a high probability of becoming crumbled, pulverized, or reduced to powder by the forces expected to act on the material in the course of demolition or renovation.

BX. **Regulated Area:** An area demarcated by the employer in order to establish where airborne concentrations of asbestos exceed, or can reasonably be expected to exceed, the PEL and/or excursion limit. The regulated area may take the form of (1) a temporary enclosure, as required by subsection (c)(2) of this section, or (2) an area demarcated in any manner that minimizes the number of employees exposed to asbestos.

BY. **Removal:** The taking out or stripping of asbestos or materials containing asbestos.

BZ. **Repair:** The overhauling, rebuilding, reconstructing, or reconditioning of structures, or parts thereof, where asbestos is present.

CA. **Renovation:** The modifying of any existing structure, or portion thereof, where exposure to airborne asbestos may result.

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

CC. **Set Up:** Preparation of a structure for stripping or removing of asbestos containing materials, including but not limited to placement of physical barriers, installation of local exhaust ventilation and collection systems, removal of structural components for the primary purpose of gaining access to these materials, and any activity which would release the asbestos.

CD. **Shower Room:** A room between the clean room and the equipment room in the worker decontamination enclosure system equipped with a shower. The shower will allow for complete showering during decontamination. The shower shall be provided with a supply of a minimum of 60 minutes of continuous, warm running water at a temperature of 110 to 120 degrees F, liquid soap, and shampoo.

CE. **Spray-Applied Ceiling Material (SACM):** A texture product composed of gypsum and/or polystyrene that is applied to a plaster or wallboard substrate to provide acoustic dampening and a decorative finish.

CF. **Staging Area:** Either the holding area or some area near the waste transfer airlock where contained waste has been placed prior to removal from the work area.

CG. **Stripping:** The taking off, cutting, drilling, dislodging, or similar disturbing of asbestos covering or coating any element of a stationary structure, or portion thereof.

CH. **Structural Member:** Any load supporting member, such as beams and load-supporting walls; or any non-load-supporting member, such as ceilings and non-load-supporting walls.

CI. **Surfactant:** A chemical wetting agent added to water to improve penetration, thus reducing the quantity of water required for a given operation or area.

CJ. **Time Weighted Average (TWA):** The average concentration of a contaminant in air during a specific time period.
Visible Emissions: Any emissions containing particulate asbestos material that is visually detectable without the aid of instruments. This does not include condensed uncombined water vapor.

Visual Inspection: A visual inspection by the Environmental Consultant of the work area under adequate lighting to ensure that the work area is free of visible asbestos material, debris and dust.

Waste Generator: Cal Poly, or any other operator of a source subject to this rule whose fact or process produces asbestos-containing waste material.

Visual Inspection: A visual inspection by the Environmental Consultant of the work area under adequate lighting to ensure that the work area is free of visible asbestos material, debris and dust.

Waste Shipment Record: The shipping document to be originated and signed by the waste generator, used to track and substantiate the disposition of asbestos-containing waste material.

Work Area: The area where asbestos related work or removal operations are performed which is regulated and/or enclosed to prevent the spread of asbestos, fibers or debris, and entry by unauthorized personnel. Work area is a Regulated Area as defined by 29 CFR 1926.1101 and 8 CCR 1529.

Wrecking: The act of damaging and reducing to ruinous state.

1.05.02 Industry Standards

A. General Applicability of Standards: Except to the extent that more explicit or more stringent requirements are stated or referred to and are written directly into the contract documents, applicable standards of the construction industry have the same force and effect (and are made a part of the contract documents by reference) as if copied directly into the contract documents, or as if published copies were bound herewith. Refer to the contract documents for resolution of overlapping and conflicting requirements which result from the application of several different industry standards to the same unit of work. Refer to individual unit of work sections for indications of which specialized codes and standard the Contractor must keep at the project site, available for reference.

B. Referenced standards (referenced expressly in the contract documents or by governing regulations) have precedence over non-referenced standards which are recognized in industry for applicability to work.

C. Non-referenced standards are hereby defined to have no particular applicability to the work, except as general requirements of whether the work complies with standards recognized in the construction industry.

D. Publication Dates: Except as otherwise indicated, where compliance with an industry standard is required, comply with standard in effect as of date of contract documents.

E. Updated Standards: At the request of Cal Poly's Project Manager, submit a change order proposal where an applicable industry code or standard has been revised and reissued after the date of the contract documents and before the performance of the work affected. Cal Poly's Project Manager will decide whether to issue the change order to proceed with the updated standard.

F. Copies of Standards: The contract documents require that each entity performing work be experienced in that part of the work being performed. Each entity is also required to be familiar with recognized industry standards applicable to that part of the work. Copies of applicable standards are not bound with the contract documents. Where copies of standards are needed for proper performance of the work, the Contractor is required to obtain such copies directly from the publication source. Although certain copies of
standards needed for enforcement of the requirements may be required submittals, Cal Poly’s Project Manager reserves the right to require the Contractor to submit additional copies of these standards as necessary for enforcement of the requirements.

G. **Abbreviations and Names:** Where acronyms or abbreviations are used but not identified in specifications or other contract documents they are defined to mean the industry recognized name of trade association, standards generating organization, governing authority or other entity applicable to context of text provision. Refer to "Encyclopedia of Associations," published by Gale Research Co., available in large libraries.

H. **Abbreviations and Names:** The following acronyms or abbreviations as referenced in specifications are defined to mean the associated names. Both names and addresses are subject to change, and are believed to be, but are not assured to be, accurate and up-to-date as of date of specifications:

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<tr>
<th></th>
<th>Acronym</th>
<th>Name</th>
<th>Address</th>
<th>Phone</th>
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<tbody>
<tr>
<td>1</td>
<td>ABIH</td>
<td>American Board of Industrial Hygiene</td>
<td>6015 W. St. Joseph, Suite 102, Lansing, MI 48917-3980</td>
<td>(517) 321-2638</td>
</tr>
<tr>
<td>2</td>
<td>ACGIH</td>
<td>American Conference of Governmental Industrial Hygienists</td>
<td>1330 Kemper Meadow Dr., Suite 600, Cincinnati, Ohio 45240</td>
<td>(513) 742-3355</td>
</tr>
<tr>
<td>3</td>
<td>AIA</td>
<td>American Institute of Architects</td>
<td>1735 New York Avenue NW; Washington, DC 20006</td>
<td>202/626-7474</td>
</tr>
<tr>
<td>4</td>
<td>AIHA</td>
<td>American Industrial Hygiene Association</td>
<td>2700 Prosperity Avenue, Suite 250, Fairfax, Virginia 22031</td>
<td>(703) 849-8888</td>
</tr>
<tr>
<td>5</td>
<td>ANSI</td>
<td>American National Standards Institute</td>
<td>1430 Broadway; New York, New York 10018</td>
<td>212/354-3300</td>
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<tr>
<td>6</td>
<td>ASHRAE</td>
<td>American Society for Heating, Refrigerating, and Air Conditioning Engineers</td>
<td>1791 Tullie Circle NE; Atlanta, Georgia 30329</td>
<td>404/636-8400</td>
</tr>
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<td>8</td>
<td>CCR</td>
<td>California Code of Regulations</td>
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<td></td>
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<td></td>
<td>Washington, DC 20402</td>
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<td>10</td>
<td>CGA</td>
<td>Compressed Gas Association</td>
<td>1235 Jefferson Davis Highway; Arlington, Virginia</td>
<td>703/979-0900</td>
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<td>12. DOSH</td>
<td>Division of Occupational Safety and Health</td>
<td>417 North Azusa Avenue; West Covina, California 91791 818/966-1166</td>
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<td>13. DOT</td>
<td>Department of Transportation</td>
<td>211 Main Street; San Francisco, California 415/974-9888</td>
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<td>14. EPA</td>
<td>Environmental Protection Agency</td>
<td>401 M Street, SW; Washington, DC 20460 202/382-3949</td>
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<tr>
<td>15. FS</td>
<td>Federal Specification (General Services Administration) Obtain from your Regional GSA Office, or purchase from GSA Specifications Unit (WFSIS); 7th and D Streets, SW; Washington, DC 20406 202/472-2205 or 2140</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>16. GA</td>
<td>Gypsum Association</td>
<td>1603 Orrington Avenue; Evanston, Illinois 60201 312/491-1744</td>
<td></td>
<td></td>
</tr>
<tr>
<td>17. GSA</td>
<td>General Services Administration</td>
<td>F and 18th Streets, NW; Washington, DC 20405 202/655-4000</td>
<td></td>
<td></td>
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<tr>
<td>18. MIL-STD</td>
<td>Military Standardization Documents (U.S. Department of Defense) Naval Publications and Forms Center</td>
<td>5801 Tabor Avenue; Philadelphia, Pennsylvania 19120</td>
<td></td>
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<tr>
<td>19. MSHA</td>
<td>Mine Safety and Health Administration (U.S. Department Labor)</td>
<td>Washington, D.C. 20402</td>
<td></td>
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<tr>
<td>20. NBS/ NIST</td>
<td>National Bureau of Standards/ National Institute of Standards and Technology (U.S. Department of Commerce)</td>
<td>Gaithersburg, Maryland 20234 301/921-1000</td>
<td></td>
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</tr>
<tr>
<td>21. NEC</td>
<td>National Electrical Code (by NFPA)</td>
<td></td>
<td></td>
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<tr>
<td>22. NIOSH</td>
<td>National Institute of Occupational Safety and Health</td>
<td>4676 Columbia Parkway Cincinnati, Ohio 45226 513/ 533-8225</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
I. **Trade Union Jurisdictions:** It is a procedural requirement that the Contractor maintain, and require prime subcontractors to maintain, complete current information on jurisdictional matters, regulations, actions and pending actions, as applicable to the work. Discuss new developments at appropriate project meetings at the earliest feasible dates, and record information of relevance along with the action agreed upon. The manner in which contract documents have been organized and subdivided is not intended to be an indication of jurisdictional or trade union agreements. Assign and subcontract the work, and employ tradesmen and laborers, in a manner which will not unduly risk jurisdictional disputes of a kind which could result in conflicts, delays, claims and losses in the performance of the work.

1.06 Codes and Regulations

This section sets forth governmental codes and regulations which are included and incorporated herein by reference and made a part of the Technical Specifications.

**A. General Applicability of Codes and Regulations:** Except to the extent that more explicit or more stringent requirements are written into the contract documents, all applicable codes, regulations, and standards have the same force and effect (and are made a part of the contract documents by reference) as if copied directly into the contract documents, or as if published copies are bound herewith.

**B. Contractor Responsibility:** The Contractor shall bear full responsibility and liability for the compliance by it, its subcontractors and their respective employees with all applicable Federal, State, and local regulations pertaining to work practices, hauling, disposal, and protection of workers, visitors to the site and persons occupying the building. The Contractor is responsible for providing medical examinations and maintaining medical records of personnel as required by the applicable Federal, State, and local regulations. The Contractor shall hold Cal Poly and the Environmental Consultant harmless for failure to comply with any applicable work, hauling, disposal, safety, health or other regulation on the part of himself/herself, his/her employees, or his/her subcontractors.

**C. Federal Agencies:** The federal agencies which govern asbestos abatement work and hauling and disposal of waste materials include, but are not limited to, the following:

1. U.S. Department of Labor, Occupational Safety and Health Administration, (OSHA), including but not limited to:
a. Occupational Exposure to Asbestos, Tremolite, Anthophyllite, and Actinolite; Final Rules
   29 CFR 1910.1001
   29 CFR 1926.1101

b. Respiratory Protection
   29 CFR 1910.134

c. Access to Employee Exposure and Medical Records
   29 CFR 1910.20

d. Hazard Communication
   29 CFR 1910.1200

e. Specifications for Accident Prevention Signs and Tags
   29 CFR 1910.145

f. Respirators and Respirator Fit Tests
   29 CFR 1910.103
   29 CFR 1910.1025

g. Hazard Communication-Construction Standard
   29 CFR 1926 59

h. Protective Equipment
   29 CFR 1910.133

i. Sanitation and Change Rooms and Showers
   29 CFR 1910.141

2. U.S. Environmental Protection Agency (EPA) including but not limited to:

a. Asbestos Abatement Projects Rule
   40 CFR Part 763, Subpart G
   CPTS 62044, FRL 2843-9
   Federal Register, Volume 50, No. 134, July 12, 1985
   P28530-29540

b. National Emission Standard for Asbestos
   40 CFR 61, Subpart M (Revised Subpart B)

c. Asbestos Hazard Emergency Response Act
   40 CFR 763

d. Standard Applicable to Generators of Hazardous Waste,
   40 CFR 262

e. Standards Applicable to Transporters of Hazardous Waste
   40 CFR 263

f. Land Disposal Restrictions
   40 CFR 268
3. **U.S. Department of Transportation**

   a. DOT Hazardous Materials Requirements  
      49 CFR Subtitle B Chapter I Subchapter C 
      including without limitation Parts 172, 173, 178 and 179

D. **State and Local Requirements:** which govern asbestos abatement work or hauling and disposal of waste materials include but are not limited to the following:

1. **Occupational Safety and Health**

   a. California Labor Code Division 5, Part I (commencing with Section 6300)
   
   b. 8 CCR 1529 DOSH Construction Asbestos Regulation
   
   c. 8CCR, 1531 Respiratory Protection
   
   d. 8 CCR, 5155 Airborne Contaminants; Permissible Exposure Limits
   
   e. 8 CCR, 3204 Access to Employee Exposure and Monitoring Records
   
   f. 8 CCR, 5194 Hazard Communication
   
   g. 8 CCR, 6003 Accident Prevention Signs and Tags
   
   h. 8 CCR, Chapter 3.2 Registration - Asbestos Related Subchapter 2, Article 2.5 Work
   
   i. All applicable provisions of 8 CCR Chapter 3.2
   
   j. California Health and Safety Code, Division 20 (commencing with Section 24200)

2. **Environmental Air Emissions**

   
   b. San Luis Obispo County Air Pollution Control Cal Poly (SLOCAPCD) Rule 302 and Rule 701

3. **Abatement**

   a. California Business and Professions Code (commencing with Section 7028)
   
   b. California Education Code (commencing with Section 49410)
   
   c. California Health and Safety Code, Division 20 (commencing with Section 49200)
   
   d. California Labor Code, Division 1, Chapter 6 (commencing with Section 140)
   
   e. California Labor Code, Division 5, Part I (commencing with Section 6300 8 6501.5 - 6501.9, 6503.5, 6408)
f. California Labor Code, Division 5, Part 10 (commencing with Section 9000)
g. California Government Code, Section 66780.5

4. Disposal
   a. California Health and Safety Code, Division 20 (commencing with Section 25000)
   b. 22 CCR, Division 4.5 (commencing with Section 6260.1)

5. Permits, Registration, and Notification
   a. 8 CCR, Section 341.6, Division of Occupational Safety and Health; registration
   b. Business and Professions Code, Sections 7058.5 and 7058.7; certification and Section 7180 and 16 CCR Chapter 8 Contractors State License Board
   c. California Health and Safety Code 25249.5 - 25249.13 (Proposition 65)
      California Health and Safety Code 25915 - 25919.7 (Connelly Law)
   d. SLOCAPCD Rule 302 and Rule 701

1.07 Submittals

1.07.01 Work Included
   A. Provide submittals to the Owner's representatives at least ten (10) working days prior to mobilization to the site to allow for sufficient and prompt review by the Owner's representative. Revise and resubmit as necessary to establish compliance with the specified requirements.

   B. Submit complete bound sets of the submittals as described in OWNER submittal requirements. Submit separate sets entitled "Pre-Job Submittals" and "Post-Job Submittals".

1.07.02 Quality Assurance
   A. Coordination of Submittals:
      1. Carefully review and coordinate all aspects of each item being submitted.
      2. Verify that each item and its appropriate submittal conform in all respects with the specified requirements.
      3. Certify, by affixing signature of Contractor's authorized representative to the cover and cover letter of each submittal package, that this coordination has taken place.
B. Substitutions

1. The contract is based on the standards of quality established in the specifications. Substitutions will be considered only when listed at the time of bidding, on the Substitution Listing form provided, and when substantiated by the Contractor's submittal of required data within ten (10) days after the award of the contract.

   NOTE: Some materials or equipment specified cannot be substituted. These materials or equipment will be followed by the statement "no substitution will be considered" Cal Poly, Cal Poly's Project Managers, or the Environmental Consultant shall have final determination on approval or rejection of substitutions.

2. The following products do not require further approval except for interface with the work:

   a. Products specified by reference to standard specifications such as ASTM and similar standards.

3. Do not substitute materials, equipment or methods unless such substitution has been specifically approved in writing for this work by Cal Poly or the Environmental Consultant.

C. "Or equal":

1. Where the phrase "or equal, " or 'or equal as approved by Cal Poly, Cal Poly's Project Manager, or the Environmental Consultant" appears in these specifications, do not assume the materials, equipment or methods will be approved as "equal " unless the item has been specifically so approved for this work.

2. Decisions of Cal Poly, Cal Poly's Project Manager and/or the Environmental Consultant shall be final.

D. Reimbursement of Cal Poly's costs:

1. In the event substitutions are proposed to Cal Poly, Cal Poly's Project Manager, or the Environmental Consultant after the contract has been awarded, said parties will record all time used by him and by his consultants in evaluation of each such proposed substitution.

2. Whether Cal Poly, Cal Poly's Project Manager, or the Environmental Consultant approves or disapproves a proposed substitution, the Contractor, promptly upon receipt of billing from Cal Poly, Cal Poly's Project Manager, or the Environmental Consultant, shall reimburse Cal Poly the normal billing rate of Cal Poly, Cal Poly's Project Manager, or the Environmental Consultant, or Cal Poly is authorized to withhold funds from the contract sum for all time spent by the aforesaid in evaluating the proposed substitution.

1.07.03 Pre-Job Submittals

A. The following Pre-Job Submittals are required to be submitted to Cal Poly's Project Manager, as soon as possible following award of the contract by Cal Poly's Project Manager, and at least ten (10) working days prior to mobilization to the site. No work shall commence until each pre-job submittal has been reviewed and approved by the Environmental Consultant. Item #10 may be submitted immediately prior to initiation of on-site work.
1. Cover letter as described in Section 1.07.02(A)(3) above.

2. Submit a detailed plan of the procedures proposed for use in complying with the requirements of these specifications. Include in the plan the location and layout of containment and decontamination areas, the sequencing of asbestos work, the interface of trades involved in the performance of work, methods to be used to assure the safety of building occupants and visitors to the site, disposal plan including location of approved disposal site, and a detailed description of the methods to be employed for containment of the abatement area. Expand upon the use of portable HEPA ventilation systems, means for prohibiting visible emissions in the work area, and packaging of ACM and contaminated materials for removal.

3. Copies of required notifications, i.e., SLOCAPCD, DOSH. Contractor's subcontractors and/or consultants, and emergency services.

4. Proof of Contractor's current asbestos Contractors' license, certification and DOSH registration certificate.

5. Name, address, and telephone number of laboratory to be used for analyzing DOSH required worker exposure air samples and copy of latest NIOSH PAT round results.

6. Certification that hauler to be used is certified by DTSC to transport asbestos-containing material and other wastes as appropriate and vehicles are CHP approved for transportation of hazardous wastes.

7. Name and address of proposed landfill for disposal of waste materials, the waste discharge requirements issued by the Regional Water Quality Control Board indicating facilities ability to accept asbestos waste, the permit to operate issued by the County Health Department, AQMD or APCD permit, if applicable, and proof of compliance with local AQMD disposal work practices requirements.

8. A detailed schedule describing number of workers, dates of different work activities, and final inspection dates, as needed. Update schedule, as needed.

9. Site safety and contingency plan for emergencies including fire, earthquake, accident, power failure, supplied air system failure, air filtration system failure, or any other foreseeable event which may require modification or abridgment of decontamination or work area isolation procedures. Include specific procedures for decontamination or work area isolation and evacuation, diagrams. Include telephone numbers and locations of emergency services, including but not limited to fire, ambulance, doctor, hospital, police, utility and telephone companies, Environmental Consultant, General Contractor, and Cal Poly's Project Manager emergency contacts.

10. For workers utilized on the project provide the most up-to-date:
   a. Proof of training in accordance with local, state, and federal requirements.
   b. Proof of First Aid and CPR training (two workers per shift).
c. Superintendent's initial training certificate.

d. Proof that workers have been examined in accordance with 29 CFR 1926.1101 and 8 CCR 1529 and have been given medical approval for unrestricted work using negative pressure respirators, and are at no increased risk of asbestos related diseases from their involvement in abatement work based on their current medical condition.

e. Fit test data from within last 12 months for negative pressure respirators to be used by Contractor personnel.

f. Worker Acknowledgment Form, provided at the end of this section, or other Worker Acknowledgment Form approved by Environmental Consultant.

11. Manufacturer's data and other certifications as specified below: Submit product data, instructions and recommendations from manufacturer of item intended for use. Include data substantiating that material. Product or supply complies with requirements.

a. Decontamination Units including wastewater filtration.

b. Personal protective equipment.

12. Material Safety Data Sheets: Submit the Material Safety Data Sheets, or equivalent, in accordance with the DOSH Hazard Communication Standard for each surfactant, encapsulating material, other materials applied with spray equipment (including aerosols), mastic removers and other materials required to have MSDS information proposed for use on the work.

1.07.04 Post-Job Submittals

A. The following post-job submittals will be generated during the onsite work and will be provided by the Contractor to the Environmental Consultant for review, within ten (10) days of completion of the onsite abatement work.

1. Copies of all revised notifications to regulatory agencies if applicable.

2. Copy of the worker/visitor log showing the following for all persons entering the work area: date, name, social security number, entering and leaving time, company or agency represented, and reason for entry. Contractor's time records will not be acceptable for worker/visitor log. Include a cover sheet certifying that this is a complete copy of log from the job. A worker/visitor log form is provided at the end of this section. Also provide an alphabetized list of workers whose names are in the log and a checklist indicating that items requested in Section 1.06.03 (9) have been provided.

3. Copy of worker exposure monitoring results in accordance with DOSH requirements including results stated as 8-hour TWA's and excursion limits. Include a cover sheet, signed by the testing laboratory performing the work, indicating that this data is complete and accurate.

4. Worker information for all new employees used on the project not included in the pre-job submittals.

5. Project Work Area Containment, Initial Inspection Checklist and Certification, Certificate of Visual Inspection and Certificate of Completion (forms provided at end of this section).
6. Copy of waste log showing date and time of day, manifest number, quantity of waste, type of container removed from work area, hauler, and signature of recorder. A sample asbestos waste log is provided at the end of this section.

7. Land Disposal Restrictions Notification and Certification (form provided at end of this section).

8. Fully executed Uniform Hazardous Waste Manifests or Non-Hazardous Waste Data Forms, which comply with the requirements set forth in 40 CFR 262, and 22 CCR, 22, Division 4.5, Chapter 12.

9. Complete copies of all accident reports submitted during the course of the work.

B. Forms included in the specifications alternatives or approved by Environmental Consultant shall be used for appropriate submittals.

1.07.05 Identification of Submittals

A. Number consecutively and clearly identify all submittals. Show identification on the first page of each submittal, and elsewhere as necessary for positive identification of the submittal. If submittal has already been collected by the Environmental Consultant, indicate on submittal item title sheet in binder.

B. Accompany each submittal package with a letter of transmittal showing all information required for identification and checking.

C. Mark each submittal with a permanent label for identification. Provide the following information on the label:

1. Project name
2. Date
3. Name and address of Cal Poly’s Project Manager
4. Name and address of Contractor
5. Label either "Pre-Job Submittals" or "Post-Job Submittals."

D. Package each submittal appropriately for transmittal and handling. Transmit each submittal to Cal Poly’s Project Manager, by use of a transmittal letter.

E. Submittals shall be bound, and shall be grouped in order by submittal type, and tabbed or labeled for ease of review.

1.07.06 Manufacturer’s Literature

Where contents of submitted literature from manufacturers includes data not pertinent to the submittal, clearly show which portions of the contents are being submitted for review.
1.07.07 Timing of Submittals

A. Make submittals far enough in advance of scheduled dates of commencement, execution or installation to provide time required for reviews, for securing necessary approvals, for possible revisions and resubmittals, and for placing orders and securing delivery.

B. Allow in scheduling, at least 5 working days for review by the Environmental Consultant following receipt of submittals.

C. Contractor will be held responsible for delays resulting from incomplete submittal packages.

1.07.08 Cal Poly's Project Manager and/or Environmental Consultant's Review

A. Review and approval by Cal Poly's Project Manager and/or Environmental Consultant does not relieve the Contractor from responsibility for errors which may exist in the submitted data.

B. Make revisions when required by Cal Poly's Project Manager and resubmit for approval.

C. Partial submittals may be rejected for noncompliance with the technical specifications.

1.08 Air Monitoring by Environmental Consultant and Ceiling Levels

1.08.01 Description of the Work

A. This section describes air monitoring to be carried out by the Environmental Consultant on behalf of Cal Poly to verify that the environment outside the regulated area remains uncontaminated. This section also sets forth airborne asbestos fiber levels as ceiling levels, and describes the action required by the Contractor if ceiling levels are exceeded.

B. Air monitoring required of the Contractor by OSHA/DOSH is covered in Section 1.09.

1.08.02 Air Monitoring

A. Inside the Work Area: the Environmental Consultant will monitor airborne asbestos fiber concentrations inside the work area. The purpose of this air monitoring will be to evaluate the Contractor's work practices and the potential for contamination to occur outside the work area.

B. Outside the Work Area: the Environmental Consultant will monitor the airborne asbestos fiber concentration outside the work area to detect airborne contamination resulting from:

   1. Breaching a critical barrier.
   2. Incomplete decontamination of personnel, equipment, or waste removed from the work area.
   3. Failure or malfunction of the differential air pressure system.

1.08.03 Airborne Fiber Counts - Ceiling Levels

A. Inside Work Area:

   1. Maintain the airborne fiber concentration inside the respirator facepiece of all workers inside the work area to less than an 8-hour TWA of 0.01 f/cc. If the TWA
fiber count for any work shift or 8-hour period exceeds 0.01 f/cc, revise work procedures to lower the airborne counts. If fiber concentrations remain above 0.01 f/cc for two consecutive work shifts, the Environmental Consultant shall require that Contractor stop all work, leave the negative air pressure system in operation, and notify the University. Do not recommence work until authorized by the Environmental Consultant.

2. If airborne fiber concentrations exceed 0.01 f/cc inside the respirator facepiece at any time, cease all abatement work, but commence or continue debris cleanup until fiber and dust counts fall below 0.01 f/cc and notify Environmental Consultant. Do not recommence work until authorized by Environmental Consultant.

3. These measurements may be obtained from Contractor worker exposure monitoring and/or the Environmental Consultant's monitoring of the work area.

4. Contractor shall cooperate with the Environmental Consultant to the extent necessary to obtain these measurements.

B. Outside Work Area: If any air sample taken outside of the work area exceeds the prevalent level as described in Paragraph 1.08.05A, the Environmental Consultant may require that the Contractor immediately stop all work. The Contractor and Environmental Consultant shall cooperate to determine the cause of the measured level and Contractor shall implement necessary corrective procedures before resuming work other than cleanup and decontamination.

C. Fibers Counted: The following procedure will be used to resolve any disputes regarding fiber types when a project has been stopped due to airborne fiber levels above ceiling levels inside or outside the work area. Environmental Consultant may collect air samples in the same area for analysis by Transmission Electron Microscopy (TEM). Airborne fibers counted in samples analyzed by TEM shall be only asbestos fibers counted using NIOSH Method 7402.

D. Effect on Contract Sum: If TEM is used to arrive at the basis for determining airborne fiber levels in accordance with the above and if the 8-hour TWA of airborne asbestos fiber inside the respirator face-piece exceeds 0.01 asbestos structures per cubic centimeter of air (s/cc), or if any one sample exceeds 0.10 s/cc for samples taken inside the work area, or exceeds the prevalent level for samples taken outside the work area, then the costs of such sampling analysis will be paid by the Contractor.

1.08.04 Analytical Methods

The following methods will be used by the Environmental Consultant in analyzing filters used to collect air samples.

A. PCM - NIOSH 7400A counting rules.

B. TEM – NIOSH 7402 (PCM Equivalent)

1.08.05 Schedule of Air Samples

A. Prevalent Level:
Before start of work, the Environmental Consultant will secure the following PCM air samples to establish a prevalent level. Samples will be held and analyzed by TEM if PCM results are greater than 0.1 fiber/cubic centimeter (f/cc).

<table>
<thead>
<tr>
<th>Location Sampled</th>
<th>Number Of Samples</th>
<th>Type of Sample</th>
<th>Approximate Volume (liters)</th>
<th>Rate (liters/minute)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Inside Proposed Work Area</td>
<td>1-5</td>
<td>PCM</td>
<td>1,200</td>
<td>10-15</td>
</tr>
</tbody>
</table>

B. **Daily:**

The Environmental Consultant may collect the following samples during each work shift.

<table>
<thead>
<tr>
<th>Location Sampled</th>
<th>Number Of Samples</th>
<th>Type of Sample</th>
<th>Approximate Volume (liters)</th>
<th>Rate (lpm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Inside Work Area</td>
<td>1-2</td>
<td>PCM</td>
<td>800</td>
<td>2-5</td>
</tr>
<tr>
<td>Outside Work Area</td>
<td>1-5</td>
<td>PCM</td>
<td>800</td>
<td>2-5</td>
</tr>
</tbody>
</table>

1.08.06 Laboratory Testing

A. **The Environmental Consultant will collect PCM air samples and analyze them onsite so that verbal results are available within 24 hours. The samples will be held and may be analyzed by TEM if PCM results are greater than 0.1 f/cc.**

B. **Results of air monitoring shall be available at the jobsite.**

1.09 **Air Monitoring by Contractor**

1.09.01 **Worker Exposure Monitoring**

A. **Contractor shall comply with worker exposure monitoring requirements as described in Title 8 CCR 1529. Commencing with the first shift that respirators are worn, Contractor shall collect daily, representative, full-shift, breathing-zone air samples and daily 30-minute excursion samples during activities with the highest anticipated exposures.**

B. **Contractor shall provide copies of all of its worker exposure and any other air monitoring results to the Environmental Consultant within one week of completion of the work shift for which the monitoring was performed.**

1.10 **Personnel Protection**

1.10.01 **General**


B. **Contractor shall require that respiratory protection be used at all times where there is any possibility of disturbance of asbestos whether intentional or accidental.**
C. Contractor shall require that a respirator be worn by everyone in the work area at all times, regardless of activity, during a period that starts with any operation which could cause airborne fibers and dust and continues until the work area has been cleared for reoccupancy.

D. Do not allow the use of single-use, disposable, or quarter-face respirators for any purpose.

1.10.02 Fit Testing

A. **Initial Fitting:** At minimum, provide qualitative fit testing using irritant smoke of respiratory protection during a respiratory protection course of training and then at least annually thereafter. Fit types of respirators that will actually be worn by each individual including powered air purifying respirators. Allow an individual to use only those respirators for which the worker has been trained and fitted.

B. **Each Wearing:** Require that each time an air-purifying respirator is put on, it be checked for fit with a positive and negative pressure fit check in accordance with the manufacturer's instructions or ANSI Z88.2 (1980). Require that each PAPR motor be flow checked before each use; document flow check results on the entry/exit log.

1.10.03 Type of Respiratory Protection Required

A. Workers shall wear, as a minimum, full-face, powered air purifying respirators equipped with HEPA cartridges while removing asbestos, performing preparation of the work area that may disturb asbestos or may result in airborne fiber concentrations above 0.01 f/cc for asbestos.

B. The outside team during waste load-out, workers placing waste in the disposal bin or off-loading waste at the landfill shall use half-face air purifying respirators equipped with HEPA cartridges as a minimum.

C. During encapsulation operations or use of other organic-based aerosols (e.g., spray glue or expanding foam), workers shall be provided with respirators equipped with organic vapor cartridges.

1.10.04 Air Purifying Respirators and Cartridges

A. **Powered air purifying respirators (PAPR) - full face mask:** Supply each worker with a PAPR assigned specifically to that worker. Require entire exterior housing of respirator including blower unit, filter cartridges, hoses, battery pack, face mask, belt, and cords to be washed each time a worker leaves the work area. Caution should be used to avoid shorting battery pack during washing. Provide an extra battery pack for each respirator so that one can be charging while one is in use.

B. **Air purifying respirators - half-face mask:** Supply a sufficient quantity of half-face respirators.

C. **Filter Cartridges:** Provide, at a minimum, HEPA-filters labeled with NIOSH and MSHA certification for "Radionuclides, Radon Daughters, Dust, Fumes, Mists including Asbestos-Containing Dusts and Mists." Supply a sufficient quantity of HEPA respirator filters approved for asbestos and lead, so that workers can change filters any time that flow through the facepiece decreases to the level that the manufacturer recommends filter replacement. Regardless of flow, require that filter cartridges shall be replaced after 40 hours of use. Require that HEPA elements in filter cartridges be protected from wetting during showering.
D. **Organic Vapor Protection:** Provide NIOSH and MSHA-approved organic vapor cartridges for workers engaged in operations which may result in exposure to organic vapors.

1.10.05 Protective Clothing

A. **Full Body Clothing:** Provide disposable full-body coveralls and disposable head covers, and require that they be worn by all workers in the work area. Provide a sufficient number for all required changes, for all workers in the work area. Workers shall assure that hoods covering their hair are worn in the work area at all times. Protective clothing may not be worn in lieu of street clothing outside the work area. Non-disposable-type protective clothing and footwear shall be left in the equipment room until the end of the asbestos abatement work.

B. **Eye Protection:** Eye protection shall be provided and worn as required by applicable safety regulations. Eye protection shall be worn at all times within the asbestos work areas during all phases of work: preparation, removal, cleanup, encapsulation, waste handling, etc. If appropriate, based on regulatory mandates, a full facepiece respirator may be worn to satisfy this requirement. Equipment shall conform with ANSI Z87.1-1979. Use of contact lenses with respiratory protection is prohibited.

C. **Head Protection:** Hard hats or other head protection shall be provided as required by applicable safety regulations. If worn, hard hats shall conform with ANSI Z89.1-1981, Class A or B. Provide head protection (hard hats) as required by DOSH for all workers. Label hats with same warning labels as used on disposal bags. Require hard hats to be worn at all times that work is progress that may potentially cause head injury, particularly demolition. Provide hard hats with plastic strap type suspension. Require hats to remain in the work area throughout the work. Thoroughly clean, decontaminate and bag hats before removing them from work area at the end of the work.

D. **Foot Protection:** Provide, at no cost, work boots with non-slip soles, and where required by DOSH, foot protectors, for all workers. Do not allow boots to be removed from the work area for any reason after being contaminated with asbestos-containing material. Thoroughly clean, decontaminate, and bag boots before removing them from work area at the end of the work. Non-slip footwear shall be provided to all abatement workers. Footwear shall conform to ANST Z411-1983. Class 75.

E. **Gloves:** Provide work gloves to all workers as required. Do not remove gloves from work area. Dispose of work gloves as contaminated waste at the end of work.

1.10.06 Visitor Clothing

A. The Contractor shall provide any authorized visitor, Consultant or other Contractors requiring access to the work area with protective clothing, headgear, eye protection, and footwear as described herein, and require such person to wear such equipment before permitting access to the work area.

B. The Contractor shall verify that each visitor has been trained, participates in a medical monitoring program, and has been fit tested prior to entering the work area.

1.11 Decontamination units

1.11.01 Full Containment Areas

Provide a personnel decontamination unit consisting of a changing or clean room, shower room airlocks and equipment room. Require all persons without exception to pass through this decontamination unit following completion of work shift. Decontamination unit must be configured so that water supply may be turned off at the source from a clean area.
A. Changing Room (clean room):

1. Provide a room that is physically and visually separated from the rest of the building for the purpose of changing into protective clothing. Locate so that access to work area from changing room is through shower room. Separate changing room from the shower room by a doorway sheet of polyethylene, triple-flapped.

2. Require workers to remove all street clothes in this room, dress in clean disposable coveralls, and don respiratory protection equipment. Do not allow asbestos-contaminated items to enter this room. Require workers to enter this room either from outside the structure dressed in street clothes, or naked from the showers.

3. Maintain floor of changing room dry and clean at all times. Do not allow overflow water from shower to wet floor in changing room.

4. Post information for all emergency phone numbers, notifications, and procedures.

5. Provide storage locker per employee where feasible.

6. All chambers must be kept in a clean and sanitary condition at all times. Accumulation of used materials, debris, and other non-sanitary conditions will not be permitted.

7. The clean room shall include an adequate supply of disposable bath towels of 2 feet x 3 feet in size.

B. Shower Room:

1. Shower waste shall be piped and filtered, dumping to the sanitary sewer system through an existing floor drain, slop sink, or standpipe sized to handle the expected pumped flow, but no smaller than 1-1/2 inch diameter for a single shower and 2 inch diameter for a dual assembly. The Contractor shall adequately pretest all drainage connections prior to use during the abatement to assure against possible overflowing and potential water damage. All drains within the work area shall be completely covered and sealed to prevent debris from falling into it.

2. All plumbing, fittings, and valves shall be properly checked prior to the Environmental Consultant work area preparation inspection. Plumbing equipment used in the work area or decontamination system shall be properly rated and connected for the intended use.

3. No garden hose thread fittings shall be permitted, unless first approved by the Environmental Consultant. Where evidence of leaks of such fittings are apparent, the Contractor shall replace such fittings with soldered or standard threaded fittings at no cost to Cal Poly’s Project Manager.

4. Provide a pre-fabricated shower unit, or a shower stall equipped and constructed as follows:

   a. **Shower Pan:** Provide one piece waterproof shower pan.
b. **Shower Walls:** Provide walls fabricated from rigid, impervious, waterproof material, either corrugated fiberglass roofing or equivalent. Structurally support as necessary for stability. An equivalent may be used with Cal Poly's Project Manager approval.

c. **Shower Head and Controls:** Provide a factory made shower head producing a spray of water which can be adjusted for spray size and intensity. Feed shower with water mixed from hot and cold supply lines. Arrange so that control of water temperature, flow rate, and shut-off is from inside shower without outside aid.

d. **Filters:** Provide cascaded filter units on drain lines from showers or any other water source carrying contaminated water from the work area. Provide units with disposable filter elements as indicated below. Connect so that discharged water passes primary filter and output of primary filter passes through secondary filter.

- Primary Filter – 20 microns.
- Secondary Filter – 5 microns
- Change filters as needed to prevent clogging, backup, spills and to maintain the required filtering efficiency.

e. **Hose Bib:** Provide heavy bronze angle type with wheel handle, vacuum breaker, and 3/4 inch National Standard male hose outlet.

f. **Sump Pump:** Provide totally submersible waterproof sump pump with integral float switch. Provide unit sized to pump two times the flow capacity of all showers or hoses supplying water to the sump, through the filters specified herein when they are loaded to the extent that replacement is required. Provide unit capable of pumping debris, sand, plaster or other materials washed off during decontamination procedures without damage to mechanism of pump. Adjust float switch so that a minimum of 3 inches remains between top of liquid and top of sump pan.

C. **Equipment or Dirty Room:**

1. Provide a room that is physically and visually separated from the work area, shower room, and rest of building for the purpose of storing equipment and removing and storing disposable clothing prior to entering shower room. Construct using black or frosted polyethylene sheeting, as necessary, at least 6-mil thick, to provide an airtight seal between the equipment room and the rest of the building. Locate so that access to work area from shower room is through equipment room. Separate equipment room from work area by a triple-flapped polyethylene sheet doorway.

2. Required workers to remove all disposable clothing, work gloves and boots, eye protection, and hard hat in this room prior to entering shower room. Respirator shall remain in place while worker is in this room.

3. Maintain floor of equipment room as clean as possible and dry. Do not allow overflow of water from shower to wet floor in equipment room.

4. Provide a container to dispose of disposable clothing and an area to store work boots and gloves and hard hats.
1.11.02 Mini-Enclosures

A. Mini-enclosures shall be constructed of rigid frames (either 2 by 4 construction or PVC tubing, as appropriate) and polyethylene sheeting, teetotal, or rigid Plexiglas sheets.

B. Enclosures shall consist of an abatement chamber or a decontamination chamber as described in 29 CFR 1926.1101. Alternatively, a single, mobile mini-enclosure may be used to perform a series of small abatement procedures within a regulated area and connected to a decontamination chamber.

C. Construction shall be done in accordance with the following requirements:

1. The enclosure should allow sufficient space for two workers to work efficiently and comfortably.

2. The enclosure shall be completely covered with two layers of 6-mil polyethylene sheeting or 1/4-inch-thick Plexiglas on wall and floor surfaces. Provide a Plexiglas observation window, minimum 12-inches by 12-inches, on each side of the isolation unit.

3. All joints of the sheeting shall overlap at least 12-inches and be sealed with duct tape. All Plexiglas joints shall be glued with appropriate cement and taped on exterior surface.

4. The interior walls and floor of the mini-enclosure must be lined with one layer of 6-mil polyethylene. The polyethylene must be removed at the conclusion of the abatement process to facilitate decontamination.

5. Entrance and egress from one chamber into the next or from the work chamber to the decontamination chamber shall be by way of a mating mechanism that provides leak-free attachment of the mobile isolation enclosure to the decontamination chamber, decontamination unit, or airlock assembly, as applicable.

6. Negative pressure, as evidenced by the inward bowing of the enclosure walls and entrance flap, will be maintained inside the mobile isolation enclosure for removal during the entire work process.

1.11.03 Construction

A. Ceiling: Critical barriers must be installed around all penetrations in the concrete deck above the sheetrock ceiling and around all ductwork. The critical barriers can not be installed until the sheetrock ceiling is removed.

B. Walls: Construct airtight walls using polyethylene sheeting, at least 6-mil thick. Attach to existing building components or to a temporary framework.

C. Floors: Use a minimum of two layers of 6-mil polyethylene sheeting to cover floors in the equipment, shower (underneath shower pan), and changing rooms. Provide an additional layer in the equipment room as needed to prevent accumulation of asbestos or lead debris. Roll one layer of plastic from equipment room into work area as needed to prevent accumulation of debris. Provide a minimum of two layers of plastic at all times. Use only clear plastic to cover floors.
D. **Doors:** Fabricated from three overlapping sheets. Secure the middle sheet on all four sides and provide an access slit. Configure so that sheeting overlaps adjacent surfaces. Weight sheets at bottoms as required so that they close quickly after being released. Door from changing room to building shall be as shown on drawings.

E. Alternate methods of providing decontamination facilities may be submitted to the Environmental Consultant for approval. Do not proceed with any such method(s) without written authorization of Environmental Consultant.

1.11.04 Cleaning of Decontamination Units

A. Clean debris and residue from inside of decontamination units on a daily basis or more frequently as necessary or as suggested by Environmental Consultant. Damp wipe or hose down all surfaces after each shift change. Clean debris from shower pans on a daily basis.

1.11.05 Equipment/Waste Load Out Decontamination Unit

A. Provide equipment decontamination unit, where applicable, with minimum three chambers separated by triple-flapped airlock. Three chambers shall consist of equipment room, washdown station and clean area.

B. Walls, ceilings, and floors shall consist of two layers of 6-mil polyethylene sheeting.

C. Rinsate from decontamination of waste containers and equipment shall be filtered and disposed as described above.

D. Flap systems must be installed between each chamber and at either end of the unit. Use two layers of heavy gauge plastic strips (“butcher flaps”) cut to completely seal the chamber and staggered to provide an adequate seal against excessive loss of negative pressure.

1.12 Differential Air Pressure Systems

A. Provide differential air pressure systems for each work area in accordance with Appendix J of the EPA's *Guidance for Controlling Asbestos-Containing Materials in Buildings*, EPA 560/5-85-024.

B. Differential air pressure shall be periodically monitored by the Environmental Consultant using a recording instrument provided by the Contractor, connected to an appropriate circular or strip chart recorder. The location of the pressure measurement tap shall be selected at the discretion of the Environmental Consultant.

C. Exhaust air may only be vented to the exterior of the building at locations approved by the Environmental Consultant, unless otherwise noted or directed. Such outlets shall not be near or adjacent to other building intake vents or louvers or at entrances to the building.

D. The work area shall have a minimum differential air pressure of -0.02 inches water gauge at all times, including removal, waste transfer through the decontamination assembly, and encapsulation of surfaces, etc. In order to account for fluctuations of the negative pressure, it will be necessary to aim for a much higher pressure differential at the outset to ensure no dipping of the pressure differential below -0.02 inches water gauge.
1.13 Waste Handling, Packaging, and Disposal
   A. The Contractor shall be responsible for determining the current applicable waste handling, transport, and disposal requirements. The Contractor must comply fully with these and all other U.S. Department of Transportation (DOT), EPA, state, and local regulations.
   B. Bulky asbestos-containing or contaminated waste such as plaster/lath debris which may penetrate polyethylene disposal bags must first be placed in a rigid cardboard box prior to placement in disposal bags.
   C. The Contractor shall document the disposal of asbestos wastes by completing a written Uniform Hazardous Waste Manifest or Non-Hazardous Waste Data Forms, as applicable.
   D. The Contractor shall separate and prepare asbestos and other waste so they will be acceptable to the designated asbestos landfill.

1.13.01 Waste Definition
   A. The following types of waste are expected to be generated during this project:
      1. Non-hazardous solid waste - This waste includes non-asbestos containing or non-contaminated demolition debris, or debris that has been sufficiently decontaminated as to be free of asbestos fibers.
      2. Hazardous asbestos waste - This waste includes asbestos-containing waste that is friable and contains greater than 1% asbestos by weight or volume as determined by PLM. This waste may also include waste contaminated by materials containing equal to or greater than 1% asbestos as described above.
      3. Other waste materials: Spray glue, foam, solvent and other materials brought to the site by the Contractor must be either removed by the Contractor for use on other projects at the conclusion of this project, or disposed of as hazardous waste by Contractor if residual liquid product remains in any container.

1.13.02 Waste Disposal Requirements
   A. Disposable equipment and supplies including but not limited to respirator HEPA cartridges, disposable clothing and used polyethylene and tape shall be disposed of as hazardous asbestos waste.
   B. Reusable equipment such as respirators, hard hats, neoprene safety boots, AFDs, and HEPA vacuums shall be thoroughly wet cleaned and decontaminated before removal from the work area.

1.13.03 Waste Labeling
   A. Asbestos Labeling
      1. Warning labels with waterproof print and permanent adhesive in compliance with DOSH, OSHA, EPA, and DOT requirements shall be affixed to or printed on all
hazardous friable asbestos waste bags, drums, and transfer containers. Where competing label requirements apply, select the most stringent requirement for compliance with this section. Warning labels shall be conspicuous, legible, and read as follows:

DANGER

CONTAINS ASBESTOS FIBERS
AVOID CREATING DUST
CANCER AND LUNG DISEASE HAZARD

RQ ENVIRONMENTALLY
HAZARDOUS SUBSTANCE
SOLID, NOS, (ASBESTOS)
9, UN3077, PGIII, NA2212

GENERATOR:________________
MANIFEST NUMBER:____________
LOCATION:________________
DISPOSAL SITE:_____________

ALSO, AFFIX: DOT DIAMOND LABEL WITH "9" AT THE BOTTOM

2. Warning labels with waterproof print and permanent adhesive in compliance with DOSH and OSHA requirements shall be affixed to or printed on all non-hazardous asbestos waste bags, drums, and transfer containers. Where competing label requirements apply, select the most stringent requirement for compliance with this section. Warning labels shall be conspicuous, legible, and read as follows:

DANGER

CONTAINS ASBESTOS FIBERS
AVOID CREATING DUST
CANCER AND LUNG DISEASE HAZARD

B. Other wastes

Standard hazardous waste warning labels with waterproof print and permanent adhesive in compliance with OSHA, EPA (40 CFR Section 262.31), and DOT (49 CFR Subpart E - Labeling) requirements shall be affixed to or printed on all waste bags, drums, and transfer containers. Where competing label requirements apply, select the most stringent requirement for compliance with this section. The Contractor shall specify the hazardous content of each container according to the result of each waste stream profile.

[END OF SECTION]
PART 2 - PRODUCTS, EQUIPMENT, AND SUPPLIES

2.01 General Requirements

A. The Contractor shall deliver all materials and equipment to the site in the original containers, packages, or bundles bearing the name of the manufacturer, and details for proper storage and usage.

B. All materials or equipment delivered to the site shall be unloaded, temporarily stored, and transferred to the work area in a manner which shall not interfere with operations of Cal Poly's Project Manager. Limited storage space shall be provided by Cal Poly at the work site. Confine operations at the site to the areas permitted under contract. Portions of the site beyond the established work areas shall not be disturbed. Conform to site rules and regulations affecting the work while engaged in project construction. Keep existing driveways and entrances serving the premises clear and available to Cal Poly and its personnel at all times. Do not use these areas for parking and storage of materials, and do not unreasonably encumber the site with materials and equipment. Confine stockpiling and location of materials and equipment to those areas designated by Cal Poly. If additional storage space is necessary, the Contractor shall obtain and pay for such storage off site. Lock cars, trucks and other motorized and mechanized equipment when parked or unattended so as to prevent unauthorized use. Do not leave such vehicles or equipment unattended while running or the ignition key in place, or accessible to unauthorized persons.

C. Unloading and temporary storage sites, and transfer routes, must be approved in advance by Cal Poly's Project Manager. Contractor must store materials and equipment offsite as there is very limited storage onsite.

D. Damaged or deteriorated materials may not be used and must be promptly removed from the premises. Material which becomes contaminated with asbestos shall be packaged and legally disposed of at the approved landfill.

E. All Contractor-furnished equipment, ladders, scaffolding, tools, etc., shall be reviewed for asbestos contamination by the Environmental Consultant prior to being brought to the worksite. Equipment scaffolding, tools, etc., not inspected by the Environmental Consultant shall be removed from the site immediately. All contamination caused by these items shall be cleaned immediately with the Contractor paying all repeat Consultant costs for required clearance, i.e., sampling, laboratory analysis of samples, and labor of the Environmental Consultant.

F. Contractor shall thoroughly decontaminate nondisposable equipment, especially leased items, prior to its removal from site.

2.02 Prohibited Products and Materials

A. The following products, materials, and constituents are prohibited from use on this project.

1. Ethylene glycol monomethyl ether
2. Dipropylene glycol methyl ether
3. Ethylene glycol
4. Formaldehyde
5. Methylene chloride
6. n-hexane
7. Isocyanates
8. Any chemical with a flash point less than 140°F.

B. The following tools and equipment are specifically prohibited for use on this project unless accepted in writing by the Environmental Consultant:

1. High or low pressure water blasting equipment for hosing of ductwork or work areas.

2. Gasoline, propane, diesel or other fuel powered equipment inside the building, unless previously approved in writing by Cal Poly’s Project Manager and the Environmental Consultant.

3. Equipment that creates excessive noise or vibration that would affect safety of the building or its occupants, or generate complaints from the occupants. No equipment shall exceed an A-weighted sound level of 85 dB as measured at 3 feet from the radiating source without written permission of the Environmental Consultant.

4. The use of powder-actuated fasteners is prohibited except at locations specifically permitted herein or as approved in writing by Cal Poly’s Project Manager. In the event where consent is given, the powder-actuated fastener gun shall be the low velocity piston-operated type with a charge such that the velocity of the fastener is 300 feet per second or less measured 78 inches from the nozzle of such a tool.

2.03 Water Service

A. Temporary Water Service Connections: Water connections to the existing potable water system shall be limited to one 3/4-inch pipe-size connection, and a maximum flow of 10 gpm each to the hot and cold water supply. Valves shall be temperature and pressure rated for operation of the temperatures and pressures encountered. After completion of use, connections and fittings shall be removed without damage or alteration to existing water piping and equipment. Leaking or dripping valves shall be piped to the nearest drain or located over an existing sink or grade.

B. All plumbing, fittings and valves shall be rated for the intended use: Timer controls shall be of the 7-day programmable type with a battery backup. Provide fittings as required to allow for connection to existing wall hydrants or spigots, as well as temporary water heating equipment, branch piping, showers, shutoff nozzles and equipment.

C. Water Hoses: Employ heavy-duty abrasion-resistant hoses with a pressure rating greater than the maximum pressure of the water distribution system to provide water into each work area and to each decontamination unit. Provide fittings as required to allow for connection to existing wall hydrants or spouts, as well as temporary water heating equipment, branch piping, showers, shutoff nozzles and equipment.

D. Hot Water Heater: The hot water supply must be adequate to allow 60 minutes of continuous usage while maintaining a water temperature of 110 to 120°F. Provide UL-rated, 40-gallon electric hot water heater as needed to supply hot water for the decontamination unit shower. Activate from 30-amp circuit breaker located within the decontamination unit subpanel. Provide with relief valve compatible with water heater operation; pipe relief valve down to drip pan on floor with Type L copper. Drip pan shall
be securely fastened to the hot water heater with bailing wire or similar material. Wiring of the hot water heater shall be in compliance with NEMA, NEC, and UL standards.

2.04 Electrical Service

   General: Comply with applicable NEMA, NEC, and UL standards and governing regulations for materials and layout of temporary electric service.

   A. Temporary Power: Provide service to decontamination unit subpanel with minimum 60-amp, 2-pole circuit breaker or fused disconnect connected to the designated electrical panel. Subpanel and disconnect shall be sized and equipped to accommodate all electrical equipment required for completion of the work.

   B. Voltage Differences: Provide identification warning signs at power outlets which are other than 110-120 volt power. Provide polarized outlets for plug-in type outlets, to prevent insertion of 110-120 volt plugs into higher voltage outlets. Dry type transformers shall be provided where required to provide voltages necessary for work operations.

   C. Ground Fault Protection: Provide all receptacle outlets within the work area with groundfault circuit interrupters, reset button and pilot light, for plug-in connection of power tools and equipment.

   D. Electrical Power Cords: Use only grounded extension cords; use "hard-service" cords where exposed to abrasion and traffic. Use single lengths or use waterproof connectors to connect separate lengths of electric cords, if single lengths will not reach areas of work.

   E. Lamps and Light Fixtures: Provide properly grounded general service incandescent lamps of wattage required for adequate illumination. Protect lamps with guard cages or tempered glass enclosures, where fixtures are exposed to breakage by construction operations. Provide exterior fixtures where fixtures are exposed to the weather or moisture.

2.05 First Aid

   Comply with governing regulations and recognized recommendations within the construction industry. At minimum, the onsite first aid kits will be sufficient for the numbers of workers onsite and will include, at minimum, the following:

   A. Various sizes and types of bandages

   B. Sterile sponges

   C. Tourniquet

   D. Eye patches

   E. Antiseptic wipes

   F. First aid cream

   G. Burn cream

   H. Disposable gloves
1. Eye irrigating solution
J. Aspirin or non-aspirin pain reliever
K. Scissors
L. Tweezers
M. Rescue blanket
N. First aid guide
O. First aid tape
P. Non-stick pads
Q. Cold/hot packs
R. Splints
S. Stretch gauze
T. Ammonia inhalants.

2.06 Fire Extinguishers

1. Provide dry-type 2-A:20-B:C, UL listed, fire extinguishers within each decontamination enclosure clean room(s) and equipment hold room(s) and within each work area as required by local ordinance but not less than one per every 3,000 square feet.

2. Distribute within the work area uniformly throughout, visibly indicating the location and securing as required to protect against unauthorized removal or damage.

3. Under no circumstances shall a dry chemical fire extinguisher be used for fire suppression within the confines of existing telephone equipment areas. Provide appropriate CO2 extinguisher in each electrical/telephone room.

2.07 Polyethylene Film

Polyethylene sheeting shall be flame retardant and approved and listed by the State Fire Marshal per Section 13121 and/or 13144.1 of the California Health and Safety Code. All polyethylene sheeting shall be 6-mil minimum thickness, unless otherwise specified. Polyethylene sheeting shall be sized to minimize the frequency of joints. Flame retardant polyethylene shall comply with National Fire Protection Association Standard 701 Small Scale Fire Test For Flame Resistant Textiles and Films with a flame spread rating of no greater than 5 and a smoke development rating of no more than 70 when tested in accordance with ASTM E-84 procedures.

2.08 Duct Tape

Tape, 2 inches or wider, shall be capable of sealing joints of adjacent sheet of polyethylene and shall attach polyethylene sheet to finished or unfinished surfaces of similar materials. Tape shall be capable of adhering under dry and wet conditions, including use of amended water.
2.09 Spray Adhesive and Cement

Provide spray adhesive in aerosol cans which is specifically formulated to stick tenaciously to polyethylene film. Spray cement shall not contain chlorofluorocarbons or hexane.

2.10 Spray Foam

Do not inject spray foam into fire resistive assemblies unless product has 2-hour fire rating and has been specifically approved by Cal Poly’s Project Manager.

2.11 Wetting Materials

For wetting prior to disturbance of ACM, use either amended water or a removal encapsulant. Wetting materials may only be applied using airless sprayers or hand pump sprayers.

A. Amended Water: Provide water to which a surfactant has been added. Use a mixture of surfactant and water which results in wetting of the ACM and retardation of fiber release during disturbance of the material equal to or greater than that provided by the use of 1 ounce of a surfactant consisting of 50 percent polyoxyethylene ester and 50 percent polyoxyethylene ether mixed with 5 gallons of water.

B. Removal Encapsulant: Provide a penetrating type encapsulant designed specifically for removal of ACM. Use a material which results in wetting of the ACM and retardation of fiber release during disturbance of the material equal to or greater than that provided by water amended with a surfactant consisting of 1 ounce of a mixture of 50 percent polyoxyethylene ester and 50 percent polyoxyethylene ether in 5 gallons of water.

2.12 Disposal Bags

Non-opaque, air and liquid tight, sealable polyethylene bags of 6-mil minimum thickness shall be used for waste disposal, label all containers as specified in Section 1.13.03.

2.13 Post-Removal Lock Down Encapsulant

Encapsulant materials shall be the bridging or penetrating type and shall conform to the following characteristics:

1. Encapsulants shall be water based. They shall not utilize an organic solvent in which the solid parts of the encapsulant are suspended.

2. Encapsulants shall not be flammable and shall not contain methylene chloride.

3. Encapsulants shall be combined with a tinting agent prior to application. The color and type of tinting agent shall be approved prior to application by Cal Poly’s Project Manager.

2.14 Airless Sprayer

Airless sprayer with the following minimum features: 120 volt, totally enclosed fan-cooled electric motor equipped with a 3-wire cord; gun safety lock to prevent accidental spraying; single pump control knob to adjust priming and pressure from 500 to 2,500 psi at a constant volume; stainless steel or tungsten carbide paint valves; replaceable in-line filter and hose; self-cleaning adjustable spray tip; and 0.25 to 0.50 gpm delivery.
2.15 Drums

Sealable drums of 30- or 55-gallon capacity shall be of fiber or metal with tightly fitting lids. The drums and bags shall be labeled in accordance with OSHA or U.S. EPA requirements, including the Generator I.D. Number or location identification, and shall be air and water tight. If previously used, fiber drums shall be food grade and shall be approved by the Environmental Consultant prior to their storage or use onsite.

2.16 Air Filtration Devices

Supply the required number of air filtration units to the site in accordance with these specifications. Each unit shall include the following:

A. **Cabinet**: Construction of steel or other durable materials able to withstand damage from rough handling and transportation. The width of the cabinet should be less than 30 inches to fit through standard-size doorways. Access to and replacement of all air filters shall be from intake end. Unit shall be mounted on casters or wheels.

B. **Fans**: Rate capacity of fan according to useable air moving capacity under actual operating conditions.

C. **HEPA Filters**: The final filter shall be the HEPA type. The filter media must be completely sealed on all edges with a structurally rigid frame.

1. A continuous rubber gasket shall be located between the filter and the filter housing to form a tight seal.

2. Each filter shall be individually tested and certified by the manufacturer to have an efficiency of not less than 99.97 percent when challenged with 0.3 µ diocetylphthalate (DOP) particles. Testing shall be in accordance with Military Standard Number 282 and Army Instruction Manual 136-300-175A. Each filter shall bear a UL586 label to indicate ability to perform under specified conditions.

3. Each filter shall be marked with: the name of the manufacturer, serial number, air flow rating, efficiency and resistance, and the direction of test air flow.

D. **Prefilters**: To protect the final filter by removing the larger particles, prefilters are required to prolong the operating life of the HEPA filter. Two stages of prefiltration are required. The first-stage prefilter shall be a low-efficiency type (e.g., for particles 10 µ or larger). The second-stage (or intermediate) filter shall have a medium efficiency (e.g., effective for particles down to 5 µ). Prefilters and intermediate filters shall be installed either on or in the intake grid of the unit and held in place with special housings or clamps.

E. **Instrumentation**: Each unit shall be equipped with a magnehelic gauge or manometer to measure the pressure drop across filters and indicate when filters have become loaded and need to be changed. A table indicating the useable air-handling capacity for various static pressure readings on the magnehelic gauge shall be affixed near the gauge for reference, or the magnehelic reading indicating at what point the filters should be changed, noting cubic feet per minute (CFM) air delivery at that point. Provide units equipped with an elapsed time meter to show the total accumulated hours of operation.

F. **Safety and Warning Devices**: The unit shall have an electrical (or mechanical) lockout to prevent fan from operating without a HEPA filter. Units shall be equipped with automatic shutdown system to stop fan in the event of a major rupture in the HEPA-filter or blocked air discharge. Warning lights are required to indicate normal operation, too high a pressure drop across the filters (i.e., filter overloading), and too low of a pressure drop (i.e., major rupture in HEPA-filter or obstructed discharge).
G. **Electrical components:** All electrical components shall be approved by the National Electrical Manufacturers Association (NEMA) and Underwriter's Laboratories (UL). Each unit shall be equipped with overload protection sized for the equipment. The motor, fan, fan housing, and cabinet shall be grounded.

2.17 Barrier Construction

Only fire-rated wood or sheetrock shall be used.

2.18 Lumber

Use only kiln-dried fire retardant lumber and plywood in accordance with ASTM D245.

[END OF SECTION]
PART 3 EXECUTION

3.01 Work Area Preparation

3.01.01 General

A. Completely isolate the work area from other parts of the building so as to prevent asbestos dust or debris from passing beyond the isolated area. Should the work area or the area beyond the work area become contaminated as a consequence of the work, clean the area in accordance with the procedures indicated in Section 3.09, Work Area Decontamination. Perform all such required cleaning or decontamination at no additional cost to Cal Poly.

B. Place all tools, scaffolding, staging, etc. necessary for the work in the area to be isolated prior to erection of plastic sheeting temporary enclosure.

C. Post appropriate DOSH, "Proposition 65," and Health and Safety Code 25915-25924 caution signs at all locations where exposure to airborne asbestos fibers may exceed prevalent levels.

D. The Environmental Consultant will approve all enclosures before abatement can begin.

3.01.02 Protect Heating, Ventilation, and Air Conditioning (HVAC) System

A. Contractor shall protect supply and return ducts in the work areas from potential contamination by sealing with polyethylene sheeting, duct tape, etc. as needed.

3.01.03 Control Access

Warning signs in accordance with Title 8 CCR 1529 shall be displayed on the clean side of the decontamination unit/mini-containment and other access points. Signs shall be posted at a distance sufficiently far away from the work area to permit an employee or visitor to read the sign and make necessary protective measure to avoid exposure.

3.01.04 Preparation of Water Sources

A. Contractor shall make all necessary connections to Cal Poly's Project Manager designated water sources.

B. Contractor shall make the necessary connections to the wastewater lines for disposal of filtered wastewater.

C. The Contractor shall identify and post the locations of emergency water shutoff valves.

3.02 Full Containment Work Areas

3.02.01 Establish Differential Air Pressure

A. General: Provide fully operational negative pressure systems supplying a minimum of one air change every 15 minutes. Determine the volume in cubic feet of the work area by multiplying floor area by ceiling height. Determine total ventilation requirement in cubic feet per minute (cfm) for the work area by dividing this volume by the air change rate.

B. Testing the System: Test negative pressure system before any asbestos-containing material is wetted or removed. After the work area has been prepared, the decontamination facility set up, and the exhaust unit(s) installed, start the unit(s). Demonstration of the operation and testing of the negative pressure system to Cal Poly's Project Manager will include, but not be limited to, the following:
1. Plastic barriers and sheeting move lightly in toward work area,

2. Curtain of decontamination units move lightly in toward work area,

3. Noticeable movement of air through the decontamination unit. Use smoke tube to demonstrate air movement from clean room to shower room, from shower room to equipment room, and from equipment room to work area,

4. Minimum pressure differential readings of -0.02 inches of water gauge obtained at each critical barrier.

5. Additional Negative Air Machines may be necessary to maintain –0.02 inches of water pressure differential during ceiling break-outs until critical barriers are installed.

C. Use of System During Abatement Operations:

1. Start exhaust units before beginning work (before any asbestos-containing material is disturbed). Run units continuously to maintain a constant negative pressure until decontamination of the work area is complete. Do not turn off units at the end of the work shift or if abatement operations temporarily stop.

2. Do not shut down negative air system during encapsulation procedures, unless authorized by Cal Poly's Project Manager in writing.

3. Start abatement work at a location farthest from the exhaust units and proceed toward them. If an electric power failure occurs, immediately stop all abatement work and do not resume until power is restored and exhaust units are operating again.

4. At completion of abatement work, allow exhaust units to run to remove airborne particulate that may have been generated during abatement work and cleanup and to purge the work area with clean makeup air. The units may be required to run for a longer time after decontamination, to dry work area.

D. Dismantling the System: When a final inspection and work area clearance indicate that the area has been decontaminated, exhaust units may be removed from the work area. Before removing the units from the work area, remove and properly dispose of pre-filter, and seal intake vent with 6-mil polyethylene to prevent environmental contamination from the filters.

E. Exhaust: If necessary, the Contractor shall remove glass windows to enable exhaust of negative pressure system to outside of building. The Contractor shall replace windows at completion of abatement work. Exhaust air shall meet the requirements of HEPA Filtration as specified in “DEFINITIONS”. At no time shall exhaust air be ducted within 50 feet of the building’s supply air intakes.

3.02.02 Install Critical Barriers

A. Temporary critical barriers shall be constructed as follows:

1. Seal airtight all openings, including but not limited to corridors, doorways, ducts, grills, diffusers, drains, grates, and any other penetrations of the work areas, with
two layers of 6-mil polyethylene sheeting sealed with tape. Use caulking or an approved fire-stop, as appropriate.

2. At any time during the abatement activities after barriers have been erected, if visible suspect material is observed outside of the work area or if damage occurs to barriers, work in the work area except cleaning activities shall immediately stop and repairs shall promptly be made to barriers, and debris/residue shall be cleaned using appropriate HEPA vacuuming and wet cleaning procedures.

B Fire rated assemblies and penetrations of such shall be sealed to comply with the most stringent requirements of ASTM E-814, NBC, UBC and UL Standard 1479. Non-fire rated materials, such as rags and polyurethane foam, are not acceptable for use on fire rated assemblies, including floor/ceiling assemblies, electrical closets, etc.

3.02.03 Install Surface Barrier

A. Drop Cloth: At the Contractor's option, a polyethylene drop cloth may be installed on the floor of the work area.

3.03 Work Area Entry and Egress (Full Containment Work Areas)

3.03.01 Entry Procedures

Require all workers to adhere to the following entry procedures whenever entering the work areas.

A. All workers and authorized personnel (including authorized visitors) shall enter the Work Areas through the worker decontamination enclosure system.

B. All personnel who enter the Work Areas must sign the entry log, located in the Clean Room, upon entry and exit.

C. All personnel, before entering the Work Areas, shall read and be familiar with all posted regulations, personal protection requirements, including workplace entry and exit procedures.

D. All personnel shall proceed first to the Clean Room, remove all street clothes and appropriately don respiratory protection, disposable coveralls, head covering and foot covering. Hard hats, eye protection and gloves shall also be utilized if required. Clean respirator and protective clothing shall be provided and utilized by each person for each separate entry into the Work Areas.

E. Personnel wearing designated personal protective equipment shall proceed from the Clean Room through the shower room and equipment room to the Work Areas.

F. All personnel are to wear protective equipment and clothing, including respirators, suits and shoes, at all times while in the Work Areas.

3.03.02 Egress Procedures

Require all workers to adhere to the following personal decontamination procedures whenever they leave the work areas.

A. When shift is completed, remove disposable coveralls, disposable head covers, disposable footwear covers or boots, and any underclothes in the work areas.
B. Proceed to showers. Showering is mandatory. Care must be taken to follow reasonable procedures in removing the respirators and filters to avoid asbestos fibers while showering. The following procedure is required as a minimum:

1. Thoroughly wet body including hair and face. If using a powered air-purifying respirator (PAPR), hold blower unit above head to keep canisters dry. If using half-face APR or supplied air respirator thoroughly wet respirator before removal.

2. Complete wetting of hair, thoroughly wetting face, respirator, and all parts of the respirator except the blower unit and battery pack. Remove respirator and hold it away from face before starting to breath.

3. Carefully wash face piece of respirator inside and out.

4. If using PAPR, shut down in the following sequence, first cap inlets to filter cartridges, then turn off blower unit (this sequence will keep debris which has collected on the inlet side of filter from dislodging and contaminating the outside of the unit). Thoroughly wash blower unit and hoses. Carefully wash battery pack with wet rag. Be extremely cautious of getting water in the battery pack as this will short out and destroy battery. If using half-face APR dispose of cartridges after each decontamination event.

5. Shower and clean body completely with soap and water.

6. Rinse thoroughly.

7. Rinse shower room walls and floor prior to exit.

8. Proceed from shower to changing room and change into street clothes or new disposable clothing.

3.04 Mobile/Mini-isolation Work Areas

A. Mobile- or mini-isolation enclosures shall be constructed of rigid frames (either 2 by 4 framing or PVC tubing, as appropriate) and polyethylene sheeting or rigid Plexiglas sheets. Construction shall be done in accordance with the following requirements.

1. The enclosure should allow sufficient space for two workers to work efficiently and comfortably.

2. The enclosure shall be completely covered with two layers of 6-mil polyethylene sheeting or 1/4-inch-thick Plexiglas on wall and floor surfaces. Provide a Plexiglas observation window, minimum 12-inches by 12-inches, on each side of the isolation unit.

3. All joints of the sheeting shall overlap at least 12-inches and be sealed with duct tape. All Plexiglas joints shall be glued with appropriate cement and taped on exterior surface.

4. Entrance and egress from one chamber into the next or from the work chamber to the decontamination chamber shall be by way of a mating mechanism that provides leak-free attachment of the mobile isolation enclosure to the decontamination chamber, decontamination unit, or airlock assembly, as applicable.
5. Negative pressure, as evidenced by the inward bowing of the enclosure walls and entrance flap, will be maintained inside the mobile isolation enclosure for removal during the entire work process.

3.05 Daily Cleaning

A. Asbestos-containing debris and contaminated water shall be cleaned from the work area daily using wet methods and HEPA vacuuming equipment. Asbestos debris and water shall be placed in bags, sealed and either stored or removed from the work area.

B. Decontamination units and negative pressure enclosure areas shall be cleaned daily or as required more frequently to maintain acceptable clean room perimeter air sample total fiber counts. Clean room floor shall be kept dry and free of any waste. Clean room flaps shall be repaired or replaced whenever damaged or torn.

3.06 Waste Load-Out and Disposal

3.06.01 Waste Container Pass-out Procedures

A. Asbestos-contaminated waste material that has been containerized shall be transported out of the equipment decontamination unit through the waste container pass-out airlock.

B. Waste pass-out procedures shall utilize two teams of workers, an "inside" team and an "outside" team.

C. The inside team wearing appropriate protective clothing and respirators for inside the Work Area shall clean containers using HEPA vacuums and wet wiping techniques and place waste into a second clean container. Each container is then placed in the second chamber. No worker from the inside team may enter the second chamber.

D. The outside team, wearing appropriately assigned protective clothing and respirators, shall enter the airlock from outside the Work Area, and remove the bags, drums and other containers from the airlock to the outside. No worker from the outside team shall further enter the Work Area through this airlock.

E. The exit from this airlock shall be secured to prevent unauthorized entry.

3.06.02 Waste Transport and Disposal

A. Carefully transport containerized waste in lined rolling bins and load containerized waste on to lined and sealed trucks or other appropriate vehicles for transport to remote dumpster location. Exercise care before and during transport, to insure that no unauthorized persons have access to the material.

B. Do not store outside of the work area. Take bags from the work area directly to a sealed truck or dumpster. Do not store waste containers with free liquid in the work area.

C. Waste shall be weighed prior to disposal at the landfill and the weight will be entered onto the waste manifest.

D. At the burial site, carefully remove sealed plastic bags from the truck. If bags are broken or damaged, leave in the truck and clean entire truck and contents.

E. Retain receipts from landfill for materials disposed.

F. Properly complete all hazardous waste manifests and Land Disposal Restrictions Notification and Certification.
G. Require that workers engaged in placing waste in waste bin and off-loading waste at landfill wear half-face respirators equipped with HEPA cartridges and disposable clothing.

3.07 Work Area Decontamination

A. First Cleaning: Carry out a cleaning of critical barriers by use of damp-cleaning and mopping, and/or a HEPA filtered vacuum. Do not perform dry dusting or dry sweeping. Use each surface of a cleaning cloth one time only and then dispose of as contaminated waste. Continue this cleaning until there is no visible debris from removed materials or residue on plastic sheeting or other surfaces.

B. Visual Inspection: The Environmental Consultant will perform a complete visual inspection of the entire work area. When the area is visually clean and is free of dust, debris, or 3-dimensional residue, proceed to work area clearance. If not visually clean, Contractor shall repeat cleaning. Visual inspection is not complete until confirmed in writing, on the certificate of completion by the Environmental Consultant and Cal Poly's Project Manager.

C. Post-removal Encapsulation: Following the satisfactory completion of post-removal work area cleaning, and a passing visual inspection by the Environmental Consultant, the Contractor shall apply a lockdown encapsulant to all affected interior surfaces of the containment area. Application shall be conducted using an "air less" type sprayer.

3.08 Work Area Clearance Air Monitoring

3.08.01 General

A. This section describes the air monitoring to be conducted by the Environmental Consultant to clear the asbestos abatement work areas for reoccupation.

B. The cost and fees for re-cleaning, clearance sample collection and analysis, the Environmental Consultant's project management and monitoring and other costs if the initial visual inspection and clearance monitoring event for a particular work area does not satisfy the clearance standard shall be paid by the Contractor.

C. Contractor shall allow approximately 36 hours from completion of the visual inspection until receipt of work area clearance results via TEM - AHERA analysis.

3.08.02 Release Criteria

Work area clearance is achieved when:

A. The average concentration of asbestos on the 5 samples collected in each work area does not exceed 70 asbestos structures per square centimeter by Transmission Electron Microscopy (TEM), AHERA Method as specified in 40 CFR 763, Subpart E, Appendix A.

3.09 Containment Removal

After the work area has achieved clearance, remove all equipment and materials.

3.10 Project Closeout

3.10.01 Description of Requirements
Project closeout is the term used to describe certain collective project requirements, indicating completion of the Work, that are to be fulfilled near the end of the Contract time in preparation for final acceptance of the Work by Cal Poly’s Project Manager.

3.10.02 Prerequisites to Completion

A. **General:** Complete the following before requesting Cal Poly’s Project Manager to inspect for certification of completion, either for the entire work or for portions of the work. Include list of known exceptions.

1. Attain work area clearance criteria
2. Complete the Certificate of Visual Inspection
3. Complete punch-list items.

[END OF SECTION]
WORKER ACKNOWLEDGMENT FORM
Asbestos Abatement
Building 60- Crandall Gym- Structural Upgrade
San Luis Obispo, California

TO: ___________________________ DATE: ___________________________

1. In consideration of my employment by ________________, in conjunction with the removal and disposal of asbestos or other work in potentially or contaminated work area(s), the undersigned does hereby acknowledge, warrant, represent, covenant, and agree as follows:

(a) I acknowledge and understand that I have been or will be employed in connection with the removal of, disposal of, or other work in asbestos contaminated work areas, and I acknowledge that I have been advised of and I understand the dangers inherent in handling asbestos and breathing asbestos dust, including, but not limited to, THE FACT THAT ASBESTOS CAN CAUSE ASBESTOSIS AND IS A KNOWN CARCINOGEN AND CAN, THEREFORE, CAUSE VARIOUS TYPES OF CANCER.

(b) I acknowledge and understand that ANY CONTACT WITH ASBESTOS, WHETHER IT CAN BE SEEN OR NOT, MAY CAUSE ASBESTOSIS AND VARIOUS FORMS OF CANCER, WHICH MAY NOT SHOW UP FOR MANY YEARS, and I covenant and agree faithfully to take all precautions required of me.

(c) I knowingly assume all risks in connection with potential exposure of asbestos and I do hereby covenant not to sue, and to release and forever discharge, California Polytechnic State University, the Environmental Consultant (McKenna Environmental), any independent testing laboratories or engineers employed by California Polytechnic State University, the Environmental Consultant, and all of their directors, officers, employees, nominees, personal representatives, affiliates, successors, and assigns for, from and against any and all liability whatsoever, at common law or otherwise, except rights which the undersigned may have under the provision of the applicable workmen's compensation laws. Except as specifically set forth herein I hereby waiver and relinquish any and all claims of every nature which I now have or may have or claim to have which are in any way, directly or indirectly, related to exposure to asbestos.

(d) I hereby warrant and represent that I have not been disabled, laid-off, or compensated in damages or otherwise, because of the disease of asbestosis, or any other cancer disease.

(e) I represent that I can read the English language, or that I have had someone read this instrument to me, and that I understand the meaning of all the provisions contained herein.

Name (please print): _________________________________________________

Signature: _________________________________________________________

Social Security Number: _____________________________________________
# PROJECT WORK AREA CONTAINMENT
## INITIAL INSPECTION CHECKLIST AND CERTIFICATION
### Asbestos Abatement
#### Cal Poly –Building 60- Crandall Gym
#### Structural Upgrade
#### San Luis Obispo, California

<table>
<thead>
<tr>
<th>Work Area Location</th>
<th>Circle One</th>
<th>Comment</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. DOSH warning labels posted at each entrance to work area</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>2. Critical barriers installed per specification (minimum two layers of 6-mil polyethylene or plywood)</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>3. Primary and Secondary barriers installed per specifications</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>4. Electrical system locked out, tagged out</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>5. Temporary power ground fault interrupted</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>6. All openings to HVAC system sealed</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>7. Decontamination unit constructed per specification (including viewport)</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>8. Hot water, towels, soap, shampoo available</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>9. Effluent filtered to maximum 5 microns and properly disposed</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>10. Differential pressure as specified</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>11. Circular chart recorder in place</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>12. AFDs properly installed and exhausted (Not adjacent to intakes)</td>
<td>Yes</td>
<td>No</td>
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**Job Site Posting/Documentation**

<table>
<thead>
<tr>
<th></th>
<th>Yes</th>
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<tbody>
<tr>
<td>1. DOSH Notification</td>
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<tr>
<td>2. SLOCAPCD Notification</td>
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<tr>
<td>3. Revisions Posted</td>
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PROJECT WORK AREA CONTAINMENT
INITIAL INSPECTION CHECKLIST AND CERTIFICATION
Asbestos Abatement
Cal Poly – Building 60- Crandall Gym
Structural Upgrade
San Luis Obispo, California

(continued)

<table>
<thead>
<tr>
<th>Safety Equipment</th>
<th>Circle One</th>
<th>Comment</th>
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<tbody>
<tr>
<td>1. First Aid Kit</td>
<td>Yes</td>
<td>No</td>
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<tr>
<td>2. Fire Protection As Specified</td>
<td>Yes</td>
<td>No</td>
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<tr>
<td>3. Eye Wash Bottle</td>
<td>Yes</td>
<td>No</td>
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<tr>
<td>4. Fire Blanket</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>5. Emergency Egress Marked and Accessible</td>
<td>Yes</td>
<td>No</td>
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</table>

AFD Summary

<table>
<thead>
<tr>
<th>Serial No.</th>
<th>Location</th>
<th>Exhausted To</th>
<th>Date of Last DOP Test</th>
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Contractor hereby certifies that he has inspected the work area and has found that the work area containment including the decontamination units and differential air pressure system have been constructed or installed and are operating as specified and in accordance with applicable regulations.

Signature: ____________________________________________ Date: ____________

Print name: ____________________________________________

CONTRACTOR SHALL NOT INITIATE ASBESTOS REMOVAL ACTIVITIES UNTIL THIS CERTIFICATION HAS BEEN COMPLETED.
ASBESTOS WASTE LOG
Asbestos Abatement
Cal Poly –Building 60- Crandall Gym
Structural Upgrade
San Luis Obispo, California

Project: Cal Poly –Building 60- Crandall Gym- Structural Upgrade
California Polytechnic State University
San Luis Obispo, California

Contractor: 

<table>
<thead>
<tr>
<th>Waste Type</th>
<th>Date Waste Removed from Site</th>
<th>Manifest Number</th>
<th>Quantity (Cubic Yards)</th>
<th>Approx. Net Weight (Pounds)</th>
<th>Hauler</th>
<th>Disposal Fee</th>
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Exhibit D.2
Page 56 of 60
LAND DISPOSAL RESTRICTIONS NOTIFICATION AND CERTIFICATION
Asbestos Abatement
Cal Poly – Building 60- Crandall Gym
Structural Upgrade
San Luis Obispo, California

The waste identified on manifest number _______________________ and bearing the California Waste 151 is subject to land disposal restrictions contained in Title 22, California Code of Regulations (CCR), Article 40. The waste meets the definition of a treated hazardous waste pursuant to Health and Safety Code (H&SC) Section 25179.3(1)(2), which states that waste is considered treated if the waste does not contain any substances above the Soluble Threshold Limit Concentrations (STLC) values established in Title 22, CCR, Article 11; and the waste is not prohibited from land disposal as provided in H&SC Section 25179.6.

(Waste Analysis is attached for these wastes, where available.)

As required by Title 22, CCR, Article 40, the following certification is made for these restricted wastes:

I certify under penalty of law that I personally have examined and am familiar with the waste through analysis and testing or through knowledge of the waste to support this certification that the waste complies with the treatment standards specified in Title 22, CCR, Division 4, Chapter 30, Article 41. I believe that the information I submitted is true, accurate and complete. I am aware that there are significant penalties for submitting a false certification, including the possibility of fine and imprisonment.

______________________________  __________________________
(print name)  (date)

______________________________
(signature)

______________________________
(print title)

______________________________
(company name)
CERTIFICATE OF VISUAL INSPECTION
Asbestos Abatement
Cal Poly – Building 60 - Crandall Gym
Structural Upgrade
San Luis Obispo, California

The Contractor hereby certifies that a qualified representative has visually inspected the work area (all surfaces including pipes, beams, ledges, walls, ceiling and floor, decontamination unit, plastic sheet, etc.) and has found no dust, debris or residue.

Area of Visual Inspection: ____________________________________________________________

By: ___________________________ Date: ____________________
    (print name)

___________________________
    (signature)

___________________________
    (print title)

___________________________
    (company name)

A qualified representative of McKenna Environmental has accompanied the Contractor on his visual inspection and verifies that this inspection has been thorough and believes that the Contractor's certification above is a true and honest one. Exceptions to this statement are noted below on the punch list. Each exception has been corrected as of the date below.

By: ___________________________ Date: ____________________
    (print name)

___________________________
    (signature)

Punch List

[ ] _______ Date: _______
[ ] _______ Date: _______
[ ] _______ Date: _______
[ ] _______ Date: _______
[ ] _______ Date: _______
[ ] _______ Date: _______
[ ] _______ Date: _______
[ ] _______ Date: _______
[ ] _______ Date: _______
[ ] _______ Date: _______
[ ] _______ Date: _______
CERTIFICATE OF ABATEMENT COMPLETION FORM
Asbestos Abatement
Cal Poly –Building 60–Crandall Gym
Structural Upgrade
San Luis Obispo, California

TO: California Polytechnic State University

FROM: McKenna Environmental

PROJECT: Cal Poly –Building 60–Crandall Gym- Structural Upgrade
California Polytechnic State University, San Luis Obispo, California

FLOOR: ____________________________

WORK AREA: ____________________________

The work for the above referenced project has been completed in accordance with applicable requirements of the U.S. and California Environmental Protection Agencies, the Division Occupational Safety and Health, the San Luis Obispo Air Pollution Control District, Cal Poly, and other federal, state, county and local agencies. The work has also been performed in accordance with the applicable Contract Documents and each item on any previous punchlist has been completed or otherwise resolved and has been approved by Cal Poly’s Project Manager and Environmental Consultant.

By: ____________________________  ____________________________
   (Contractor’s Authorized Representative)  Date

   ____________________________
   (Printed Name)

   ____________________________
   (Title)

   ____________________________
   (Company Name)

McKenna Env. Representative
______________________________
   (signature)

______________________________
   (printed name)

Cal Poly Project Manager
______________________________
   (signature)

______________________________
   (printed name)
DISTRIBUTION

Technical Specifications for Asbestos Abatement
Cal Poly – Building 60- Crandall Gym- Structural Upgrade
California Polytechnic State University
San Luis Obispo, California

April 1, 2015

Rick McKenna
DOSH Certified Asbestos Consultant #92-0683
PIGEON DROPPING CLEAN UP WORK

1 GENERAL

1.1 GENERAL CONDITIONS AND RELATED WORK

1.1.1 The work generally consists in cleaning surfaces soiled with pigeon droppings.

1.2 DESCRIPTION OF WORK

1.2.1 Remove and dispose of, as pigeon dropping waste, all materials and debris on surfaces in the work area.

1.2.3 Disinfect surfaces after they are cleaned.

1.3 DOCUMENTS TO BE SUBMITTED

1.3.1 The Contractor shall submit prior to the start of cleaning work technical data sheets for safety products such as disinfectants and any other chemical or toxic product the Contractor plans to use in performing the work.

1.3.2 The Contractor shall submit a work plan documenting how they intend to perform the work.

2 MATERIALS

2.1 DISINFECTANT

2.1.1 The non-corrosive disinfectant recommended for cleaning up pigeon droppings is Foster 40-80, distributed by Hazmasters, or any other non-corrosive disinfectant that is EPA approved for fungus (Histoplasma capsulatum). The disinfectant must be submitted for approval to the Project Manager.

2.2 HIGH-EFFICIENCY (HEPA) FILTER

2.2.1 The filters used in vacuums shall be capable of filtering particles as fine as 0.3 microns at a minimum efficiency rate of 99.97%.

2.3 CONTAINER FOR PIGEON DROPPINGS

2.3.1 Sealed watertight bags shall be used as containers for pigeon droppings. The bags shall be at least 6 mil thick to carry waste away from the work area and shall be placed in a second bag at least 6 mil thick.

3 EQUIPMENT AND TOOLS

3.1 GENERAL

3.1.1 All equipment used for clean-up shall be free of any contaminated material when it arrives at the work site.
3.2 HEPA VACUUM

3.2.1 The air discharge of the vacuum shall be fitted with a high-efficiency filter as described in article 2.2 High-efficiency (HEPA) filter.

3.3 PROTECTIVE GARMENT

3.3.1 Single-use polyolefin garment, for example, a Tyvek garment, covering the body and head with elastic at the wrists and ankles.

3.4 RESPIRATORY PROTECTION

3.4.1 Respiratory protection shall be assured by a negative pressure air-purifying respirator with N/R/P100 filters with additional filtration as required for disinfectants.

4 EXECUTION

4.1 PROTECTION OF WORKERS

4.1.1 Prior to the start of any clean-up work, the Contractor shall provide workers with the following instructions:

4.1.1.1 the procedures for entering and leaving the work area;

4.1.1.2 the procedures for wearing, maintaining and storing respiratory protection equipment;

4.1.1.3 a reminder that eating, drinking, smoking and chewing gum are not permitted in the work area;

4.1.1.4 a reminder that a beard or moustache that could compromise the seal of respiratory equipment may not be worn.

4.1.2 Respiratory protection

4.1.2.1 Workers shall wear an air-purifying respirator as described in article 3.4 Respiratory protection of this document. They shall also master the procedures for using and maintaining the respirators according to the Occupational Health and Safety Regulations and the manufacturer’s recommendations.

4.1.2.2 At the end of each shift, all respiratory devices shall be washed with soap and water and disinfected with an alcohol-free product recommended by the manufacturer.

4.1.2.3 Temporary storage for respiratory protection equipment shall be located outside the work area.

4.1.3 Other protective equipment

4.1.3.1 The Contractor shall supply all the protective equipment required by the Safety Code for the construction industry, including, but not limited to, hard hats and non-skid rubber safety boots.
4.1.3.2 Every person required to work in the clean-up area shall wear a protective garment. The garment shall be treated as contaminated material and disposed of accordingly as described in article 4.4 *Removal of pigeon droppings and contaminated materials* at the end of each shift.

4.1.4 The **Contractor** shall ensure that the following procedures are followed by every person entering and leaving the work area.

4.1.4.1 Entering the work area:

4.1.4.1.1 put on the protective garment and proper respiratory equipment;

4.1.4.1.2 check the filter of the respirator and install a new one if necessary;

4.1.4.1.3 enter the work area.

4.1.4.2 Leaving the work area:

4.1.4.2.1 before leaving the work area, remove contaminated material from the protective garment using a HEPA vacuum or damp cloth;

4.1.4.2.2 after leaving the work area, remove the garment and place it in a waste receptacle designed for that purpose;

4.1.4.2.3 wash and disinfect the respiratory device.

4.2 **PROTECTION OF CAMPUS PERSONNEL**

4.2.1 The **Contractor** shall supply clean protective garments and two respiratory protection devices (similar to those used by workers) for the Project Manager.

4.2.2 The **Contractor** shall give the Project Manager instructions for using the protective garments and handling the respiratory protection equipment and the procedures for entering and leaving the work area.

4.3 **REMOVAL OF DROPPINGS AND CONTAMINATED MATERIAL**

4.3.1 The following measures aimed at eliminating the release of dust shall be taken by the **Contractor**:

4.3.1.1 dampen accumulations of dried droppings on all contaminated surfaces in the work area using a mister only; power washing is not permitted;

4.3.1.2 pick up the damp droppings with a shovel and place them in a double plastic bag or use an industrial vacuum fitted with a high-efficiency filter where the quantity is small;

4.3.1.3 dispose of all contaminated equipment with the bags of droppings; the vacuum and its parts shall be cleaned and disinfected (bleach solution) after each use;

4.3.1.5 send the waste to a landfill.
4.4 DECONTAMINATION

4.4.1 Once the surfaces are approved by the Project Manager, decontaminate the soiled surfaces (concrete, metal, plastic, etc.) as follows:

4.4.1.1 apply Foster 40-80 (or equivalent) disinfectant using a mop, a sponge or a sprayer and allow it to sit;

4.4.1.2 exposed workers shall wear a half mask with cartridges equipped with appropriate filters.

4.5 FINAL PHASE

4.5.1 Conduct a visual inspection with the Project Manager present in order to have the decontamination work approved.

4.5.1.1 At least a respiratory device shall be worn while conducting the inspection.

4.5.1.2 Once all the decontamination work has been completed and approved, the Contractor shall ensure that all debris and equipment on the site are disposed of in containers designed for that purpose.

5 QUALITY CONTROL

5.1 GENERAL

5.1.1 The Project Manager is responsible for conducting any inspections deemed necessary to evaluate the conformity of the work to the requirements of this appendix and the applicable regulations.

5.1.2 Additional inspection costs to the Owner resulting from non-conformity of the Contractor’s work shall be assumed by the Contractor.

5.2 TYPES AND FREQUENCY OF INSPECTIONS

5.2.1 Inspections will be conducted as specified by the Project Manager to ensure that the removal work is being carried out in accordance with the requirements of this document and the applicable regulations.

5.2.3 A final inspection described in article 4.6 Final phase will also be conducted at the direction of the Project Manager in order to approve the disinfecting work and disposal of waste on the work site.