



# **Asbestos Management Plan (Operations and Maintenance Plan)**

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## **1. Program Description**

This University of California, Riverside (UCR) Asbestos Management Plan is to be implemented for the purpose of minimizing and/or eliminating the possibility of exposure to airborne asbestos fibers for UCR building tenants, the public using UCR buildings, and employees and maintenance workers. The UCR Asbestos Management Plan will remain in effect until all asbestos-containing materials (ACM) have been completely removed from all UCR facilities.

## **2. Scope and Authority**

The UCR Asbestos Management Plan is designed to minimize the possibility of accidental disturbance of asbestos-containing materials and to protect UCR workers and building occupants who must work around these materials. The UCR Asbestos Management Plan includes the following items:

- A written plan,
- An asbestos survey request system,
- An abatement notification system to control activities that might disturb ACM,
- A periodic, routine in-house monitoring or inspection system,
- A provision for training campus employees who will come in contact with the materials and, if necessary,
- A medical screening program for campus custodial and maintenance employees who work around the materials and,
- A thorough documentation and recordkeeping system.

The UCR Asbestos Management Plan follows a systematic approach to document UCR's intentions and to provide an inter-disciplinary approach to the protection of the building occupants and employees. Therefore, technical assistance and recommendations are obtained from relevant parties including Environmental Health & Safety (EH&S), legal counsel, the building staff, Facilities Services (including maintenance and custodial personnel), The Planning, Design & Construction department, an architectural/engineering or consulting firm, medical advisor, and possibly contractors and other periodically employed journeymen who may work in the campus facilities.

UCR Environmental Health & Safety has the primary authority for Asbestos Containing Materials (ACM) at all UCR facilities. EH&S implements and enforces

the Asbestos Management Plan (Operations and Maintenance Plan) under the Environmental Health & Safety Program.

A competent person from EH&S, or a competent person provided with temporary authority by EH&S, or any regulatory agency having jurisdiction, has the authority to stop any asbestos related work activity or abatement operations at any time he or she determines that conditions are unsafe or are not within specifications and applicable regulations. Stop Work Orders may be issued for, but shall not be limited to the following:

- Excessive airborne fibers inside and outside work area (>0.1 f/cc outside work area).
- Breaks in barriers.
- Loss of negative air pressure.
- Asbestos related work being performed without regulatory required certifications and permits.
- Any other situation where conditions are not within specifications and/or applicable regulations.

### 3. Definitions

**Abatement Project Notification Form:** Electronic form located on the UCR EH&S website that is to be completed and submitted to EH&S prior to performing any Asbestos Related Work Activity on the UCR campus or UCR satellite locations. This form can be found at the following link: <https://ehs.ucr.edu/safety>

**Accredited Inspectors:** At a minimum, Must be AHERA-trained as a Building Inspector/Management Planner. (EH&S or EH&S approved representative).

**AHERA:** Asbestos Hazard Emergency Response Act.

**Asbestos:** Includes chrysotile, amosite, crocidolite, tremolite asbestos, anthophyllite asbestos, actinolite asbestos, and any of these minerals that have been chemically treated and/or altered.

**Asbestos-Containing Material (ACM):** Any material containing more than 1% asbestos.

**Asbestos-Containing Construction Material (ACCM):** Any manufactured construction material which contains more than one tenth of 1 percent asbestos by weight.

**Asbestos Coordinator:** The person that exercises control over management and recordkeeping functions relating to UCR in which activities covered by this program take place. This person is an EH&S employee.

**Asbestos Operations and Maintenance (O&M) Team:** A group of AHERA trained UCR Facilities Services Employees that conduct routine repair and maintenance operations where ACM, including TSI and surfacing ACM and PACM, is likely to be disturbed. This O&M work is only to be accomplished on ACM or PACM areas that measure less than 100 square feet. O&M team members with Class III training may only disturb ACM or PACM no greater than the amount which can be contained in one standard sized glove bag or waste bag which shall not exceed 60 inches in length and width.

**Asbestos Related Work Activity:** Any activity that disturbs asbestos containing materials (ACM) and may release asbestos fibers into the air. This includes, but is not limited to, the removal, renovation, restoration, maintenance, construction, salvage, clean-up, encapsulation, and enclosure of ACM.

- **Class I Asbestos Work** - Means activities involving the removal of thermal system insulation or surfacing ACM/PACM
- **Class II Asbestos Work** - Means activities involving the removal of ACM which is neither TSI or surfacing ACM. This includes, but is not limited to, the removal of asbestos-containing wallboard, floor tile and sheeting, roofing and siding shingles, and construction mastics.
- **Class III Asbestos Work** – Means repair and maintenance operations, where ACM, including TSI and surfacing ACM and PACM, is likely to be disturbed.
- **Class IV Asbestos Work** - Means maintenance and custodial activities during which employees contact but do not disturb ACM or PACM and activities to clean up dust, waste and debris resulting from Class I, II, and III activities.

**California Asbestos Certified Abatement Contractor:** Any contractor who engages in asbestos-related work as defined in Labor Code Section 6501.8. They must be registered and licensed through the Asbestos Contractors' Registration Unit (ACRU), which is a subsidiary of the California Department of Safety and Health (DOSH). California Asbestos Certified Abatement Contractors must also be certified or licensed through the Contractor's State License Board (CSLB).

**Certified Asbestos Consultant:** An asbestos consultant certified by the Division of Occupational Safety and Health (DOSH) pursuant to 8 CCR 1529, Section (q).

**Competent Person:** Means, in addition to the definition in 29 CFR 1926.32 (f), one who is capable of identifying existing asbestos hazards in the workplace and selecting the appropriate control strategy for asbestos exposure, who has the authority to take prompt corrective measures to eliminate them, as specified in 29 CFR 1926.32(f): in addition, for Class I and Class II work who is specially trained in a training course which meets the criteria of EPA's Model Accreditation Plan (40 CFR part 763) for supervisor, or its equivalent and, for Class III and Class IV work, who is trained in a manner consistent with EPA requirements for training of local education agency maintenance and custodial staff as set forth at 40 CFR 763.92 (a)(2).

**Deferred Action:** In conjunction with a well-defined Asbestos Management Plan, the actual removal, encapsulation or enclosure is postponed to a later date. It should be noted that under this alternative the exposure potential remains and the potential liability to UCR should be considered when deferring action.

**Encapsulation:** Asbestos-containing material coated with a penetrating or bridging sealant to prevent release of asbestos fibers into the air.

**Enclosure:** Asbestos-containing material physically separated from the building environment by means of erecting permanent airtight barriers.

**Excursion Limit (EL):** Employers shall ensure that no employee is exposed to an airborne concentration of asbestos in excess of 1.0 fiber per cubic centimeter of air as averaged over a sampling period of thirty (30) minutes.

**Friable:** Any material that, when dry, can be crumbled, pulverized, or reduced to powder by hand pressure.

**Miscellaneous Material:** Building materials on structural components, structural members or fixtures, such as floor and ceiling tiles, and does not include surfacing material or thermal system insulation material. Miscellaneous ACM is any miscellaneous material that contains more than 1% asbestos.

**Non-friable:** A material which, when dry, may not be crumbled, pulverized, or reduced to powder by hand pressure.

**Operations and Maintenance:** Specific procedures and practices developed for the interim control of asbestos containing materials in buildings until they are removed.

**Permissible Exposure Limit (PEL):** Employers shall ensure that no employee is exposed to an airborne concentration of asbestos in excess of 0.1 fibers per

cubic centimeter of air as an eight (8)-hour time-weighted average (TWA), as defined by OSHA.

**Pre-Renovation/Demolition Hazardous Materials Building Survey Request**

**Form:** Electronic form located on the UCR EH&S website that is to be completed and submitted to EH&S prior to performing any construction, demolition or renovation activities on the UCR campus or UCR satellite locations. This form can be found at the following link: <https://ehs.ucr.edu/safety>

**Presumed Asbestos Containing Material (PACM):** Means thermal system insulation and surfacing material found in buildings, vessels, and vessel sections constructed no later than 1980.

**Regulated Area:** Means an area established by the employer to demarcate areas where Class I, II, and III asbestos work is conducted, and any adjoining area where debris and waste from such asbestos work accumulate; and a work area within which airborne concentrations of asbestos, exceed or can reasonably be expected to exceed the permissible exposure limit.

**Removal:** The asbestos-containing material is removed from UCR buildings by qualified professionals and, if applicable, state licensed and trained personnel and disposed of by burial in a site specifically approved for asbestos.

**Staff Support Personnel:** Personnel include employees from Facilities Services staff or contractors acting on behalf of UC Riverside.

**Surfacing Materials:** Material that is sprayed, troweled-on or otherwise applied to surfaces (such as acoustical plaster on ceilings and fireproofing materials on structural members, or other materials on surfaces for acoustical, fireproofing, and other purposes). Surfacing ACM is surfacing material that contains more than 1% asbestos.

**Thermal System Insulation:** Any material applied to pipes, fittings, boilers, breeching, tanks, ducts or other structural components to prevent heat loss or gain. ACM Thermal System Insulation is TSI that contains more than 1% asbestos.

## 4. Responsibilities

4.1 The UCR EH&S Asbestos Coordinator shall implement the asbestos control program. Duties shall include:

4.1.1 Documenting, updating, publicizing, and disseminating the UCR Operations and Maintenance Plan.

- 4.1.2** Maintaining the documented inventory of asbestos-containing materials and their locations.
- 4.1.3** Managing the asbestos assessments, surveys and abatement plans.
- 4.1.4** Participating in the development, review and monitoring of program designs, and/or repair and alteration projects to ensure compliance with applicable standards and regulations when asbestos-containing materials are to be disturbed.
- 4.1.5** Managing and/or performing periodic asbestos inspections.
- 4.1.6** Implementing/coordinating Class III and IV asbestos training and training refreshers as needed.
- 4.1.8** Ensuring asbestos programs are documented and recordkeeping requirements are in compliance with regulations.
- 4.1.9** Recordkeeping for all Asbestos Workers/Supervisors and Accredited Inspectors training records and medical surveillance records.
- 4.1.10** Ensuring that recommended procedures and safety precautions are followed before authorizing construction and maintenance work involving ACM.
- 4.1.11** Managing and responding to Pre-Renovation/Demolition Hazardous Materials Building Survey Request form submittals.
- 4.1.12** Managing and responding to Abatement Project Notification form submittals.
- 4.1.13** Coordinating with PD&C, Facilities Services, and EH&S Hazardous Waste Staff for disposal of ACM.
- 4.1.14** Selecting, approving, and managing list of Certified Asbestos Consultant vendors with UCR service agreements.
- 4.1.15** Coordinating with all UCR approved Certified Asbestos Consultant vendors assigned to each asbestos related work activity and abatement project.
- 4.1.16** Developing/approving the scope for all bulk and air sampling protocols related to asbestos surveys and asbestos related work activities.
- 4.1.17** Conducting/coordinating personal exposure monitoring for UCR Facilities Services Asbestos Operations and Maintenance Team in order to provide negative exposure assessments and ensure compliance with the Cal OSHA Permissible Exposure Limit (PEL) and Excursion Limit (EL).

## 4.2 Planning Design & Construction (PD&C) – Duties Shall include:

**4.2.1** Advance partnering with the Asbestos Coordinator on all Asbestos Related Work activities, construction, demolition, and renovation.

**4.2.2** Completing and submitting the Pre-Renovation/Demolition Hazardous Materials Building Survey Request form no less than 25 working days prior to starting any construction, demolition or renovation activities (see EH&S ACM Notification Flow Chart for PD&C below)

**4.2.3** Completing and submitting the Abatement Project Notification form no less than 15 working days prior to starting any Asbestos Related Work Activities (see EH&S ACM Notification Flow Chart for PD&C below).

**4.2.4** Ensure that California Asbestos Certified Abatement Contractors hired to perform asbestos related work activities provide the following documents to EH&S prior to the start of work:

- South Coast Air Quality Management District (SCAQMD) Notification of Demolition or Removal form 1403 for each job with the anticipated removal of 100 square feet or more of ACM.
- Cal OSHA Asbestos Notification Form

**4.2.5** Ensure that California Asbestos Certified Abatement Contractors have the following documents on the job site during the performance of any asbestos related work activities:

- Laboratory analytical results and accompanying asbestos survey report prepared by CAC and reviewed and approved by EH&S.
- All employee exposure monitoring records collected from competent person for the duration of the job.
- Waste disposal forms (Non-Hazardous Waste Manifest or Uniform Hazardous Waste Manifest) ready to be signed by EH&S Representative after completion of project.
- State of California Asbestos Certified Abatement Contractor DOSH License
- State of California Department of Health Services Hazardous Waste Haulers Contractor Registration. (DTSC).
- Employees EPA-AHERA Training Certifications.
- Employees Respirator Fit Test Certifications.
- Employees Medical Surveillance Clearance Certifications.
- South Coast Air Quality Management District Permits to Operate HEPA filters exhausts, negative air & vacuum equipment with

number, capacity and location of those filters exhausts as well as permits to operate floor buffers, if applicable.

- Safety Data Sheets (SDS's) documentation for all required materials used.
- A Written Safety Plan which describes:
  - Warning signs.
  - Label waste containers.
  - Emergency means of egress from working areas.
  - Security for preventing unauthorized entry into the working area.
  - Emergency fire and accident prevention and notification response procedures (including decontamination procedures), and personnel responsible for these items.
  - Equipment and methods the California Asbestos Certified Abatement Contractor will use to efficiently communicate between personnel inside and outside work areas.
  - Assessment and control of the California Asbestos Certified Abatement Contractor's actions impact upon the Owner's life safety systems (e.g. smoke detectors, sprinkler systems, etc.) All other safety precautions, to prevent damage, injury or loss to: employees, materials and/or equipment on the abatement project who may be affected thereby.

**4.2.6** Coordinate with EH&S for the disposal of all asbestos hazardous waste generated from asbestos related work activities.

**4.2.7** Ensure that SCAQMD Notification of Demolition or Removal form 1403 is updated/revised whenever there is a change in the amount of asbestos being disturbed during a demolition/remediation or abatement project or when the date of abatement changes.

#### **4.3** Facilities Services (FS) – Duties should include:

**4.3.1** Advance partnering with the Asbestos Coordinator on all Asbestos Related Work Activities, construction, demolition, renovation, maintenance, or equipment repair work (see EH&S ACM Notification Flow Charts for FS below).

**4.3.2** Completing and submitting the *Pre-Renovation/Demolition Hazardous Materials Building Survey Request* form no less than 25 working days prior to starting any planned construction, demolition or renovation activities (see EH&S ACM Notification Flow Chart for FS During Planned Renovation, Demolition or Abatement Projects, below).

**4.3.3** Completing and submitting the Abatement Project Notification form no less than 15 working days prior to starting any planned Asbestos Related Work Activities (see EH&S ACM Notification Flow Chart for FS During Planned Renovation, Demolition or Abatement Projects, below).

**4.3.4** Informing the Asbestos Coordinator when damage to ACM is observed or when debris needs to be cleaned up (see EH&S ACM Notification Flow Chart for FS below).

**4.3.5** Avoiding patch or repair of any damaged ACM until the Asbestos Coordinator has assessed the ACM.

**4.3.6** Partnering with the Asbestos Coordinator to Manage the UCR Facilities Services Asbestos Operations and Maintenance (O&M) Team:

- Ensure all O&M team training is current and in compliance with the Cal OSHA Asbestos Standard (8 CCR 1529).
- Procure and provide asbestos project supplies.
- Ensure that all employees who are, or may be reasonably expected to be, exposed to asbestos at or above the Permissible Exposure Limit (PEL) and/or Excursion Limit (EL), as well as employees that are required to use respiratory protection, participate in an annual medical examination in accordance with the Cal OSHA (Asbestos Standard - 8 CCR 1529 & Respiratory Protective Equipment Standard - 8 CCR 5144).
- Ensure Asbestos related PPE is always in good condition and replaced as needed.
- Ensure the Asbestos Coordinator is involved with the planning, scheduling, and oversight of all asbestos related work activities.
- Ensure the Asbestos Coordinator is involved with conducting personal exposure monitoring for all asbestos related work activities in order to provide negative exposure assessments and validate compliance with the Cal OSHA Permissible Exposure Limit (PEL) and Excursion Limit (EL).

**4.3.7** Work with the Asbestos Coordinator to perform routine inspections of all recorded ACM in order to periodically monitor the condition of the materials.

**4.3.8** Ensure that California Asbestos Certified Abatement Contractors hired to perform asbestos related work activities provide the following documents to EH&S prior to the start of work:

- South Coast Air Quality Management District (SCAQMD) Notification of Demolition or Removal form 1403 for each job with the anticipated removal of 100 square feet or more of ACM.
- Cal OSHA Asbestos Notification Form

**4.3.9** Ensure that California Asbestos Certified Abatement Contractors have the following documents on the job site during the performance of any asbestos related work activities:

- Laboratory analytical results and accompanying asbestos survey report prepared by CAC and reviewed and approved by EH&S.
- All employee exposure monitoring records collected from competent person for the duration of the job.
- Waste disposal forms (Non-Hazardous Waste Manifest or Uniform Hazardous Waste Manifest) ready to be signed by EH&S Representative after completion of project.
- State of California Asbestos Certified Abatement Contractor DOSH License
- State of California Department of Health Services Hazardous Waste Haulers Contractor Registration. (DTSC).
- Employees EPA-AHERA Training Certifications.
- Employees Respirator Fit Test Certifications.
- Employees Medical Surveillance Clearance Certifications.
- South Coast Air Quality Management District Permits to Operate HEPA filters exhausts, negative air & vacuum equipment with number, capacity and location of those filters exhausts as well as permits to operate floor buffers, if applicable.
- Safety Data Sheets (SDS's) documentation for all required materials used.
- A Written Safety Plan which describes:
  - Warning signs.
  - Label waste containers.
  - Emergency means of egress from working areas.
  - Security for preventing unauthorized entry into the working area.
  - Emergency fire and accident prevention and notification response procedures (including decontamination procedures), and personnel responsible for these items.
  - Equipment and methods the California Asbestos Certified Abatement Contractor will use to efficiently communicate between personnel inside and outside work areas.

- Assessment and control of the California Asbestos Certified Abatement Contractor's actions impact upon the Owner's life safety systems (e.g. smoke detectors, sprinkler systems, etc.) All other safety precautions, to prevent damage, injury or loss to: employees, materials and/or equipment on the abatement project who may be affected thereby.

**4.3.10** Coordinate with EH&S for the disposal of all asbestos hazardous waste generated from asbestos related work activities.

**4.3.11** Ensure that SCAQMD Notification of Demolition or Removal form 1403 is updated/revised whenever there is a change in the amount of asbestos being disturbed during a demolition/remediation or abatement project or when the date of abatement changes.

**4.3.12** Submit all Asbestos Workers/Supervisors and Accredited Inspectors training records and medical surveillance records to EH&S.

## **5. Specific Program Components**

### **5.1 WARNINGS AND NOTIFICATION**

The UCR Operations and Maintenance Plan has a provision for notifying UCR building occupants of the presence of asbestos-containing materials. Assembly Bill 3713 (i.e., The Connelly Bill) passed in California requires building owners to notify employees of the presence of asbestos in their work place.

EH&S notifies building occupants of the presence of asbestos in buildings on an annual basis by sending out a Campus Asbestos Notification Letter. The Asbestos Notification Letter is also posted on the EH&S website.

UCR personnel often contact EH&S to ask if a material contains asbestos in their building. EH&S reviews existing data, may collect a sample of the material and then notifies the building occupant of the results.

#### **5.1.1 CONTROLLED ACCESS AREAS**

Another method used for warning and notification of building occupants is the use of warning labels or stickers in controlled areas:

Definition: Controlled area stickers are for those areas generally accessed by custodians, maintenance workers or contractors but not by the general public or students. Usually, the entrance to these areas is kept locked to prevent unauthorized personnel from entering. The

sticker informs people that they are entering an area containing asbestos materials.

Purpose: The purpose of controlled area stickers is to inform workers, before they enter an area to perform any work, that their activities may disturb asbestos materials. The custodial staff, knowing that the area they are going to clean contains asbestos materials, will use proper techniques such as wet mopping and HEPA vacuuming. If a maintenance worker intends to work on equipment in a mechanical room, the sticker alerts the worker to the fact that he/she must find out if his/her work will disturb asbestos-containing materials. If this work includes removal or repair of asbestos-containing materials, the worker must obtain approval from the campus Asbestos Coordinator.

Placement: Controlled area stickers will be placed on all entrances to mechanical rooms, crawl spaces, attics, pipe chases, and pipe tunnels known to contain asbestos. In some cases, the entrance may be a regular door to a boiler room. But in other cases, the entrance may be a two-foot by two-foot panel accessing the bathroom pipe chase. The sticker should be placed on the door so it is visible and easily read.

The stickers will read: "*Danger—asbestos - may cause cancer - causes damage to lungs - authorized personnel only. Wear respiratory protection and protective clothing in this area.*"

## 5.2 TRAINING

Training is required for all employees who perform Class I through IV asbestos work. The training must meet the requirements of the Cal OSHA Asbestos Standard (8 CCR 1529) and the EPA Model Accreditation Plan (MAP). No untrained workers are to disturb any amount of asbestos. The following are the basic training requirements for the different types of asbestos work:

- Class I asbestos work involves the removal of TSI and surfacing ACM and presumed asbestos-containing material (PACM). Training for Class I work is either 32 hours (asbestos worker), or 40 hours (contractor/supervisor and function as a competent person). An annual 8-hour refresher course is required for both the worker and contractor/supervisor competent person level of training.
- Class II asbestos work involves the removal of ACM which is not thermal system insulation or surfacing material (Miscellaneous ACM). This includes the removal of asbestos-containing wallboard, floor tile and sheeting, roofing and siding shingles, and construction

mastics. Training for Class II work may be the same as for Class I work (asbestos worker or contractor/supervisor) or may be 8 hours of task specific training which includes hands-on training. A separate 12 hour course for flooring removal that complies with the Flooring Industry Settlement Agreement is also offered. An annual refresher is required for all workers.

- Class III asbestos work involves repair and maintenance operations where ACM, including TSI and surfacing ACM and PACM, may be disturbed. Training for Class III work is 16 hours with an annual 4-hour refresher course. The EH&S office coordinates this training on an annual basis.
- Class IV asbestos work involves maintenance and custodial activities during which employees contact, but do not disturb, ACM and PACM. Initial two-hour asbestos awareness training with an annual refresher is required for all custodial, maintenance, housekeeping and service personnel who work in buildings that contain asbestos. The EH&S Department offers this training on an annual basis.

### 5.3 MEDICAL SURVEILLANCE PROCEDURES

All employees who are, or may be reasonably expected to be, exposed to asbestos at or above the Permissible Exposure Limit (PEL) and/or Excursion Limit (EL), as well as employees that are required to use respiratory protection, must participate in an annual medical examination performed by a licensed physician which is provided at no cost to the employee at a reasonable time and place in accordance with the Cal OSHA Asbestos Standard (8 CCR 1529).

- Content of Exam: In addition to evaluating for asbestos-related disease, the physician shall evaluate for fitness to wear personal protective equipment including respirators. Medical and work history plus completion of the required Initial Medical Questionnaire for pre-placement or initial examination or the Periodic Medical Questionnaire subsequent examination found in 8 CCR 5208 Appendix D.
- For employees that are exposed at or above the asbestos PEL and/or EL for 30 or more calendar days in the year, the following is required: Complete examination with emphasis on the respiratory system, cardiovascular and the gastrointestinal system. Chest x-rays shall consist of 14" x 17" AP and right and left anterior oblique interpreted by a NIOSH certified B-reader on an ILO rating form.

Spirometry to include forced vital capacity (FVC) and forced expiratory volumetric 1 second (FEV 1) performed by a technician certified by NIOSH in pulmonary function testing.

- Physician Report: Shall contain the results of the examination without diagnosis disclosure unrelated to occupational exposure to asbestos. It shall also contain recommended limitations on the employee or upon the use of personal protective equipment; the physician's opinion as to whether the employee has any detected medical conditions that would place the employee at an increased risk of impairment from exposure to asbestos.

## 5.2 PERIODIC INSPECTIONS

An inspection of all recorded ACM will be conducted periodically to monitor the condition of the materials. This effort will help ensure that any ACM damage or deterioration is detected, and the proper preventive or corrective action is taken. It is an effort that is used to recognize a situation and avoid potential exposure. The inspection will comprise of a visual and physical evaluation of the ACM to determine its current condition and physical characteristics. Visual records may be used to enhance the value of the inspections. The inspection shall be conducted by the Asbestos Coordinator or others appointed by the Coordinator who must be an Accredited Inspector or a Certified Asbestos Consultant. The inspection must be done routinely in order to maintain consistency and continuity.

Inspection Process: The Accredited Inspector or CAC should:

- Inspect all friable ACMs and non-friable ACMs for damage or deterioration routinely and report findings to the Asbestos Coordinator.
- Note, assess, and document any changes in the ACM's condition. Photographs of damaged materials should be taken for recordkeeping purposes.
- Investigate the source of debris found by custodial or other staff support personnel.
- The Staff Support Personnel (such as Facilities Services staff) and building occupants should inform the Asbestos Coordinator when damage to the ACM is observed or when debris needs to be cleaned up

## 5.4 ASBESTOS MANAGEMENT PROCEDURES/ WORK PRACTICES

The UCR Facilities Services O&M Team and California Asbestos Certified Abatement Contractor Personnel engaged to perform asbestos related work activities are required to follow the elements of this section, as applicable, in addition to all applicable federal, state, and local regulations, standards, and codes governing ASBESTOS MANAGEMENT.

The ASBESTOS MANAGEMENT procedures are designed to structure a program for handling specific types of asbestos-containing materials (ACM) and activity areas. The purpose of the program is to minimize the exposure potential of a specific type of ACM or activity area by addressing and organizing special procedures to: 1) clean up and properly dispose of asbestos fibers previously released, 2) repair damaged ACM, 3) prevent further disturbance or damage of the ACM, and 4) monitor conditions until removal.

**Interim repair and control measures for damaged materials involving less than 3 square or linear feet of ACM can be accomplished by the Facilities Services Asbestos O&M Team. Any ACM disturbance greater than 3 square or linear feet is considered a “major fiber release” and any repair work, control measures, or abatement activities must be accomplished by California Asbestos Certified Abatement Contractors.**

Most areas with ACM can be cleaned by wet methods and/or HEPA-vacuuming methods. As different circumstances arise, modifications may be necessary.

Regardless of the circumstances, prudent safety precautions should be used. Cleaning and/or removal of ACM should never be performed without a NIOSH-approved respirator and wet methods of cleaning or removal.

Asbestos related work activities shall not take place unless authorized by EH&S. All removal work shall be performed by AHERA-trained personnel wearing respirators that provide adequate protection from airborne asbestos fiber concentrations existing in the work area.

The following paragraphs (5.4.1 – 5.4.5) describe interim repair and control techniques to be employed by qualified personnel when asbestos-containing materials are damaged or deteriorated. Because of the high costs associated with these techniques, they shall generally be considered as temporary control techniques rather than alternatives to removal. When these repair practices are conducted, workers should:

- Wear full-body disposable protective clothing and a powered air-purifying respirator or, at a minimum, a half-face, dual cartridge

respirator equipped with HEPA filters and NIOSH-approved for protection from asbestos fibers.

- Isolate the work area with barriers and warning signs.
- Seal off all HVAC ducts, windows and any other sources of air circulation through the work area.
- Pre-clean the work area with wet-cleaning and/or HEPA-vacuuuming techniques. Vacuum all the carpets throughout the building with a High Efficiency Particulate Air (HEPA)-filtered vacuum cleaner; NEVER use a conventional cleaner. HEPA-vacuum all curtains, books and other stationary items. Discard vacuum bags and filters in sealed plastic bags according to EPA regulations for disposal of asbestos waste. Mop all non-carpeted floors with wet mops. Wipe all shelves and other horizontal surfaces with damp cloths. Use a mist spray bottle to keep cloths damp. Discard cloths and mop heads in sealed plastic bags according to EPA regulations for disposal of asbestos waste.
- Place a layer of six-mil polyethylene plastic on the floor beneath the item to be repaired/replaced. The plastic should be one foot in length and width for each foot above the floor where the work is to be conducted, but never less than six feet by six feet. Where this work area is confined by walls, workers should extend the plastic up the wall at least one foot and seal the top edge with duct tape.
- Thoroughly dampen all debris with amended water from the cleanup and repair work, seal the debris in two six-mil polyethylene bags (or two layers of six-mil plastic sheeting), label properly per OSHA, EPA and DOT and coordinate with EH&S Hazardous Waste Staff for proper disposal.

When performing the repair work, workers should take precautions to minimize disturbance of the ACM.

After performing the repair work, workers should clean the floor plastic with wet and/or vacuuming techniques and dispose of with the same procedures accorded asbestos-containing material.

#### **5.4.1 PIPE INSULATION AND MUDDERED JOINT FITTINGS**

Work area preparation and cleaning shall be in accordance with the requirements previously listed in this section.

Repair minor dents and tears in the protective jacket with duct tape or bridging encapsulant with glass cloth reinforcement. Duct tape should only be used for temporary control until the bridging encapsulant is

installed. If the glove bag removal is not feasible, wrap uncovered pipe insulations with protective jackets consisting of bridging encapsulant with glass cloth reinforcement. Wrap moderately water damaged or contact damaged pipe insulations with new protective jackets, or reinsulate affected areas. The source of the water damage must be eliminated. More severely damaged pipe insulations may require removal by glove or gross containment techniques. Request authorization for removal from EH&S.

Monitor the condition of the asbestos-containing materials and non-asbestos-containing materials. This will greatly assist in routine monitoring and detection of potential ACM deterioration.

#### **5.4.2 FIREPROOFING**

Work area preparation and cleaning shall be in accordance with the requirements listed previously.

On a temporary basis, the exposure potential of fireproofing can be reduced by constructing airtight walls and ceilings around the ACM, enclosing the exposed area. This process will disturb the ACM through contact, vibration, etc., so the same isolation and control techniques used for removal projects must be incorporated into this type of work. An enclosure project would generally be applicable only to a small area. Enclosure of a large area often requires such effort and expense that removal is a more cost effective and practical solution.

Fireproofing may be sprayed with an encapsulant if the fireproofing is well bonded to its substrate and is less than one inch thick. This is to be considered a temporary control measure. As with enclosure, isolation and control techniques used for removal projects must be incorporated into encapsulation work. Test results have shown that, due to the impact of the spray, spraying with an encapsulant can entrain into the air more fibers than a gross wet removal project.

If the fireproofing has localized water damage and/or is becoming delaminated in a small area, spot removal of the damaged material may be necessary. If the remaining fireproofing is well bonded to its substrate, it can then be encapsulated; however, the source of the water must be eliminated.

If work involves hanging ducts, conduit or pipes, etc., from surfaces sprayed with fireproofing, the asbestos material around the area may

have to be abated prior to the work. Avoid disturbing fireproofing whenever possible.

#### **5.4.3 ACOUSTICAL PLASTERS (SPRAYED-ON OR TROWELED-ON)**

Work area preparation and cleaning shall be in accordance with the requirements listed previously.

If the plaster is in good condition, with no delamination, deterioration or signs of water damage, it should be left alone but carefully monitored for signs of change in status.

If the plaster is water damaged and/or is becoming delaminated from the substrate, it should be removed rather than encapsulated. Encapsulation can make the condition worse by increasing the rate of delamination. The source of the water damage must be eliminated. Request authorization for removal from EH&S.

Avoid disturbing acoustical plaster by not hanging plants, drilling holes in the ceiling, and moving furniture, etc. Work area preparation and cleanup for all types of maintenance and repair work shall be in accordance with the requirements listed previously in this section. When the plaster must be disturbed, mist the affected area with amended water (soap and water solution) and use a HEPA vacuum to collect fibers being released.

#### **5.4.4 MISCELLANEOUS/CEMENTITIOUS MATERIALS**

Fiber released from cementitious (nonfriable) materials is normally extremely low unless these materials are broken, drilled, sanded, or otherwise disturbed. During disturbance, the materials should be thoroughly dampened followed by a thorough HEPA equipped vacuuming to collect fibers being released. Follow the work area preparation and cleanup requirements previously listed. Some examples of cementitious and miscellaneous nonfriable materials that may contain asbestos are:

- Floor tiles
- Tile underlay
- Wall plasters
- Transite pipes
- Scratch coats
- Drywall plaster

- Transite paneling
- Linoleum
- Exterior siding
- Roofing felts
- Friction products (brake linings, clutches, etc.)

#### **5.4.5 ASBESTOS CONTAINING CEILING PANELS**

Work area preparation and cleaning shall be in accordance with the requirements listed previously.

UCR personnel in Facilities Services may sometimes displace asbestos-containing ceiling panels. Only adequately trained personnel equipped with proper respiratory protection (issued by EH&S) and disposable coveralls should displace these panels. Asbestos-containing ceiling panels should be carefully lifted out of the T-bar and slid gently over on top of the adjacent ceiling panels without breaking or tipping the panel. Caution should be taken to make sure that the ceiling panel covers are not damaged by abrasion. If pieces of the ceiling panel fall to the ground, carefully wipe the area with a damp cloth and place large debris of the panel in a sealed plastic bag and notify EH&S to pick up the debris for proper disposal.

Do not move asbestos-containing ceiling panels in occupied areas. When moving asbestos-containing ceiling panels in small enclosed offices, ask the occupant to leave the space until the required work is complete.

If a large number of ceiling panels are damaged during the controlled displacement, notify EH&S so that a proper cleanup is conducted and air monitoring can be performed if necessary.

#### **5.5.6 TAPPING/TYING-IN TO ASBESTOS CEMENT PIPE “HOT TAP”**

“Hot Tapping” is an alternative procedure that makes a new pipeline connection while the pipeline remains in service. The hot tap procedure involves attaching a branch connection and valve on the outside of an operating pipeline, and then cutting out the pipe-line wall within the branch and removing the wall section through the valve.

Since asbestos-containing cement pipes (i.e. Transite pipe) typically consist of 15 to 20 percent asbestos, OSHA considers “Hot Tap”

operations an asbestos related work activity. For each “Hot Tap” operation, a competent person from EH&S, or a competent person provided with temporary authority by EH&S, must evaluate the work and classify the asbestos operation in accordance with Cal OSHA standard 8 CCR 1529 to determine if the activity is considered to be Class II or Class III asbestos related work, based on project scope and amount of ACM removed (i.e. more or less than on glove bag of ACM). Once the class of asbestos work is determined, the competent person will decide the appropriate work practices, controls, and PPE required for each “Hot Tap” operation.

In order for a contractor or employee performing a “Hot Tap” operation to be exempt from regulatory training and registration requirements pertaining to “asbestos related work”, as defined by Cal OSHA (8 CCR 1529 & 8 CCR 341.6 through 341.14), the contractor or employee performing the operation must be trained and certified by an asbestos cement pipe training program which is approved by the Division of Occupational Safety and Health (DOSH) in accordance with Cal OSHA (8 CCR 341.17).

Prior to performing any “Hot Tap” operations, contractors and/or employees performing the work must provide EH&S, or a competent person with temporary EH&S authority, with proof of training to perform Class II or Class III asbestos related work in accordance with Cal OSHA (8 CCR 1529), or a valid training certificate from a DOSH approved asbestos cement pipe training program with a Division course approval number in accordance with Cal OSHA (8 CCR 341.17).

## **6. Regulatory Requirements**

All work shall be performed in strict accordance with all applicable federal, state, and local regulations, standards, and codes governing asbestos abatement, and any other trade work done in conjunction with the abatement.

The most recent editions of any relevant regulation, standard, document, or code shall be in effect. Where conflict among the requirements or with these specifications exists, the most stringent requirements shall apply.

Such requirements include, but are not limited to, the following:

- **U.S. Department of Labor, Occupational Safety and Health Administration (OSHA)**

- Title 29 of the Code of Federal Regulations, Part 1926 Safety and Health Regulations for Construction, Subpart Z Toxic and Hazardous Substances, Asbestos Construction Standard (29 CFR 1926.1101)
- Asbestos General Industry Standard (29 CFR 1910.1001)
- Personal Protective Equipment (29 CFR 1926, Subpart E)
- Hazard Communication (29 CFR 1910.1200)
- Specifications for Accident Prevention, Signs, and Tags (29 CFR 1910.145)
  
- **California Division of Occupational Safety and Health (Cal/OSHA)**
  - Title 8 of the California Code of Regulations, General Industry Safety Orders, Section 5208 - Asbestos Standard (8 CCR GISO 5208) and Construction 8 CCR 1529
  - Registration for Asbestos-Related Work (8 CCR 341.6 through 341.14)
  - Approval of Asbestos Cement Pipe Training and Asbestos Cement Pipe Course Providers for the Purpose of Employer Exemption from Registration Requirements (8 CCR 341.7).
  - Respiratory Protective Equipment Standard (8 CCR GISO 5144)
  - Hazard Communication Standard (8 CCR GISO 5194)
  - Accident Prevention Program (8 CCR GISO 3203)
  - Access to Employee Exposure and Medical Records (8 CCR GISO 3204)
  - Accident Prevention Signs (8 CCR GISO 6003)
  - Emergency Action Plan (8 CCR GISO 3220)
  - Fire Prevention Plan (8 CCR GISO 3221)
  - Electrical Safety Orders (8 CCR Chapter 4, Subchapter 5)
  - Construction Safety Orders (8 CCR Chapter 4, Subchapter 4)
  
- **U.S. Environmental Protection Agency (EPA)**
  - National Emissions Standard for Hazardous Air Pollutants (40 CFR 61, Subpart M - National Emission Standard for Asbestos §§61.140-61.157 Asbestos NESHAP)

- Toxic Substances Control Act Part 763 – Asbestos (40 CFR 763, Subpart E Asbestos-Containing Materials in Schools §§763.80-763.99)
- **South Coast Air Quality Management District (SCAQMD)**
  - Rule 1403 Asbestos Emissions from Demolition/Renovation Activities
- **American National Standards Institute (ANSI)**
  - Practices for Respiratory Protection (ANSI Standard Z88.2-1980)
  - Fundamentals Governing the Design and Operation of Local Exhaust Systems (ANSI Z9.2-79)
- **National Fire Protection Association (NFPA)**
  - National Electric Code (No. 70-1984)
  - Fire Extinguishers (No. 10-1984)
- **California Department of Toxic Substances Control**
  - Environmental Health Standards for the Management of Hazardous Waste (Title 22, California Code of Regulations, Division 4.5)

## 7. Reporting Requirements

Notification to regulatory agencies is generally made by the California Asbestos Certified Abatement Contractor. Notification to affected UCR personnel is facilitated by the Asbestos Coordinator. All notifications shall be performed in strict accordance with all applicable federal, state, and local regulations, standards, and codes governing asbestos abatement, and any other trade work done in conjunction with the abatement.

The most recent editions of any relevant regulation, standard, document, or code shall be in effect. Where conflict among the requirements or with these specifications exists, the most stringent requirements shall apply.

Such requirements include, but are not limited to, those listed in section 6.0.

## 8. Information and External References

### 8.1 Recordkeeping

The original of all documents pertaining to this ASBESTOS MANAGEMENT Plan will be kept on file at EH&S. The standard documents to be kept on file will be:

- UCR ASBESTOS MANAGEMENT Plan - Original
- Reports of Survey and Laboratory Analyses - Original
- Records of Areas Removed or Encapsulated
- Disposal Records Verification
- Asbestos worker training records and medical surveillance.

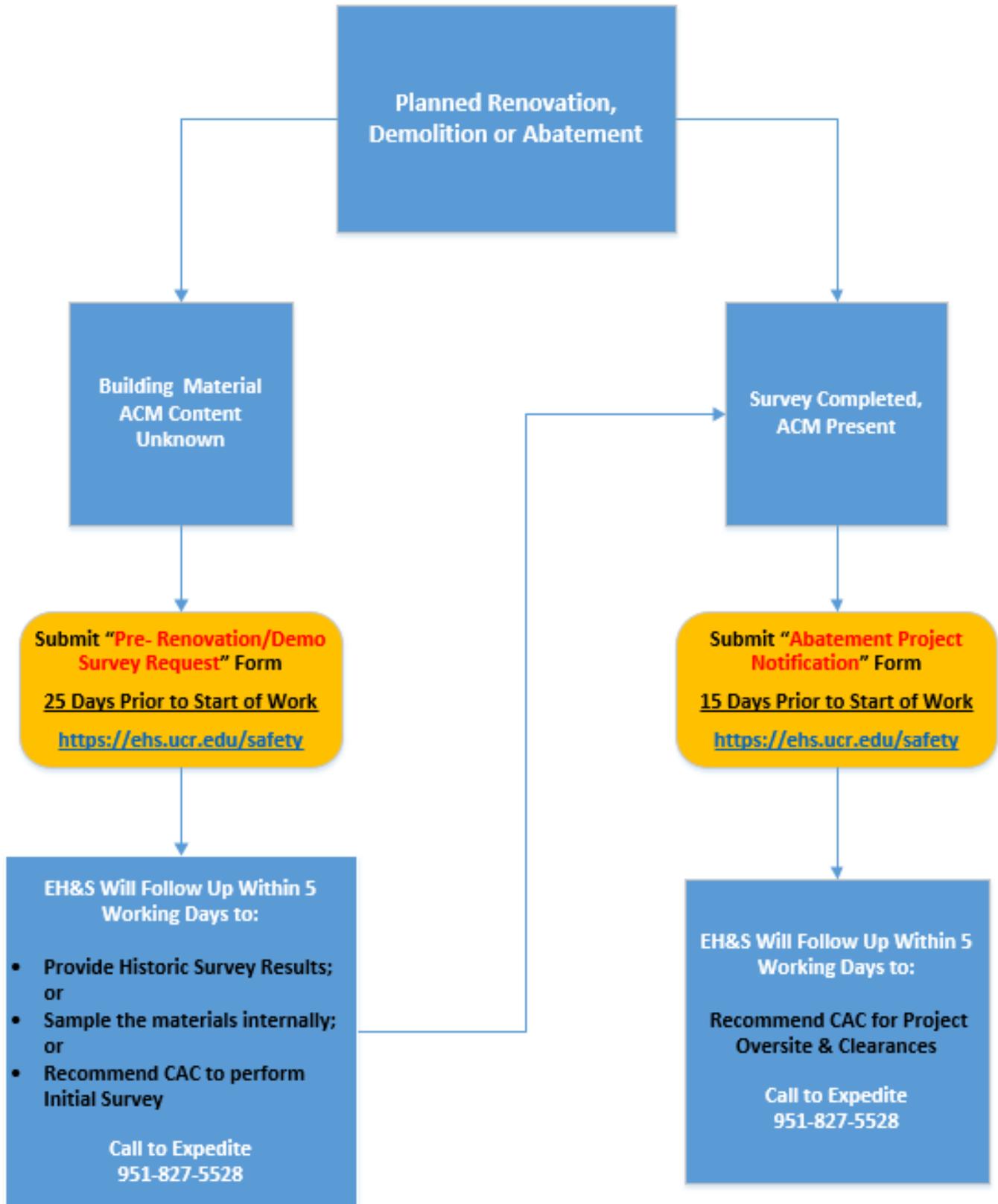
## **8.2 Summary of ACM on Campus**

Consult with EH&S for the most updated summary.

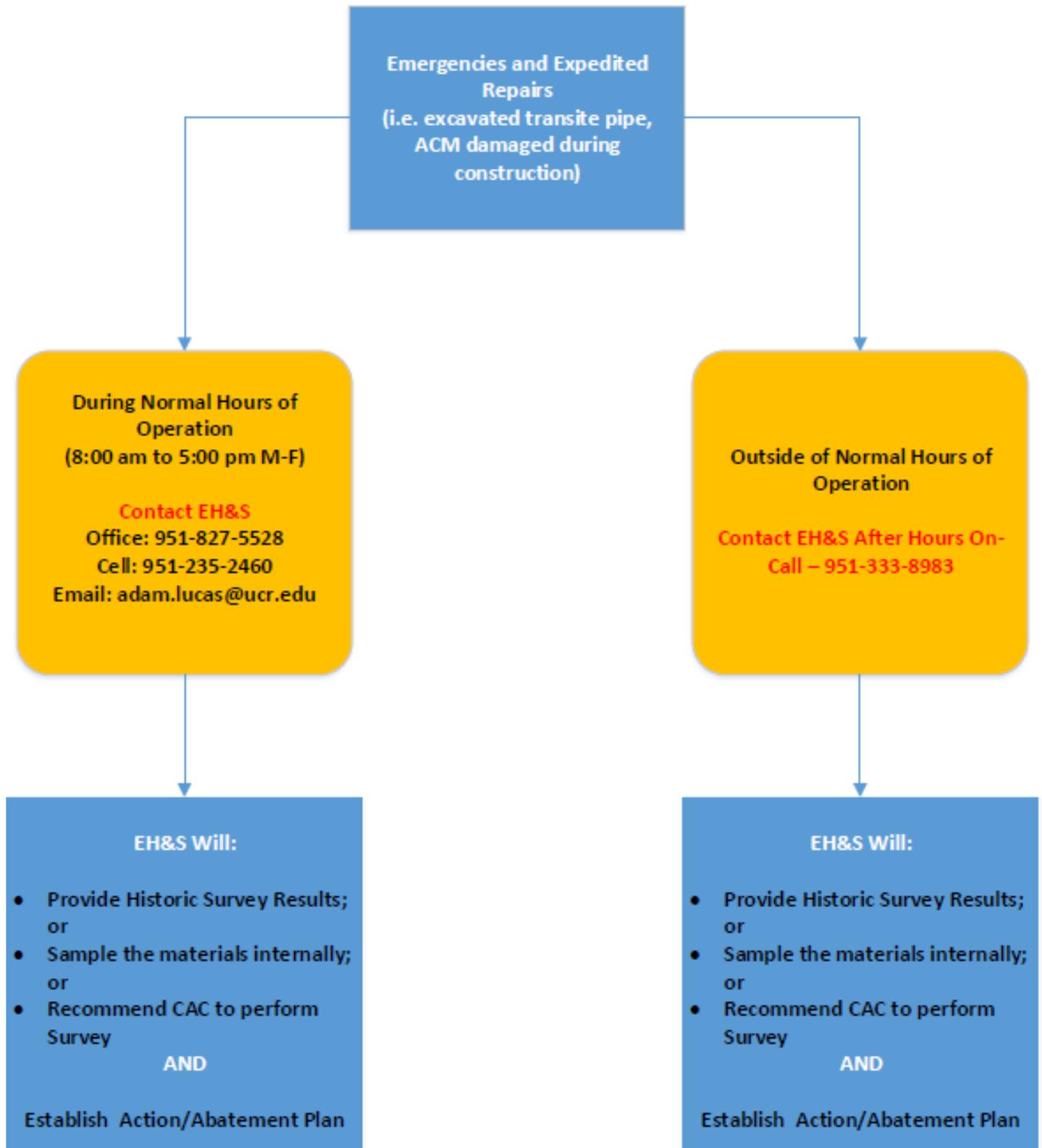
## **8.3 Decision Flow Charts**

- EH&S ACM Notification Flow Chart for PD&C
- EH&S ACM Notification Flow Chart for Facilities Services During Planned Renovation, Demolition, Abatement, and Routine/Scheduled Maintenance Operations
- EH&S ACM Notification Flow Chart for Facilities Services During Emergencies and Expedited Repairs

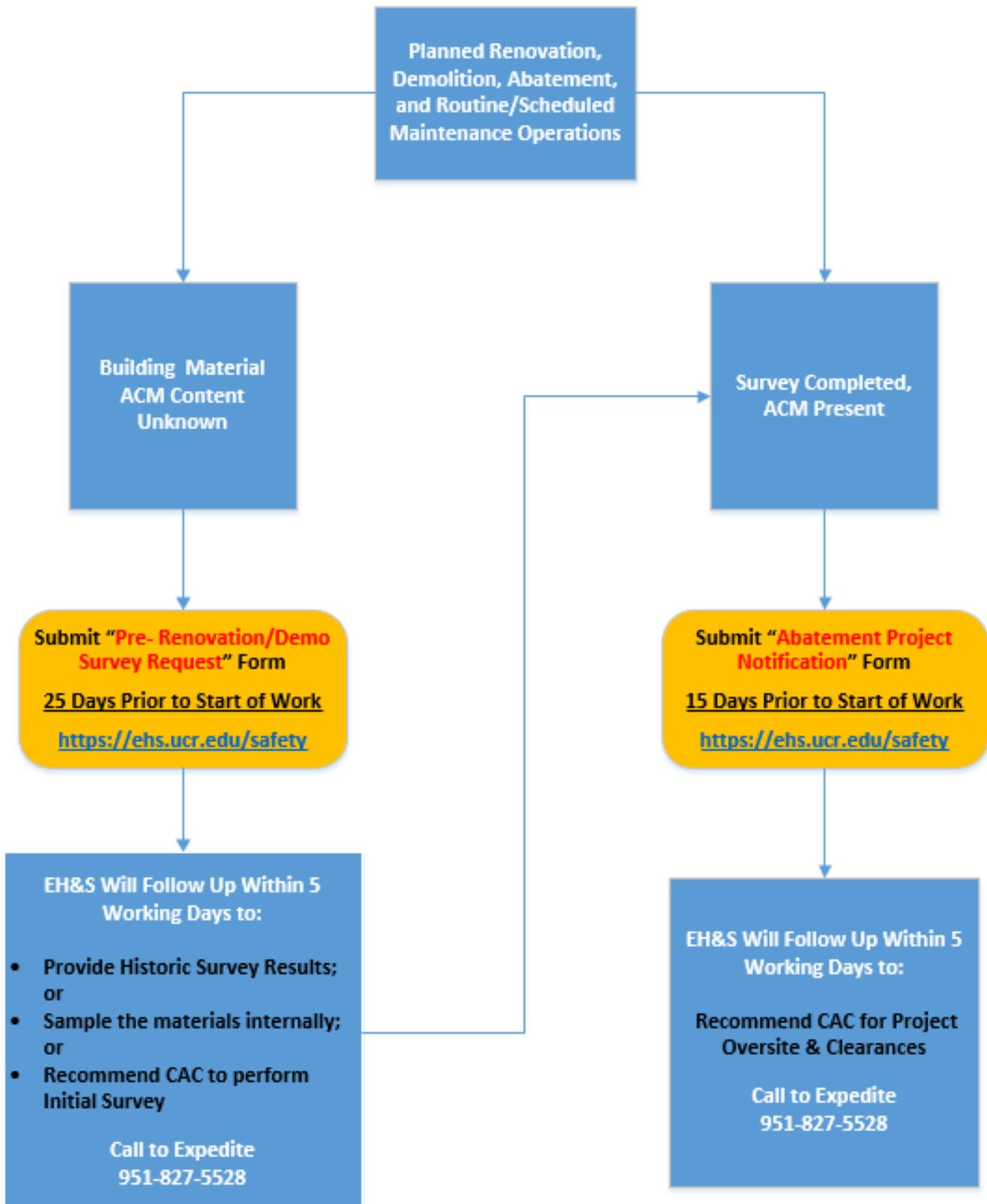
**EH&S Asbestos Containing Material (ACM) Notification  
Process for Project Design and Construction**



# EH&S Asbestos Containing Material (ACM) Notification Process for Planning, Design, & Construction During Emergencies and Expedited Repairs



**EH&S Asbestos Containing Material (ACM) Notification Process for Facilities Services During Planned Renovation, Demolition, Abatement, and Routine/Scheduled Maintenance Operations**



# EH&S Asbestos Containing Material (ACM) Notification Process for Facilities Services During Emergencies and Expedited Repairs

