The following standard specification is intended to be edited according to the specifics of the project. Brackets [ ] and areas shaded in gray [e.g. format] indicate requirements that are optional depending upon the type of system being provided or per instructions associated with the [ ] and project requirements. Consult with University's Representative and campus stakeholders.

DOCUMENT UTILIZES TRACK CHANGES TO RECORD YOUR CHANGES AS YOU EDIT. DO NOT CHANGE THE FOOTER OF THE DOCUMENT

Make sure that your consultant authorization indicates that the University's hazardous materials consultant will be performing the services indicated. Sections must be coordinated with the Asbestos/Lead Coordinator at Facilities Management (check for current individual).

SECTION 028500 MOLD CLEAN-UP

PART 1 - GENERAL

1.1 SCOPE OF WORK

A. Work Included - General

1. Provide all labor, material, equipment, services, testing, employee training, fit test, medical exams, consumables, and transportation to meet the requirements of this Specification.

2. Contractor shall obtain all required permits, licenses, registrations, notifications, and regulatory approvals required by laws and regulations (federal, state and local) agencies and this specification.

3. All mold clean-up activities associated with this Contract shall be performed [during the work period specified in this Contract] [during the days and hours of Monday through Friday, 7:00 a.m. - 5:00 p.m.]

4. Contractor shall guard against unnecessary disturbances or damage to finishes on buildings, building systems, and equipment.

5. Contractor shall meet the goal of clean up that is to remove or clean (as required) mold-damaged materials using work practices that protect occupants by controlling the dispersion of mold from the work area and protect workers from exposures to mold.

B. Work Included – Specific

1. Contractor is responsible for identifying the exact locations and number of Work areas listed below by referring to the Drawings and this specification.

2. The source of the moisture associated with this mold growth clean-up is [give a brief description of cause of mold growth].

3. [Provide a brief discussion of what [was accomplished] [will be accomplished by this specification] to prevent this moisture in the future.]

<table>
<thead>
<tr>
<th>Building</th>
<th>Room No. or Area Description</th>
<th>Building System Types</th>
</tr>
</thead>
</table>

1.2 SITE CHARACTERIZATION

A. A Project site surveillance was conducted by the University’s Hazardous Materials Consultant. (This consultant has received the level of training required by EPA and has current DOSH certification). Materials found or presumed to contain mold at the Project site are listed in the table below. Note: Table 2 is a list of mold containing materials at various locations throughout the project. For the complete scope of work, Contractor shall refer to the [Architectural,] [Plumbing,] [Mechanical] and [Electrical] Drawings for the approximate locations of the materials requiring mold clean-up. Please see the Building Survey Report, included in the Information Available to Bidders [for Design Build projects change to University Provided Information].
B. Other known hazardous materials that have the potential to be disturbed at Project site are listed in the Table 3 below:

<table>
<thead>
<tr>
<th>Building</th>
<th>Material Description</th>
<th>Type of Hazard</th>
<th>Percent of Content</th>
<th>Quantity</th>
</tr>
</thead>
</table>

C. Prior to handling hazardous materials at the Project site, Contractor shall coordinate with the University’s Representative to review University’s protocols with an Environmental Health and Safety Representative (UCDEH&S) and the University’s Hazardous Materials Consultant. Refer to other related Hazardous Materials sections.

1.3 CONTRACTOR QUALIFICATIONS

A. Contractor performing mold clean-up Work must be currently licensed for the Work with the California Contractors State License Board and have training that includes, but is not limited to, causes of moisture intrusion and mold growth, health concerns related to mold exposure, the use of appropriate personal protective equipment, mold clean up work practices, procedures, and methods.

1.4 SUBMITTALS

A. The following submittals shall be provided before any of Contractor’s employees may enter the controlled area. University’s Hazardous Materials Consultant will review these documents before the worker may enter the regulated area.

1. Do not submit any documents that contain or show Employee’s full Social Security Number (SSN). If original documents do show the SSN, then remove or obliterate all but the last 4 digits before submitting copies.

B. Contractor shall provide fit test documents for each worker showing that within the previous 12 months the worker has passed a certified fit test through their employer, complying with Cal/OSHA regulations, Title 8 Section 5144.

C. Contractor shall provide copies of the physician’s written opinion that each employee has passed the medical, forced vital capacity (FVC) and forced expiratory volume at one second (FEV1) (spirometry) prior to Working on the Campus, and is approved medically and has signed authorization from physician to wear a respirator.

1.5 RULES AND REGULATIONS

A. Contractor shall comply with the most recent edition of applicable Federal, State, local laws, codes and regulations, and University standards specified herein, University standards may exceed other requirements out-lined above.

B. The list of regulators and regulations, cited below, serves as a reference for the most commonly used standards or guidelines governing the mold industry:

1. Federal Regulations
   a. EPA - Environmental Protection Agency
      1) “Mold Clean-up In Schools and Commercial Buildings”, Recommended steps for Assessment and Clean-up, March 2001.
   b. OSHA - Occupational Safety and Health Administration
      1) 29 CFR 1926.1200,Section 2, Hazard Communication
   2. New York City Department of Health Guidelines
1.6 NOTIFICATION AND PERMITS

A. No Federal, State or Local agencies have Mold Clean-up Notification or Permit requirements. This does not supersede any other required Notifications or Permits such as pesticide work to be conducted at the site.

B. [Yolo-Solano County Air Quality Management District] [Edit if other District]
   1. No requirement or notification for Mold.

C. NESHAPS
   1. No requirement or notification for Mold.

D. COSHA
   1. No requirement or notification for Mold.

1.7 UNIVERSITY CONTACTS

A. University’s Representative: Name
   1. Phone: (530) 75X-XXXX
   2. Fax: (530) 75X-XXXX

B. Campus Hazardous Materials Coordinator: Name
   1. Desk Phone: (530) 75X-XXXX
   2. Cell Phone: (530) 75X-XXXX

C. University’s Hazardous Materials Consultant: Name
   1. Phone: (XXX) XXX-XXXX
   2. Fax: (XXX) XXX-XXXX
   3. Cell: (XXX) XXX-XXXX

PART 2 - PRODUCTS

2.1 MATERIALS

A. Material Safety Data Sheets (MSDS)
   1. Contractor shall provide MSDS for all products used on Project. The MSDS files shall be located near the Project site entrance.

B. Sanitizing Solution
   1. Contractor shall use a solution of 10 percent (by volume) household bleach in water.

C. Cleaning Solution
   1. Spic and Span detergent, or equal in highest solution concentration recommended by manufacturer. Detergent: A cleaning agent. Usually refers to a prepared compound that may include surfactants, dry solvent, softeners, brighteners, fragrances, etc. but does not include true soap.

D. Polyethylene Bags and Sheeting
   1. Poly sheeting used for mold containments are required to be:
      a. Six millimeters thick;
      b. Meet the following standards - ASTM E-84, with a flame resistance/spread rate less than or equal to 25 ASTM (E-162). The polyethylene sheeting used for containment or critical barriers shall be fire rated.
2. Poly-America, or equal bags and sheeting. If an equal is proposed submit information prior to the start of the Project in accordance with Section 01 25 00 Substitution Procedures.

3. Polyethylene bags or sheeting used for waste shall be clear.

E. Adhesive Removers

1. All adhesive removers shall meet the Hazardous Substance Control Act standards for non-toxic and non-irritating properties.

2. All adhesive removers shall be:
   a. Non-flammable
   b. Contain less than 1 percent (by volume) any chlorinated hydrocarbon solvents.

2.2 EQUIPMENT

A. HEPA filtered equipment, such as vacuums and negative air machines, must be leak tested in accordance with ANSI Z9.2 Standard. Test agent must be a non-hazardous substance (no dioctyl phthalate). A firm independent of Contractor and hired by Contractor must perform equipment leak testing on-site.

B. Tools and equipment shall arrive at the Project site free of debris and dust.

C. HEPA equipment shall be clean when arriving on Project site. All openings on the equipment must be taped shut until ready for operation.

D. All electric tools and equipment shall be connected to a GFI.

PART 3 - EXECUTION

3.1 SMALL ISOLATED AREAS (LESS THAN 10 SQUARE FEET) – E.G. CEILING TILES, SMALL AREAS ON WALLS

A. Clean up can be conducted by trained staff. Such persons must receive training on proper cleaning methods, personal protection, and potential health hazards associated with mold exposure.

B. The work area shall be unoccupied.

C. Moldy materials that can be cleaned should be cleaned using a soap or detergent solution. Materials that cannot be cleaned shall be removed from the building in a sealed plastic bag(s). Plastic sheeting shall be discarded after use. There are no special requirements for the disposal of moldy materials.

D. All areas must be left dry and visibly free from mold, dust, and debris.

3.2 MEDIUM-SIZED ISOLATED AREAS (10 – 100 SQUARE FEET)

A. Clean up can be conducted by trained staff. Such persons must receive training on proper cleaning methods, personal protection, and potential health hazards associated with mold exposure.

B. The work area shall be unoccupied.

C. Cover the floor, egress pathways, and items left in the work area with plastic sheeting and seal with tape before clean up.

D. Seal ventilation ducts/grills and other openings in the work area with plastic sheeting. Shut down the HVAC system servicing this area as need to properly seal vents.

E. Moldy materials that can be cleaned shall be cleaned using a soap or detergent solution. Materials that cannot be cleaned should be removed from the building in sealed plastic bags. Plastic sheeting shall be discarded after use. There are no special requirements for disposal of moldy materials.

F. All areas must be left dry and visibly free from mold, dust, and debris.

3.3 LARGE AREAS (GREATER THAN 100 SQUARE FEET IN A CONTIGUOUS AREA) – E.G. ON SEPARATE WALLS IN A SINGLE ROOM
A. Properly trained and equipped mold clean up workers shall conduct the clean up.

B. The affected area shall be contained using a negative pressure enclosure: Isolate the work area using plastic sheeting sealed with duct tape, including airlocks and a clean changing room. Furnishings shall be removed from the area. Ventilation ducts/grills, and other openings, and remaining fixtures/furnishings shall be covered with plastic sheeting sealed with duct tape. Use an exhaust fan equipped with a HEPA filter to generate negative pressurization.

C. The HVAC system servicing this area shall be shut down during clean up.

D. The work area shall be unoccupied.

E. Before leaving isolated areas, workers shall remove disposable clothing to prevent the tracking of mold-containing dusts outside of the work area.

F. The work area and egress pathways (and clean changing room if present) must be HEPA-vacuumed and cleaned with a damp cloth and/or mop with a soap or detergent solution and be visibly clean prior to the removal of isolation barriers. Plastic sheeting shall be discarded after use.

G. All areas shall be left dry and visibly free from mold, dust, and debris.

3.4 ENGINEERING CONTROLS

A. Clean-up Operations

1. Contractor shall supply to and maintain for each mold clean-up worker Personal Protective Equipment (PPE) to include either a fullface HEPA-filtered respirator or a combination of a half-face HEPA-filtered respirator and safety goggles, plus gloves, and protective clothing.

2. The HVAC distribution system shall be de-energized and locked-out during the clean-up. HVAC registers in the rooms shall be cleaned and sanitized. The HVAC air filters in the immediate area(s) shall be removed, disposed, and replaced.

3. A HEPA-filtered negative air machine shall be placed in the work area(s) to initiate “air scrubbing” immediately in the affected area(s).

4. The HEPA-filtered negative air machine(s) shall be maintained during the clean-up activities throughout the project. The Contractor shall exhaust air to the outside of the work area.

5. The mold infected surfacing (sheetrock, plaster, etc.) shall be removed in its entirety from the walls and the ceilings of each Room; then any remaining infected material surfaces (floor track, studs, joists, etc.) shall be cleaned and sanitized with the cleaning solution, followed by the sanitizing solution. The sanitizing solution shall maintain contact for at least 10 minutes, allowed to dry thoroughly and then. HEPA-vacuumed.

6. The clean-up and disposal of the damaged, infected and affected building material(s), including any existing debris, will include the clean-up of all suspect microbial contamination and signs of water damage.

7. Contractor shall conduct the clean-up of all affected areas where mold growth was found during the initial site investigation and where visible mold growth is currently present. The work area(s) is to be cleaned so that it is free of all dust and debris. All material shall be removed as indicated well beyond any visible water staining or microbial growth (follow the mold).

8. Clean with detergent and water and sanitize all exposed wall cavities with a bleach solution (contact time a minimum of 10 minutes), scrub areas as needed, and HEPA-vacuum the area(s) after they have thoroughly dried.

9. Clean and then sanitize all vertical and horizontal surfaces with a bleach solution (contact time a minimum of 10 minutes). Scrub areas as needed and HEPA-vacuum the areas after they have thoroughly dried.

10. A visual inspection will be conducted by the University’s Hazardous Materials Consultant to assure a proper clean-up, and to verify that all visible contamination has been removed from the structural wood members and other surfaces.
11. If work may impact difficult-to-clean surfaces or items (e.g. carpeting, electronic equipment), the floor of the work area, egress pathways, and other identified materials/belongings should be removed or covered with plastic sheeting and sealed with tape before clean up.

12. Additional clean-up or cleaning of the structure shall be performed as necessary and until the [area has] [areas have] passed the visual inspection.

13. Once the area has passed the visual inspection and the clean-up activities are completed, adequate drying and air scrubbing will be required. The negative air machines will “Scrub Air” for a period of no less than 36 hours.

14. University’s Hazardous Material Consultant will notify the University’s Representative when all inspections are complete.

15. Notify University’s Representative if structural members of load bearing walls or ceilings appear to be weakened by the effect of fungal activity.

16. When Asbestos or Lead Based Paint is present and may be disturbed during the site clean-up, the Contractor shall be required to have current Asbestos and Lead Certifications.

17. All work shall be completed in accordance with applicable local, state, and federal regulations and in compliance with the University’s Hazardous Materials Specifications when Asbestos and Lead work is conducted concurrently at the site.

B. HEPA Equipment

1. Contractor shall HEPA vacuum visible debris prior to set-up, during the clean-up process and at the conclusion of each shift.

2. HEPA equipment used to establish negative air pressure and/or air “scrubbing” within a space shall run the exhaust outside the building and remain on 24 hours a day until the Project is complete. Contractor shall ensure make-up air is drawn through an inlet that self-seals in the event negative air pressure is lost. The inlet sealing method must also be effective when there is a failure in the system after normal working hours.

3. Contractor shall ensure make-up air is drawn through an inlet that can be easily sealed in the event of a negative air failure. The inlet sealing method must also be effective when there is a failure in the system after normal working hours.

4. All HEPA filters must be disposed as general construction waste.

3.5 SAFETY

A. In accordance with State and Federal laws, Contractor shall be solely responsible for conditions of the Project site; including the safety of all persons and property during the performance of Work. To ensure effective communication in safety matters Contractor shall participate and conduct the following meetings:

1. The University mandated pre-construction safety meetings include University’s Hazardous Materials Consultant and University’s Representative. The following subjects shall be discussed: Special Construction Specifications; impact to building occupants; waste disposal, and Work related safety programs.

2. On the first day of field Work, Contractor shall conduct a safety meeting (tailgate) for its employees, which alerts them to the specific hazards of the Project. Contractor shall conduct the safety meeting in the primary language of its employees. If needed, a primary language presentation must occur in each language.

3. On a weekly basis, Contractor shall conduct a safety meeting with its employees.

3.6 WORK SITE PREPARATION

A. Prior to beginning any on-site Work preparation, Contractor shall walk the Project area with the University’s Representative and the University’s Hazardous Materials Consultant to discuss site characterization, regulated area set-up, access controls, background samples, security, and safety issues.

B. Post all sign in-out rosters at the primary entrance to the Project site.
C. Contractor, in coordination with the University’s Hazardous Materials Consultant shall ensure all electrical and HVAC equipment servicing the Work area is isolated and locked out. Electrical tools in the Work zone shall be connected to a GFI.

D. Contractor shall remove existing filters from the HVAC systems serving the Work area. Existing HVAC openings, windows, vents, open pipes, skylights, ducts, doorways, corridors, and diffusers shall be sealed with double layers of plastic and cardboard or plywood inserts as necessary.

E. Contractor shall pre-clean fixed objects, grates, and interior surfaces prior to establishing containment or critical barriers.

F. Contractor shall install approved backflow prevention devices before connecting to the University’s domestic water system. Contact the University’s Representative for a list of approved devices.

G. Contractor shall coordinate inspection schedules with University’s Representative, University’s Hazardous Materials Consultant and the Campus Hazardous Materials Coordinator.

H. Contractor shall establish Project site control barriers and obtain approval of same from University’s Representative in conjunction with University’s Hazardous Materials Consultant and Campus Hazardous Materials Coordinator.

3.7 WORK SITE CONTROL

A. Contractor shall restrict the Work areas to authorized personnel; including, Contractor’s employees, University's Representative, University’s Hazardous Materials Consultant, and regulatory agency representatives.

B. At regulated Project sites, Contractor shall use caution tape to demarcate the boundary of the Work.

C. All unauthorized personnel are to remain outside the regulated area. Contractor shall call the University’s Representative, University’s Hazardous Materials Consultant or Campus Hazardous Materials Coordinator, about problem situations.

D. If inclement weather threatens the Project site, Contractor shall take all necessary measures to ensure contaminated debris does not migrate from regulated areas.

3.8 RECORDKEEPING

A. Contractor shall maintain the following records at the regulated Work area and copies shall be provided in the “As-Built” summary at the end of the job:

1. Site Log (sign-in/sign-out).
3. Fit tests, and medical clearance certificates.

B. At the end of the Project, all sampling records are reviewed by University’s Hazardous Materials Consultant and submitted as a complete package in the Project close out.

3.9 ADMINISTRATIVE CONTROLS

A. Clean-up Projects performed in high heat environments require Contractor to provide sufficient breaks to maintain a safe environment for their Workers.

3.10 WORKER PROTECTION

A. The following protective measures are required for mold-related Work associated with this Project:

1. Respiratory Protection
   a. Contractor shall provide respiratory protection to all employees where there is the potential for exposure to dust. Respiratory protection shall be provided at no cost to Contractor’s employees.
b. Contractor’s employees who wear a respirator must have passed a fit test within the previous 12 months (8 CCR 1544 and possibly 1529 if asbestos is present) to perform Work.

2. Protective Clothing
   a. Contractor shall provide workers and authorized visitors with sufficient sets of protective clothing whenever there is potential exposure to dust or disturbance of mold. Tyvek®, Kleenguard® coveralls or equal with attached hood and feet are acceptable. Contractor shall provide coveralls to Contractor’s employees, University’s Representatives, State, and local officials at no additional cost to the University.
   b. Contractor shall provide rubber or appropriate disposable gloves, rubber boots, eye protection, earplugs and hard hats as needed per the 8 CCR, Hazard Communication and Personal Protection Equipment standards.

3. Medical Surveillance
   a. As required by 8 CCR 1544 Contractor shall establish a medical surveillance program for all employees performing mold clean-up work.
   b. Contractor shall provide copies of the physician’s written opinion for each employee who works on the Project.
   c. All of Contractor’s workers must pass the medical, Forced Vital Capacity (FVC), Forced Expiratory Volume (FEV1) (spirometry) prior to working on the Project.

3.11 PERSONAL HYGIENE
A. Contractor and employees shall not apply cosmetics, consume food, tobacco products, or beverage in the regulated Work area or any part of the building scheduled for mold clean-up operations.
B. Contractor shall establish a location outside the Work area, which shall be designated for employee eating and drinking. Employees must utilize the on-site decontamination facilities prior to entering the designated eating/drinking location.

3.12 AIR MONITORING PROGRAM
A. Personal Air Samples - Contractor Responsibility
   1. No requirement for personal sampling during mold clean-up work.
B. Area Sampling
   1. No requirements for area sampling during mold clean-up work.

3.13 SPECIFIC WORK PROTOCOLS
A. Approved Work Plan shall identify Contractor’s specific work protocols for each different type of work and work method.

3.14 INSPECTIONS
A. Inspection Responsibilities - Contractor
   1. Prior to beginning any mold-related Work, Contractor shall inspect the regulated Work areas for any building damage, hazardous conditions, or irregularities that may contribute to an unsafe Work environment. Any condition that poses a hazard or potential hazard to Contractor’s employees or the University’s community must be immediately reported to University’s Representative and University’s Hazardous Materials Consultant.
   2. Contractor is responsible for monitoring and enforcing all requirements of this specification.
   3. Contractor is responsible for notifying and allowing sufficient time for the University’s Hazardous Materials Consultant to conduct inspections at all phases of the Project.
   4. Contractor shall establish emergency response protocols for a manometer alarm sounding after they have left the Project site. Under no circumstances shall Contractor shut off negative air machines, unless the Project has received final clearance.
B. Inspection Responsibilities - University’s Hazardous Materials Consultant

1. The University’s Hazardous Materials Consultant will walk the Project site with Contractor to review pre-cleaning operations and any safety or security issues. The University’s Hazardous Materials Consultant will attend Contractor’s safety meetings.

2. After Contractor has completed set-up and before commencing clean-up operations, the University’s Hazardous Materials Consultant shall check the following items for completeness: regulated area is demarcated and posted, permits are posted, poly sheeting is 6 mil, all HEPA equipment is leak tested, electrical tools are connected to GFI, HVAC is shut off and all ports blocked with 6 mil polyethylene, electrical panels are tagged and locked out, electrical outlets are sealed with 6 mil poly, a fire extinguisher is available inside and outside the containment.

3. Prior to clean-up activities, the University’s Hazardous Material Consultant shall match on-site personnel with fit tests and medical exam records. Workers without on-site documentation shall not be allowed in the regulated area.

4. During clean-up activities, the University’s Hazardous Materials Consultant shall check for the following: all personnel are signing in and out of containment, debris is collected at the end of each shift, Workers are properly attired and wearing respirators, Work is performed in a safe manner, and an emergency exit is demarcated. The Sheetrock waste may remain inside the containment or removed and disposed as general construction debris, provided access controls are secure. The University’s Hazardous Materials Consultant must file a daily report with the University’s Representative and Campus Hazardous Materials Coordinator.

5. After clean-up activities are complete and before bleach solution is applied, the University’s Hazardous Material Consultant shall verify: completeness of clean-up Work; all visible debris is removed, approved bleach solution is being used; application amount meets manufacturer specifications or in accordance with prudent practices, and overspray is controlled.

6. If visual clearance is not achieved, the University’s Hazardous Material Consultant shall inform the University’s Representative and instruct Contractor to re-clean the regulated work area. After the area is re-cleaned the University’s Hazardous Material Consultant shall visually re-inspect the regulated area. This process shall continue until The University’s Hazardous Materials Consultant deems the work complete.

3.15 FINAL CLEAN-UP AND RESTORATION

A. Sanitize

1. After all waste is removed, HEPA vacuum and wipe down the entire work spaces, anterior ceiling and wall cavities, horizontal and vertical surfaces, equipment and supplies.

2. Once the equipment and supplies are cleaned remove from the work area.

3. Using the approved sanitizing solution, mist all surfaces at the manufacturer’s pressure and application rates.

B. Final Clean-Up

1. After the bleach solution is dry and clearance has been achieved, remove both layers of polyethylene sheeting and dispose as general construction waste.

2. Remove critical barriers, negative pressure enclosures, and other sealed openings (HVAC ducts, etc.) as general construction waste.

3. The University’s Hazardous Materials Consultant will verify cleanliness and moisture on the effected components has been lowered to normal levels.

C. [Restoration]

1. Fixtures, equipment or objects relocated to storage areas designated by the University’s Representative shall be restored to their exact original position. Contractor assumes full financial responsibility for damage to these objects.]

3.16 WASTE DISPOSAL
A. Contractor shall dispose all contaminated mold waste as general construction debris unless the debris contains asbestos and/or lead containing materials. If the debris contains asbestos and/or lead then the asbestos and/or lead containing debris will be disposed according to the Hazardous Materials Specifications for Asbestos and Lead.

3.17 PROJECT CLOSE OUT

A. Before the final certificate for payment is issued to Contractor the following information shall be provided to the University’s Representative:

1. Contractor shall provide a mold summary to include the following documentation:
   a. Contractor’s name, address, CSLB certification number,
   b. Building owner’s name
   c. Building name and campus address
   d. Project name and contract number
   e. Describe scope of Work; including, location (room numbers, approximate square footage, building system types)
   f. Provide an inventory of the mold affected building materials removed from the Project site. Include; building system, class(es), quantity, note whether the building system(s) was replaced (use yes or no), and the percentage of the total contract amount of each building system removed.
   g. Total dollar amount paid by the University for mold-related removal Work including invoice date(s) and date(s) payment received.
   h. Number of employees who worked on the Project and information as identified in Work Site Control Article.
   i. Date on-site Work began.
   j. Date on-site Work was completed.
   k. Work methods
   l. Did the University provide specification (answer yes or no)?

END OF SECTION 02 85 00