

TECHNICAL SPECIFICATIONS FOR ASBESTOS ABATEMENT

**King Hall Abatement
601 Hamilton Drive
Wilmington, North Carolina
ECS Project No. 49-18273-A**

Prepared For:
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March 23, 2023

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(ECS Project No. 49:18273, Dated November 1, 2022)
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SECTION 01043

PROJECT COORDINATION

1.1 GENERAL

- A. ECS Southeast, LLP (ECS) has prepared this document for Asbestos Abatement Guidelines to address the removal requirements associated with this project. The locations of Asbestos Containing Materials (ACM) to be removed are depicted on the attached drawings.
- B. The site consists of King Hall, a two-story educational building located on the campus of UNC Wilmington, New Hanover County, North Carolina.
- C. ECS conducted an Asbestos and Lead Paint Survey of the building in 2022. Additionally, UNCW provided prior reports from 2002 and a spreadsheet with identified asbestos-containing materials (ACMs) including samples collected from 2018. The following materials were determined to contain asbestos:
- Cloth vibration dampener in mechanical closets;
 - Mudded Insulation on the steam and hot water pipes throughout the building;
 - Silver/black roof flashing;
 - Various floor tiles and associated mastics;
 - Black mastic beneath carpet;
 - Black tar on white HVAC wrap;
 - Black mastic on 6" pipes;
 - White wall texture;
 - Residual black floor mastic; and,
 - Sink coating.

A trace amount of asbestos ($\leq 1\%$) was detected in the bulk samples of three homogeneous sampling areas including white/gray insulation in the boiler flu, white caulking on drywall to brick on first floor, and white exterior window glazing analyzed by the laboratory.

- D. An asbestos contractor will be selected to conduct asbestos abatement and will contract directly with Muter Construction, the General Contractor for the Project. Contact Muter for contract requirements for this project.
- E. The asbestos abatement contractor shall be a licensed general contractor in either the specialty interior, building, unclassified or asbestos categories by the North Carolina Licensing Board of General Contractors and limited for the bid amount.
- F. The asbestos abatement contractor must provide a Certificate of Insurance for Public liability and property damage insurance and builder's risk policy, as required in the General Conditions of the Contract. Per SCO Article 34. for the Designers review prior to award of this contract.

- G. The contractor shall be responsible for inspecting the site prior to bidding to confirm the scope of the work. Any quantities listed by the designer in the plans, specifications or survey are done so as approximations. The actual quantities of asbestos-containing material to be encountered is the responsibility of the contractor. Contingency bids and unit rates not referenced in the Updated Hazardous Materials Assessment is to be included in this bid.
- H. The contractor shall furnish and is responsible for all costs including, but not limited to: permit fees, containment preparation, labor, materials, services, insurance, bonding, and equipment necessary to carry out the abatement operations and disposal of all asbestos material in accordance with the plans and specifications, the EPA and OSHA regulations, and any applicable state and local government regulations.
- I. The contractor/employer has and assumes the responsibility of proceeding in such a manner that he offers his employees a workplace free of recognized hazards causing or likely to cause death or serious injury. The contractor shall be responsible for performing this abatement and disposal so that airborne asbestos fiber levels do not exceed established levels.
- J. The contractor will be responsible for all costs associated with employee monitoring to meet the OSHA requirements.
- K. The contractor is responsible for all costs, including additional visits, should the designer and/or the industrial hygiene firm determine that the contractor failed a final inspection. Notification and scheduling of the final inspection during the project is the responsibility of the contractor. The contractor will allow a minimum notice of 48 hours unless a different time frame is agreed upon by the designer and the contractor.

1.2 PERSONNEL

- A. Supervisor
 - 1. All supervisors shall be accredited by the Health Hazards Control Branch (HHCB).
 - 2. All supervisors on the project shall have two years' experience in the administration and supervision of asbestos abatement projects including work practices, protective measures for building and personnel, disposal procedures, etc.
 - 3. One supervisor shall be provided for every 10 workers inside the containment. A minimum of one supervisor shall be provided per project.
 - 4. The contractor shall have at least one employee on the job site in either a foreman or supervisor's position who is bilingual in the appropriate languages when employing workers who do not speak fluent English.
 - 5. A minimum of one supervisor per company shall have attended a 24-hour respiratory protection course.

B. Worker

1. All workers shall be accredited by the HHCB.

C. Competent Person

1. A competent person, as defined in the OSHA asbestos standard 29 CFR 1926.1101, employed by the contractor must be outside the work area at all times to monitor activity, ensure containment security, provide information to visitors, and provide access to the work area.

D. Employees

1. The contractor is responsible for the behavior of workers within his employment. If at any time during the contracted work, any of his employees are judged to exhibit behavior unfitting for the area or judged to be a nuisance by the owner or designer, the contractor shall remove them immediately from the project.
2. The contractor shall be responsible for compliance with the following concerning employee behavior:
 - a. Under no circumstances are alcohol, drugs or any other type of controlled substances permitted on state property.
 - b. All workers are restricted to the construction project site only.
 - c. All vehicles must be parked in areas prearranged with the owner.
 - d. All workers must conform to the following basic dress code when in public areas of the project confines: long pants, shirts, no tank tops, no shorts, no bare backs.
 - e. The contractor is responsible for disposal of all trash brought on state property by his employees, including drink cans, bottles or other food containers and wrappers.
3. Failure to adhere to these rules could result in criminal prosecution and/or removal from the State property.

1.3 MEETINGS

A. Pre-bid

1. A mandatory pre-bid conference will be held at the site. The time and date have not been determined at this time.
2. The Design Team will review the plans and specifications, present required techniques, and safeguards for the removal of the asbestos and identify locations of water, electrical sources, etc.

3. Any questions or clarifications raised by the bidders will be addressed by Muter with assistance from ECS.
- B. Bid Opening
1. The date and time that bids are due will be determined by Muter in their bid documents.
- C. Pre-Construction Meeting
1. A pre-construction meeting will be held with UNCW, Muter and ECS following notice of award. The date for the pre-construction meeting will be determined after the project is awarded.

1.1 PRE-JOB SUBMITTALS

- A. Submit an electronic copy of pre-job submittals to the designer at least five days prior to start of work. A copy of the approved submittals shall be kept in a three-ring binder (project log) by the contractor at the project site in the clean room or in the on-site office of the contractor.
1. Notifications: Provide copies of Asbestos Permit Application and Notification for Demolition/Renovation (DEHNR 3768), which provide written notice to all required agencies, including North Carolina HHCB.
 2. Employee List: Provide copies of lists of supervisors and workers, along with their accreditation and Social Security numbers, to be utilized on the project.
 3. Permits: Provide copies of approval of a waste disposal site in compliance with 40 CFR 61.154.
 4. Respirator Training: Copies of most recent fit testing records, individually signed for each worker to be utilized on the project.
 5. Project Schedule: Time schedule for the project, outlining the proposed start, setup, clearances, etc. for the various phases of the project.
 6. Initial Exposure Assessment: As required by the OSHA construction asbestos standard 29 CFR 1926.1101.
 7. Any other programs or training as outlined by the OSHA and EPA standards.

1.2 POST-JOB SUBMITTALS

- A. Submit an electronic copy of post-job submittals to the designer following the final completion of the work. Requests for final payment will not be approved until the submittal package has been reviewed and approved by the designer.

1. Manifest: North Carolina Asbestos Waste Shipment Record (DEHNR 3787) receipt from landfill operator which acknowledges the contractor's delivery(s) of waste material. Include date, quantity of material delivered and signature of authorized representative of landfill. Also, include name of waste transporter.
2. Daily Log: A notarized copy of all daily logs showing the following: name, date, entering and leaving time, company or agency represented, reason for entry for all persons entering the work area, employee's daily air monitoring data as required by the OSHA standard and written comments by inspectors, industrial hygienists, designers and visitors.
3. Special Reports: All documents generated under Section 01043.1.6.

1.3 SPECIAL REPORTS

- A. General: Except as otherwise indicated, submit special reports to designer within one day of occurrence requiring special report, with copies to others affected by occurrence. Also keep a copy in the project logbook.
- B. Reporting Unusual Events: When an event of unusual and significant nature occurs at site (examples: failure of negative pressure system, rupture of temporary enclosures), prepare and submit a special report to the designer immediately, listing chain of events, persons participating, response by contractor's personnel, evaluation of results or effects, and similar pertinent information. When such events are known or predictable in advance, advise designer in advance at earliest possible date.
- C. Reporting Accidents: Prepare and submit reports of significant accidents, at site and anywhere else work is in progress. Record and document date and actions; comply with industry standards for reporting accidents. For this purpose, a significant accident is defined to include events where personal injury is sustained, or property loss of substance is sustained, or where the event posed a significant threat of loss or personal injury.

1.4 CONTINGENCY PLAN

- A. Contingency Plan: Prepare a contingency plan for emergencies including fire, accident, power failure, negative pressure system failure, supplied air system failure (if applicable), evacuation of injured persons for both life threatening and non-life threatening, or any other event that may require modification or abridgment of decontamination or work area isolation procedures. Include in plan specific procedures for decontamination or work area isolation. Note that nothing in this specification should impede safe exiting or providing of adequate medical attention in the event of an emergency. Keep these plans in the on-site office.
- B. Post outside/in clean room of Personnel Decontamination Unit:
 1. Telephone numbers and locations of emergency services including but not limited to, fire, ambulance, doctor, hospital, police, power company, telephone company and the North Carolina HHCB.

2. A copy of Safety Data Sheets (SDS) for any chemicals used during the asbestos project.
3. The contractor shall post asbestos signs in each appropriate language as per the OSHA 29 CFR 1926.1101 standard.

SECTION 01092

CODES AND REGULATIONS

1.1 REFERENCE SPECIFICATIONS

The contractor shall assume full responsibility and liability for compliance 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 areas adjacent to the site.

Unless modified by these project specifications, all specifications for stripping, removal, repair, and disposal work shall conform to the following specifications and standards, as applicable, as if completely reproduced herein.

- A. The following regulations published by the Environmental Protection Agency (EPA):
 - 1. "National Emissions Standards for Hazardous Air Pollutants Asbestos," 40 CFR Part 61, Subpart M.
 - 2. "General Provisions," 40 CFR Part 61, Subpart A.
 - 3. "Guidance for Controlling Asbestos-Containing Materials in Buildings" June 1985. (EPA # 560/5-85-024).
 - 4. "Asbestos-Containing Materials in Schools," 40 CFR Part 763, Subpart E including appendices.

- B. The following regulations published by the U.S. Department of Labor, OSHA:
 - 1. "Occupational Exposure to Asbestos, Tremolite, Anthophyllite, and Actinolite; Final Rules," Title 29, Part 1910, Section 1001 and Part 1926, Section 1101 of the Code of Federal Regulations.
 - 2. "Respiratory Protection," Title 29, Part 1910, Section 134 of the Code of Federal Regulations.
 - 3. Construction Industry, Title 29, Part 1926, of the Code of Federal Regulations.
 - 4. "Access to Employee Exposure and Medical Records," Title 29, Part 1910, Section 20 of the Code of Federal Regulations.
 - 5. "Hazard Communication," Title 29, Part 1926, Section 59 of the Code of Federal Regulations.

6. "Specifications for Accident Prevention Signs and Tags," Title 29, Part 1910, Section 145 of the Code of Federal Regulations.
- C. The following regulations published by North Carolina state agencies:
1. North Carolina Asbestos Hazard Management Program Rules as adopted by 15A NCAC 19C .0600.
 2. "North Carolina Occupational Safety and Health Standards for the Construction Industry," 29 CFR Part 1926 as adopted by T13 NCAC 07F .0201, and shipyard T13:07F.0500.
 3. North Carolina General Statutes, Chapter 95, 97, 130.
- D. The following documents published by the American National Standards Institute:
1. "Fundamentals Governing the Design and Operation of Local Exhaust Systems," Z9.2-1979.
 2. "American National Standard for Respiratory Protection Respiratory Use - Physical Qualifications for Personnel," Z88.6-1984.
 3. "Practices for Respiratory Protection," Z88.2-1992.

1.2 NOTICES

- A. The contractor shall notify the following offices in writing within the time frame specified by the NESHAP regulations prior to beginning any asbestos removal operations.

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1. State Agencies

Health Hazards Control Unit
 N.C. Department of Health and Human Services –OEEB
 Division of Public Health

(Regular Mail)
 1912 Mail Service Center
 Raleigh, N.C. 27699-1912
 Telephone: (919) 733-0820
 Fax: (919) 733-8493

(UPS, Fed Ex, etc.)
 5505 Six Forks Road
 Second Floor
 Room D-1
 Raleigh, N.C. 27609

N.C. Department of Labor
Division of Occupational Safety and Health
319 Chapanoke Road, Suite 105
Raleigh, N.C. 27603-3432
Telephone: 1-800-LABOR-NC or (919) 662-4602
Fax: (919) 662-4625

1. Emergency Departments

Notify the local emergency medical services, police, and fire departments in writing of the type and scope of work being performed and request these departments make an inspection prior to beginning the work.

2. Licenses

Maintain current licenses for contractor and accreditation for workers and supervisors as required by applicable State or local jurisdictions for the removal, transporting, disposal or other regulated activity relative to the work of this contract.

SECTION 01410

AIR MONITORING - INDUSTRIAL HYGIENE FIRM

1.1 GENERAL

- A. ECS has been contracted to conduct air monitoring and clearance testing. Services of ECS will be paid by the owner.
- B. Air monitoring shall be done under the direct supervision of a North Carolina accredited supervising air monitor (SAM), except for sampling performed by the contractor to satisfy OSHA requirements.
- C. SAM shall be accredited per the Asbestos Hazard Management Program rules.
- D. Air monitor shall be accredited as per the Asbestos Hazard Management Program rules and work under the direct supervision of a SAM.
- E. The SAM representing each firm shall have taken a 24-hour respiratory protection course that is either NIOSH, AIHA, or HHCB recognized.
- F. The Air Monitors shall submit copies of their NC accreditations and documentation on respiratory protection training to the designer prior to the award of the contract.
- G. If specific project activities are assigned to an air monitor, the SAM is expected to be in direct control and responsible for industrial hygiene work completed on the project. The SAM shall approve and sign all air monitoring results performed by the air monitor. The SAM signature must be an original. No rubber stamp signature shall be accepted.
- H. Employees of the HHCB shall have right of entry into the project. The HHCB's SAM shall have final authority over the industrial hygiene firm on the project.

1.2 DESCRIPTION OF WORK

- A. The industrial hygiene firm shall offer expertise to the designer and contractor but is not directly responsible for the performance of the job.
- B. At the job site, the industrial hygiene firm is expected to observe, be aware, and comment on general work site conditions and activities as they relate to the specifications and profession of industrial hygiene and make recommendations in writing to the designer and contractor.
- C. The industrial hygiene firm is responsible for overseeing the protection of the environment from contamination, protection of persons in adjacent areas, and assurance that the areas are acceptable for occupancy.

- D. The industrial hygiene firm has the authority to direct the contractor relative to safety and environmental concerns. This includes stopping the work if necessary. All directions and comments made by the industrial hygiene firm to the contractor shall be written with a copy to the designer.
- E. The industrial hygiene firm shall furnish the contractor a copy of his field report within 24 hours of the visit. Copies of field notes and reports of observations shall be kept in project logbook.
- F. The SAM shall review and make comments to the designer on the submittals listed in Section 01043.
- G. The SAM shall approve any change in contractor's respiratory protection. This includes a review of the historical data.
- H. The industrial hygiene firm is to conform to the contractor's schedule and shall respond to necessary changes, provided an advance notice is given as outlined in Section 01043.
- I. The industrial hygiene firm's project monitor shall furnish designer and contractor with a pager or mobile phone number where he can be reached quickly at all times.
- J. The industrial hygiene firm shall notify the designer and contractor, in writing, of any failed clearance visits.
- K. At the completion of the project, the industrial hygiene firm shall prepare a report describing the assessment of the project, all air monitoring data, acceptance letters, calibration records, and a description of the project as it proceeded to completion.

1.3 AIR MONITORING

- A. Ambient Air Monitoring: The purpose of ambient air monitoring by the industrial hygiene firm will be to detect discrepancies in the work area isolation such as:
 - 1. Contamination of the building outside of the work area with airborne asbestos fibers.
 - 2. Failure of filtration or rupture in the negative pressure system.
 - 3. Confirm the work practices established by the contractor and respiratory protection provided for employees are adequate.
- B. Work Area Airborne Fiber Levels: The owner's industrial hygiene firm will monitor airborne fiber levels in the work area. The purpose of this air monitoring will be to detect airborne fiber levels which may challenge the ability of the work area isolation procedures to protect the balance of the building or outside of the building from contamination by airborne fibers.

- C. Work Area Clearance: To determine if the elevated airborne fiber levels encountered during abatement operations have been reduced to an acceptable level, the industrial hygiene firm will sample and analyze air per Section 01714.
- D. In accordance with AHMB Program Rules, the SAM shall develop an Abatement Project Monitoring Plan which complies with EPA and OSHA analytical criteria and will provide a valid representation of airborne fiber concentrations both inside and outside the work area. This program is not intended to satisfy the contractor's requirement for sampling under the OSHA regulation. All personnel and area sampling conducted by the industrial hygiene firm shall be personally observed. Air sampling pumps shall not be left unattended for extended periods of time.
 - 1. The SAM shall submit a written project monitoring plan to the designer with a copy to the contractor. The following information shall be required for the submittal.
 - a. The name, address and telephone number of the industrial hygiene firm.
 - b. The name, address, telephone number and NIOSH's PAT designation and proficiency data for the laboratory analyzing the air samples. Analysis of all samples collected shall be by a laboratory currently proficient in NIOSH's "Proficiency Analytical Testing Program for Laboratory Quality Control" for asbestos. The acceptable sampling and analysis method is NIOSH 7400, latest revision.
 - c. A proposed air sampling strategy which shall include: a projected number of air samples, locations, the types of air samples to be collected (personal, area, ambient), how the air samples are to be collected (TWA, ceiling, other), the equipment to be used (pumps, calibration equipment, filters, other), and how the samples will be transported to the laboratory.
 - 1. All personal air samples will be collected in such a manner as to comply with OSHA collection and analytical regulations and to provide a valid representation of airborne fiber levels. The samples collected by the industrial hygiene firm on personnel do not satisfy the contractor's responsibility under OSHA.
 - 2. All final area air sampling will comply with all State and Federal requirements in measuring airborne asbestos following an abatement action.

3. Air samples will be analyzed and results made available as per the AHMB Program Rules. Copies of all air sampling results shall be signed by the SAM and a copy posted at the job site. These copies shall include the following: sample number, sample location, activity represented by sample, flow rate, sample time, comments and sample results. A statement will be included on each submission that the requirements of this contract have been met as they apply to the activities of the SAM.
 4. If TWA samples are being collected by the contractor for the purpose of reducing respiratory protection requirements, the industrial hygiene firm shall directly observe the conditions and work practices represented by each sample and make appropriate notes in the bound book on site. The SAM shall review all TWA air sampling results which are used for reducing respiratory protection requirements before accepting the results.
- E. Supplemental air monitoring may be conducted inside and outside the work area by the HHCB. This supplemental sampling does not fulfill air monitoring responsibilities required by OSHA, EPA, or this contract.

SECTION 01503

TEMPORARY FACILITIES

1.1 GENERAL

- A. Provide temporary connection to existing building utilities or provide temporary facilities as required herein or as necessary to carry out the work.
- B. Use qualified tradesmen for installation of temporary services and facilities.
- C. Locate, modify, and extend temporary services and facilities where they will serve the project adequately and result in minimum interference with the performance of the work.
- D. In occupied buildings, the owner's maintenance personnel shall lock and tag out all electrical and HVAC equipment in the asbestos abatement area. The contractor shall verify that the power and HVAC have been locked and tagged out prior to beginning work.
- E. In unoccupied buildings, the contractor is responsible for the lock and tag out of all power sources and HVAC equipment.
- F. The owner shall move all furniture, books, computers, records, equipment, etc. prior to the contractor's arrival date as specified.

1.2 WATER SERVICE

- A. Owner shall supply a source of water. Contractor bears all expense of heating and getting water to the work and decontamination areas.
- B. Supply hot and cold water to the decontamination unit in accordance with Section 01563. Hot water shall be supplied at a minimum temperature of 100 degrees Fahrenheit.
- C. After completion of use, connections and fittings shall be removed without damage or alteration to existing water piping and equipment.

1.3 ELECTRICAL SERVICE

- A. General: Comply with applicable NEMA, NEC and UL standards and governing state and local regulations for materials and layout of temporary electric service.
- B. Ground Fault Protection: Provide receptacle outlets equipped with ground fault circuit interrupters, reset button and pilot light, for plug-in connection of power tools and equipment.
- C. Provide a weatherproof, grounded temporary electric power service and distribution system of sufficient size, capacity, and power characteristics to accommodate performance of work during the construction period.

- D. Install temporary lighting adequate to provide sufficient illumination for safe work and traffic conditions in every area of work.
- E. Provide services of an electrician, on a standby basis, to service electrical needs during the abatement process.
- F. Provide additional power service and distribution service, consisting of individual dedicated 15-amp 120-volt circuits to electrical drops with receptacle outlets equipped with ground fault interrupt protection, color coded for the exclusive use of the industrial hygiene firm.

1.4 FIRST AID

- A. A minimum of one first aid kit shall be located in the clean room. Additional first aid kits as the contractor feels is adequate or is required by law shall be located throughout the work area.

1.5 FIRE EXTINGUISHERS

- A. Comply with the applicable recommendations of NFPA Standard 10 - "Standard for Portable Fire Extinguishers." Locate fire extinguishers where they are most convenient and effective for their intended purpose but provide not less than one extinguisher in each work area equipment room and one in the clean room of the personnel decontamination unit.

1.6 TOILET FACILITIES

- A. Requirements about toilet facilities are included in the bid documents provided by Muter to bidders. See requirements for toilet facilities.

1.7 PARKING

- A. Park only in areas designated by the owner.

1.8 BUILDING SECURITY

- A. Maintain personnel on-site at all times. Secure any portion of the work areas are open or not properly secured. Secure work areas completely at the end of each day.

1.9 STORAGE

- A. Supply temporary storage required for storage of equipment and materials for duration of project. Trailer and storage dumpsters will be maintained in areas designated by the owner.

SECTION 01513

NEGATIVE PRESSURE SYSTEM

1.1 GENERAL

- A. High efficiency particulate air (HEPA) filter exhaust systems equipped with new HEPA filters for each project shall be used. Exhaust equipment and systems shall comply with ANSI Z9.2-79 and used according to manufacturer's recommendations.
- B. A system of HEPA-equipped air filtration devices shall be configured so that a pressure differential is established between the work area and the surrounding area (-0.02 to -0.04" water column). A continuous chart-recorded manometer shall be used to confirm this condition.
- C. Additional air filtration devices shall be provided inside the work area for emergency standby as well as for circulation of dead air spaces.
- D. The pressure differential is maintained at all times after preparation is complete and until the final visual inspection and air tests confirm the area is clean and acceptable for occupancy and the designer confirms verbally with written follow-up to discontinue the use of the negative pressure system.
- E. Air shall be exhausted outside the building. Any variations must be approved by the HHCB.
- F. The contractor shall check daily for leaks and log his checks in the bound logbook. This includes checks internal to air-moving devices.
- G. There shall be a minimum of four air changes per hour in any containment.

SECTION 01526

WORK AREA PREPARATION

A.1 GENERAL

- A. Before work begins in an area, a decontamination unit must be in operation as outlined in Section 01563.
- B. Completely isolate the work area from other parts of the building so as to prevent contamination beyond the isolated area.
- C. Temporary facilities shall be addressed as outlined in Section 01503.
- D. The Owner shall arrange for the removal of furnishings and/or non-stationary items from the proposed work areas prior to the start of the project.
- E. The contractor shall set up a work area, load out, and decontamination area as shown in the plans and specifications. Any variations must be approved by the designer. The decontamination facility outside of the work area shall consist of a change room, shower room, and equipment room as described in Section 01563.
- F. The contractor shall wet clean and/or HEPA vacuum all items and equipment in the work area suspected of being contaminated with asbestos, but not in direct contact with the asbestos material and either secure these items in place with polyethylene sheeting or have them removed from the work area.
- G. Critical Barriers: The contractor shall thoroughly seal the work area for the duration of the work by completely sealing off all individual openings and fixtures in the work area, including, but not limited to, heating and ventilation ducts, doorways, corridors, windows, skylights, and lighting, with polyethylene sheeting taped securely in place. If the contractor is using sealant materials to fill in small holes or cracks, the material shall have appropriate fire ratings.
- H. Floors (if required): Apply two layers of 6 mil (minimum) polyethylene plastic sheeting with joints overlapped 24 inches and taped securely. Plastic shall be carried up walls a minimum of 12 inches and secured.
- I. Walls (if required): Apply one or more layers of 4 mil (minimum) polyethylene plastic sheeting with joints lapped 24 inches and taped securely. Plastic shall be lapped over floor coverings and taped securely.
- J. Floors and walls shall be installed in such a manner that they may be removed independently of the critical barriers. Walls or partitions which do not extend above the ceiling grid or air plenum should be sealed with two layers of 6 mil polyethylene plastic.
- K. Entrances and exits from the work area will have triple barriers of polyethylene plastic sheeting so that the work area is always closed off by one barrier when workers enter or exit.

- L. No water may be left standing on the floor at the end of the workday.
- M. Floor surfaces, walls, finishes or coverings, etc., that in the contractor's opinion will likely be damaged by water or that may become contaminated with asbestos, shall have additional protective preparation as the contractor sees appropriate, at his cost, to protect the original condition of the surfaces.
- N. Any costs associated with physical damage caused by water or securing polyethylene sheeting to areas inside or outside the abatement area shall be the contractor's responsibility.
- O. The contractor shall establish and mark emergency and fire exits from the work area. Emergency procedures shall have priority over established decontamination entry and exit procedures. Audible and visible fire and emergency evacuation alarms shall be installed so as to be heard and seen throughout the entire work area.
- P. Integrity of these seals shall be regularly checked and maintained by the contractor.
- Q. After work area preparation, the contractor shall notify ECS verbally with written follow-up that he is ready for a prework inspection and first day/background air testing (if required).

SECTION 01560

WORKER PROTECTION

1.1 GENERAL

- A. Provide worker protection as required by OSHA, state, and local standards applicable to the work. Contractor is solely responsible for enforcing worker protection requirements at least equal to those specified in this Section.
- B. Each time the work area is entered the contractor shall require all persons to remove all street clothes in the changing room of the personnel decontamination unit and put on new disposable coverall, new head cover, and a clean respirator. Proceed through shower room to equipment room and put on work boots.
- C. Workers shall not eat, drink, smoke, chew gum or chew tobacco in the work area, the equipment room, the load out area, or the clean room.

1.2 WORKER TRAINING

- A. Train all workers in accordance with 29 CFR 1926 and North Carolina state regulations regarding the dangers inherent in handling asbestos, breathing asbestos dust, proper work procedures and personal and area protective measures.

1.3 MEDICAL EXAMINATIONS

- A. Provide medical examinations for all workers. Examination shall as a minimum meet OSHA requirements as set forth in 29 CFR 1926.

1.4 PROTECTIVE CLOTHING

- A. 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.
- B. Boots: Provide work boots with non-skid soles and, where required by OSHA, foot protection for all workers.
- C. Gloves: Provide work gloves to all workers and require that they be worn at the appropriate times. Do not remove gloves from work area. Dispose of work gloves as asbestos-contaminated waste at the completion of the project.

1.5 ADDITIONAL PROTECTIVE EQUIPMENT

- A. Respirators, disposable coveralls, head covers, and footwear covers shall be provided by the contractor for the owner, ECS, and other authorized representatives who may inspect the job site.
- B. Scaffolding used during asbestos removal will comply with appropriate OSHA regulations.

- C. Gloves, hardhats, harnesses, lanyards, safety glasses - provide appropriate safety equipment to all workers.
- D. Mechanical lifts used for the project shall be operated in accordance with the manufacturer's instructions. Mechanical lifts must be rated for indoor use.

1.6 DECONTAMINATION PROCEDURES

- A. Require that all workers use the following decontamination procedure as a minimum requirement whenever leaving the work area:
 - 1. Remove disposable coveralls, disposable head covers, and disposable footwear covers or boots in the equipment room.
 - 2. Still wearing respirators, proceed to showers. Showering is mandatory. Care must be taken to follow reasonable procedures in removing the respirator to avoid asbestos fibers while showering. The following procedure is required as a minimum:
 - a. Thoroughly wet body including hair and face.
 - b. With respirator still in place thoroughly wash body, hair, respirator face piece, and all exterior parts of the respirator.
 - c. Take a deep breath, hold it and/or exhale slowly, completely wet hair, face, and respirator. While still holding breath, remove respirator and hold it away from face before starting to breathe.
 - d. Carefully wash face piece of respirator inside and out.
 - e. Shower completely with soap and water; rinse thoroughly.
 - f. Rinse shower room walls and floor prior to exit.
 - g. Proceed from shower to changing (clean) room and change into street clothes or new disposable work items.
 - 3. After showering, each employee shall inspect, clean, and repair his respirator as needed. The respirator shall be dried, placed in a suitable storage bag, and properly stored.

SECTION 01562

RESPIRATORY PROTECTION

1.1 DESCRIPTION OF WORK

- A. Instruct and train each worker involved in asbestos abatement in proper respirator use and require that each worker always wear a respirator, properly fitted on the face, in the work area from the start of any operation which may cause airborne asbestos fibers until the work area is completely decontaminated. Use respiratory protection appropriate for the fiber level encountered in the workplace or as required for other toxic or oxygen-deficient situations encountered.

1.2 GENERAL

- A. Provide workers with personally issued and marked respiratory equipment approved by NIOSH and MSHA and suitable for the asbestos exposure level in the work areas according to OSHA Standard 29 CFR 1926.1101 and other possible contaminants employees might be exposed to during the project.
- B. Provide respiratory protection from the time the first operation involved in the project requires contact with asbestos-containing materials (including construction of decontamination units, construction of airtight barriers/barricades, and placing of plastic sheeting on walls) until acceptance of final air clearance test results by the industrial hygiene firm.
- C. The minimum respiratory protection for the project during gross removal of friable materials shall be powered air purifying respirators (PAPR).
- D. Half-face respirators with replaceable HEPA filters can be used during the removal of non-friable materials, if removed using non-friable, wet methods, as specified.
- E. The designer may, under certain circumstances, allow the contractor to use a half-face respirator with replaceable HEPA filters during the final cleaning phase. However, the eight-hour TWA air sampling data must document the exposure level, and the SAM must write a letter to the designer allowing the contractor to reduce respiratory protection.
- F. Respirator fit testing shall be performed as a minimum at the beginning of the project, at any change in respiratory protection equipment, and at any time during the project if requested by the employee or SAM. Fit testing is to be performed by one of the methods listed in the 29 CFR 1926.1101, Appendix C.
- G. If supplied air respirators are used, the contractor shall provide a minimum of Grade "D" breathing air as set forth in the Compressed Gas Association's "Commodity Specifications for Air," G-7.1. The contractor shall test for Grade "D" breathing air initially and daily thereafter. Daily testing is not needed if the contractor has an air purification system which has CO and organic purging.

capabilities as well as a continuous CO monitor and alarm calibrated at 10 ppm. The system must be calibrated at least once a week or when it is moved.

- H. Provide emergency backup air supply, egress SCBA or egress HEPA filters for each worker in work area at all times when Type-C (supplied air) respirators are required. Breathing air system shall provide one hour of reserve air, calculated for maximum crew size for emergency evacuation.
- I. If Type C respirators are utilized, the contractor is required to have an employee in the vicinity of the source of air. The contractor shall take into account the location of the fresh air intake to ensure no pollutant source is in the vicinity. The audible alarm shall be located where the employees inside and outside containment can hear the alarm.
- J. Do not allow the use of single-use, disposable or quarter-face respirators for any purpose.
- K. The contractor may submit a new exposure assessment (as per 29 CFR 1926.1101) to the SAM with a request to downgrade to less protective respirators. The SAM will make a recommendation to the designer, who will issue a decision in writing to the contractor approving or denying his request. If the contractor disagrees with the decision, then the representative air sampling data may be reviewed by the HHCB for a final decision.

SECTION 01563

DECONTAMINATION UNITS

1.1 DESCRIPTION OF WORK

- A. Provide separate personnel and equipment/loadout decontamination facilities. Require that the personnel decontamination unit be the only means of ingress and egress for the work area. Require that all materials exit the work area through the equipment/loadout decontamination unit. Contractor shall comply with 29 CFR 1926.1101, specifically paragraph (j) Hygiene facilities and practices for employees.

1.2 GENERAL

Provide separate personnel decontamination units and equipment/loadout decontamination units when practical.

- A. Personnel Decontamination Unit
1. Provide a Personnel Decontamination Unit consisting of a serial arrangement of connected rooms or spaces, changing room, shower room, equipment room. Each shall be separated by a minimum of three curtain doorways. Require all persons without exception to pass through this decontamination unit for entry into and exiting from the work area for any purpose. Do not allow parallel routes for entry or exit. Do not remove equipment or materials through Personnel Decontamination Unit.
 2. Provide temporary lighting within decontamination units as necessary to reach an adequate lighting level.
 3. Maintain floor of changing room dry and clean at all times. Do not allow the overflow water from the shower to escape the shower room.
 4. Damp-wipe all surfaces twice after each shift change with a disinfectant solution.
 5. Provide hot and cold water, drainage and standard fixtures including an elevated shower head as necessary for a complete and operable shower. A water hose and bucket are not an acceptable shower.
 6. Arrange water shut off and drain pump operation controls so that a single individual can shower without assistance from either inside or outside of the work area.
 7. Pump shower wastewater to drain. Provide 20 micron and 5-micron waste water filters in line to drain. Change filters daily or more often if necessary.
 8. If the decontamination area is located within an area containing friable asbestos on overhead ceilings, ducts, piping, etc., provide the area with a

minimum 3/8-inch plywood "ceiling" with two layers of polyethylene sheeting covering the top of the "ceiling."

9. Visual Barrier: Where the decontamination area is immediately adjacent to and within view of occupied areas, provide a visual barrier of opaque plastic sheeting so that worker privacy is maintained, and work procedures are not visible to building occupants. Where the area adjacent to the decontamination area is accessible to the public, construct a solid barrier on the public side of the sheeting to protect the sheeting. Construct barrier with wood or metal studs, max. 16 inches on center, covered with minimum 3/8 inch plywood.

B. Equipment Decontamination Units:

1. Provide an equipment decontamination unit consisting of a serial arrangement of rooms, clean room, holding area, and washroom, each room separated by a minimum of three curtain doorways, for removal of equipment and material from work area. Do not allow personnel to enter or exit work area through equipment decontamination unit.
2. Washroom: Provide washroom for cleaning of bagged or drummed asbestos-containing waste materials passed from the work area.
3. Holding Area: Provide holding area as a drop location for sealed drums and bagged asbestos-containing materials passed from the washroom.
4. Clean Room: Provide clean room to isolate the holding area from the building exterior or occupied areas.
5. Equipment or Material: Obtain all equipment or material from the work area through the equipment decontamination unit according to the following procedure:
 - a. When passing contaminated equipment, sealed plastic bags, drums or containers into the washroom, close all doorways of the equipment decontamination unit, other than the doorway between the work area and the washroom. Keep all outside personnel clear of the equipment decontamination unit.
 - b. Once inside the washroom, wet-clean the bags and/or equipment.
 - c. When cleaning is complete, insert bagged material into a clean bag/drum during the pass between the washroom and holding area. Close all doorways except the doorway between the washroom and holding area.
 - d. Workers from the building exterior enter the clean room then the holding area to remove decontaminated equipment and/or containers for disposal. Require these workers to wear full protective clothing and respiratory protection as described in Section 01562.

C. Decontamination Unit Contamination:

1. If the air quality in the decontamination unit exceeds 0.01 fibers per cc analyzed by PCM or 70 structures per mm squared analyzed by TEM or its integrity is diminished through use as determined by the designer or industrial hygiene firm, no employee shall use the unit until corrective steps are taken and approved by the designer and industrial hygiene firm.

SECTION 01711

PROJECT DECONTAMINATION

1.1 GENERAL

- A. Carry out a first cleaning of all surfaces of the work area including plastic sheeting, tools, scaffolding and/or staging by use of damp-cleaning and mopping and/or a high efficiency particulate air (HEPA) filter vacuum until there is no visible debris from removed materials or residue on plastic sheeting or other surfaces. Do not perform dry-dusting or dry-sweeping.
- B. Equipment shall be cleaned, and all contaminated materials removed before removing polyethylene from the walls and floors.
- C. The contractor shall remove all prefilters and clean the inside and outside of the HEPA exhaust units. Pre-filters shall be disposed of as asbestos waste in accordance with Section 02084.
- D. The contractor shall fine clean, and HEPA vacuum all scaffolding and/or mechanical lifts used inside the asbestos work areas.
- E. After polyethylene sheets have been removed from walls and floors, but are still remaining on all windows, doors and the critical components, the contractor shall clean all surfaces in the work area, including ducts, electrical conduits, steel beams, roof deck, etc., with amended water and/or HEPA-filtered vacuum.
- F. After cleaning the work area, the contractor shall allow the area to thoroughly dry and then wet-clean and/or HEPA vacuum all surfaces in work area again.
- G. At the completion of the cleaning operation, the contractor's supervisor shall perform a complete visual inspection of the work area to ensure that the work area is dust- and fiber-free. If the supervisor believes he is ready for a final project decontamination inspection, he shall notify the designer.
- H. ECS will perform the final project decontamination inspection requested by the contractor.
- I. Visual inspection for acceptance shall be performed after all areas are dry.
- J. ECS shall perform the final visual inspection and conduct the final air clearance. Any discrepancies found shall be documented in the form of a punch list.
- K. Final air sampling shall not commence until the visual inspection is completed and passed.
- L. If the industrial hygiene firm finds that the work area has not been adequately decontaminated, cleaning and/or air monitoring shall be repeated at the

contractor's expense, including additional industrial hygiene fees, until the work area is in compliance.

- M. After the work area is found to be in compliance, all entrances and exits shall be unsealed and the plastic sheeting, tape and any other trash and debris shall be disposed of in sealable plastic bags (6 mil minimum) and disposed of as outlined in Section 02084.
- N. All HEPA unit intakes and exhausts shall be wrapped with six mil polyethylene before leaving the work area.
- O. After the industrial hygiene firm has approved the final project decontamination and the contractor has completed the tear down for occupancy by others, the designer shall perform the project final inspection as outlined in the general conditions.
- P. Any residual asbestos that may be present after removing critical barriers, that in the designer's judgment should have been cleaned during the precleaning phase prior to installing critical barriers, shall be cleaned, and cleared at the contractor's expense.
- Q. There shall be appropriate seals totally enclosing the inspection area to keep it separate from clean areas or other areas where abatement is or will be in progress. Once an area has been accepted and passed air tests, loss of the critical barrier integrity or escape of asbestos into an already clean area shall void previous acceptance and tests. Additional visual and final air clearance sampling shall be required at the contractor's expense.

SECTION 01714

WORK AREA CLEARANCE

1.1 GENERAL

- A. Notification and scheduling of the final inspection during the project is the responsibility of the contractor.

1.2 FINAL CLEARANCE TESTING

- A. After the second cleaning operation and after the area is completely dry, the following procedure test shall be performed:
 - 1. A final visual inspection shall be conducted by ECS. The inspection shall be conducted following the guidelines set forth in the American Society for Testing and Materials, Standard Practices for Visual Inspection of Asbestos Abatement Projects, Designation: E1368.90. If the work area is found visibly clean, air samples will be collected by the air monitor.
 - 2. During the clearance air testing, the North Carolina accredited air monitor shall cause disruptive air currents as described in the EPA-AHERA regulations (40 CFR Part 763, Subpart E, Appendix A).
 - 3. First Day and periodic air samples are to be analyzed using Phase Contrast Microscopy (PCM) with a minimum of five samples per unit using NIOSH 7400 method. Clearance criteria shall be less than 0.01 F/cc for all samples analyzed.
 - 4. Final clearance criteria shall be in accordance with North Carolina AHMP Rules in public buildings. Final clearance samples within the removal work area shall be analyzed using the Mandatory Transmission Electron Microscopy (TEM) Method described in 40 CFR Part 763, Subpart E, Appendix F. Clearance criteria for TEM samples shall be an arithmetic mean less than or equal to 70 structures per square millimeter or a z-test less than or equal to 1.65.
 - 5. The air monitor shall immediately report the final air sampling clearance results to the designer and contractor.
 - 6. The use of the negative pressure system may be discontinued after the industrial hygiene firm instructs the contractor that he has passed the final TEM air clearance and project decontamination inspection.

SECTION 02080

ASBESTOS REMOVAL

1.1 GENERAL

- A. Prior to starting asbestos removal, the contractor's equipment, work area and decontamination units will be inspected and approved by the Air Monitor.
- B. Loose asbestos material removed in the work area shall be adequately wet with a surfactant, bagged, sealed and labeled properly before personnel breaks or end of shift. The surfactant to be utilized with asbestos-containing materials shall consist of soapy water mixed in a proportion of two (2) fluid ounces of liquid soap to five (5) gallons of water. An asbestos removal encapsulant may be utilized as a substitute for surfactant use to control airborne fibers.
- C. All plastic sheeting, tape, cleaning material, clothing and all other disposable material or items used in the work area shall be packed into sealable plastic bags (6 mil minimum) and treated as contaminated material.
- D. All material shall be double-bagged, "goose necked", and sealed with duct tape.
- E. All excess water (except shower water) shall be combined with removed material or other absorptive material and properly disposed of as per EPA regulations. Contractor shall not place water in storm drains, onto lawns, or into ditches, creeks, streams, rivers, or oceans.
- F. If the Owner or their field representative presents a written Stop Asbestos Removal Order, the Abatement Contractor/Personnel shall immediately stop all asbestos removal and adequately wet any exposed ACM. The Contractor shall not resume any asbestos removal activity until authorized to do so by Owner. A stop asbestos removal order may be issued at any time the Owner determines abatement conditions/activities are not within specification requirements. Work stoppage will continue until conditions have been corrected to the satisfaction of Owner. Standby time and costs for corrective actions will be borne by the Abatement Contractor, including the industrial hygienist's time. The occurrence of any of the following events shall be reported immediately by the Abatement Contractor in writing to the Owner and shall require the Contractor to immediately stop asbestos removal activities and initiate fiber reduction activities:
 - 1. \geq 0.01 f/cc outside regulated area
 - 2. Breach/break in regulated area barrier(s)
 - 3. Serious injury/death within regulated area
 - 4. Fire/safety emergency within the regulated area
 - 5. Respiratory protection system failure

6. Power failure
7. Excessive airborne fibers (>0.5 f/cc) in the regulated area.

1.2 SCOPE OF WORK

A. Base Bid

- Floor Tile and Mastic - This is considered a Class 2 OSHA asbestos material. Please note that approximately 10,200 square feet of asbestos-containing floor tile and mastic will be included in the base bid. At may be necessary to conduct selective removal of cabinets and other fixed items to access the floor tile and mastic. The abatement contactor is also to include a unit rate per square foot for additional mastic if identified during abatement/demolition.
- Vibration Dampener – This is considered a Class 1 OSHA asbestos material. include in base bid a budget for removal and disposal seven vibration dampeners (approximately 20 sf each). The abatement contractor is to also include a unit rate per linear foot if additional material is identified.
- Mudded Elbows and Black Mastic on 6” pipes – This is considered a Class 1 OSHA asbestos material. Mudded pipe elbows and black mastic on 6” pipes is to be abated as part of the base bid. Approximately 20 elbows were observed. The quantity of black mastic on 6” pipes is not known at this time. The abatement contractor is to also include a unit rate per linear foot if additional is identified.
- Black Tar on HVAC Wrap – This is considered a Class 1 OSHA asbestos material. include in base bid a budget for removal and disposal of approximately 20 square feet of black tar on HVAC wrap. The abatement contractor is to also include a unit rate per linear foot if additional is identified.
- Wall Texture – The finished walls in the hallway of the 1st floor have asbestos-containing texture. This is considered a Class 2 OSHA asbestos material. The textured walls identified in the figure are to be demolished by the abatement contractor as part of the base bid. There is approximately 1,750 square feet of asbestos texture on walls on the 1st floor that is to be removed as part of the base bid. The asbestos contactor is to include a unit rate per square foot on the bid form for demolition and disposal of walls with asbestos-containing texture.

The quantities and locations of ACM as indicated, and the extent of the work included in this section are estimates which are limited by the physical constraints of the buildings. Accordingly, minor variations (+/- 10%) in quantities of ACM within the regulated areas are considered as having no impact on contract price and time requirements of this contract. Where additional work is required beyond the above variation, the contract time and price will be adjusted under provisions of the applicable clause in the contract. Additional or reduced abatement work beyond the variations will be basis for adjusting the contract price.

1.3 ACM PRODUCTS TO BE REMOVED

Mudded Pipe Elbows, Black Pipe Mastic, Black Tar on HVAC

- A. The abatement contractor has the option to remove pipe insulation and fittings either by glove bag removal or wrap and cut removal methods in select locations of the building. It may be necessary for the abatement contractor to conduct demolition of hard ceilings where needed to access piping to be removed. The piping can either be removed using wrapped-and-cut or glovebag methods.
1. The asbestos abatement contractor will meet the requirements listed under the OSHA standard 29 CFR 1926.1101 section g(4) for Class 1 friable asbestos work.
 2. Glove Bag Removal Method (pipe insulation) – Glove-bag removal of pipe insulation shall meet the requirements of the OSHA standard 29 CFR 1926.1101 section g(5)ii regarding construction and work practices. The minimum requirements for glovebag removal shall be:
 - a. Preparation: Before any work commences, a layer of polyethylene sheeting shall be placed on the floor, as a drop cloth, beneath the glove bag abatement work area. If necessary, any TSI material that has fallen off piping or other equipment shall be wetted, and carefully placed in a polyethylene bag, and the area shall be cleaned of visible material with a HEPA vacuum prior to placing the sheeting. Appropriate warning signs shall be posted outside this barrier in areas of high visibility. A HEPA filtered air filtration unit shall be on-site to be used to contain an emergency fiber release.
 - b. Remove TSI inside a glovebag according to manufacturer's guidelines. Thoroughly wet material to be removed with amended water or removal encapsulant and allow to soak through to substrate.
 - c. Each glovebag shall be installed so that it completely covers the circumference of pipe or other structure where the work is to be done.
 - d. Glovebags shall be smoke-tested for leaks and any leaks sealed prior to use.
 - e. Glovebags may be used only once and may not be moved.
 - f. Before beginning the operation, loose and friable material adjacent to the glovebag/box operation shall be wrapped and sealed in two layers of 0.15 mm plastic or otherwise rendered intact.
 - g. Use two people for glove-bag operation. One shall remove insulation, the other shall operate water sprayer and repair any leaks in bag.
 - h. Using a small HEPA vacuum, create a negative pressure inside the glove-bag before starting any asbestos removal and maintain throughout the use of the bag.

- i. After removal of insulation, brush and wet-clean pipe to remove residual material. Continue wet cleaning until surfaces are free of visible material. Clean area of all debris and notify PM for visual inspection.
 - j. Where system uses attached waste bag, such bag shall be connected to collection bag using hose or other material that shall withstand pressure of ACM waste and water without losing its integrity.
 - k. Glove-bag shall be considered the first container for material. Seal glove bag within clean contaminant bag with duct tape.
 - l. Encapsulate or Lockdown abated section of pipe and any adjacent piping as required. Note: the use of a lock-down surface coating material will seal in fungal growth on surfaces making them extremely difficult to remediate. Care should be taken not to spray lock-down over fungal impacted materials that are to remain in the building and will require remediation/cleaning.
 - m. Remove and dispose of all friable asbestos materials in accordance with all state, local and federal regulations.
3. Wrap-and-cut Methods – If the abatement contractor elects this option, the pipe substrate and insulation will be disposed as ACM in accordance with provisions set forth in this specification.
- a. Establish a control area as outlined within Section 10-01526 and 10-01563 of this specification.
 - b. Divide piping with insulation intact into manageable sections.
 - c. Remove insulation using the glove-bag techniques referenced above at the ends of each section where piping is to be cut.
 - d. Double wrap each section with 6-mil poly. Seal ends using duct tape leaving enough area of exposed pipe substrate to completely cut through the piping.
 - e. Candy-stripe the double-wrapped section of piping with duct tape prior to disposal. Place sections piping in lined dumpster or container. Label and dispose as ACM in approved landfill.

Floor Tile and Associated Mastic

- A. Based on the quantities, the floor tile and mastic are to be removed under full containment. Any cabinets, storage closets or fixed items that are present over floor tile and mastic will require selective removal and disposal to access the floor tile and mastic, as needed. Floor tile and mastic is to be removed in accordance with the requirements below:

1. The abatement contractor will meet the requirements listed under the OSHA standard 29 CFR 1926.1101 section g for Class II friable materials. Minimum requirements for abatement of Class II friable materials will be:
 - a. A full decontamination unit including a shower and separate bag loadout will be constructed at the entrance to the work area. See Appendix B for the tentative layout of the decontamination unit.
 - b. Negative air pressure of 0.02 inches of water shall be maintained in the work area at all times.
 - c. Minimum personnel protection equipment for the abatement workers shall be PAPR respiratory protection, disposable clothing, gloves, and boots during gross removal.
 - d. The asbestos abatement contractor will provide separate personnel and equipment/loadout decontamination facilities. The personnel decontamination unit will be the only means of ingress and egress for the work area. All materials will exit the work area through the equipment/loadout decontamination unit. The Asbestos abatement contractor will comply with 29 CFR 1926.1101, specifically paragraph (j) Hygiene facilities and practices for employees.
 - e. Abatement workers will wear protective clothing and respiratory protection in accordance with OSHA regulations during the abatement. The minimum respiratory protection during gross removal of friable materials will be a powered air purifying half-faced respirator. The asbestos abatement contractor may downgrade respiratory protection to a half-face air purifying respirator during the final cleaning based on the results of the OSHA required personnel air sampling.
 - f. Critical barriers will be placed over all doors, windows, electrical panels, HVAC equipment, wall penetrations and accordion wall partitions. The critical barriers will consist of two layers of 6-mil poly secured in place. All walls and floors will be covered with a layer of 6-mil poly as required.
 - g. High efficiency particulate air (HEPA) filter exhaust systems equipped with new HEPA filters for each project will be used. Exhaust equipment and systems will comply with ANSI Z9.2-79 and be used according to manufacturers' recommendations. Filtered air from the work area will be exhausted outside the building.
 - h. A system of HEPA-equipped air filtration devices will be configured so that a pressure differential is established between the work area and the surrounding area (-0.02 to -0.04" water column).
 - i. Additional air filtration devices will be provided inside the work area for emergency standby as well as for circulation of dead air spaces.
 - j. The pressure differential is maintained at all times after preparation is complete and until the final visual inspection and air tests confirm the area is

clean and acceptable for occupancy and the designer confirms verbally with written follow-up to discontinue the use of the negative pressure system.

- k. The above minimum requirements are intended as a guide and do not supersede OSHA requirements.
 - l. After the negative pressure decontamination unit is constructed and prior to gross removal, ECS/industrial hygiene firm will conduct a poly visual inspection and first day air monitoring. ECS/industrial hygiene firm must conduct a final visual inspection and can use PCM clearance. ECS requires at least 48 hours' notice prior to conducting a site visit or final clearance.
- B. When using chemical removers (if the contractor elects to do so for removal of floor tile mastic), the contractor shall use a product that meets the following criteria:
- a. The product shall not create a hazardous waste as a by-product.
 - b. The product shall be "low to no odor".
 - c. The product shall not contain any carcinogenic compounds or chlorinated hydrocarbons.
 - d. When using chemical removers, the contractor shall protect the walls in all adjacent areas. The contractor shall be responsible for any damage that occurs and for the complete repair of the damage.
 - e. The contractor shall add cat litter, oil-sorb or equivalent so that no free-standing liquid will be left in the asbestos bag.
 - f. The asbestos abatement contractor will dispose of asbestos-containing materials in accordance with applicable Federal, State, and local regulations.

Friable or Regulated Removal: Textured Walls

- A. Textured walls are to be removed as Class 1 OSHA in a negative pressure containment (or several negative pressure containments). A full decontamination unit including a clean room, shower and equipment room will be constructed at the entrance or on the exterior of the building to the work area and will include a separate waste exit (See attached Decontamination Area Arrangement). It will be necessary to conduct select demolition to removal walls, ceilings and other materials to access fireproofing and overspray.
- B. Negative air pressure of 0.02 inches of water shall be maintained in the work area at all times.
- C. Minimum personnel protection equipment for the abatement workers shall be Powered Air Purifying Respirator (PAPR) respiratory protection, disposable clothing, gloves and boots during gross removal.
- D. The asbestos abatement contractor will provide separate personnel and equipment/loadout decontamination facilities. The personnel decontamination unit will be the only means of ingress and egress for the work area. All materials will exit

the work area through the equipment/loadout decontamination unit. The Asbestos abatement contractor will comply with 29 CFR 1926.1101, specifically paragraph (j) Hygiene facilities and practices for employees.

- E. Abatement workers will wear protective clothing and respiratory protection in accordance with OSHA regulations during the abatement. The minimum respiratory protection during gross removal of friable materials will be a powered air purifying respirator. The asbestos abatement contractor may downgrade respiratory protection to a half-face air purifying respirator during the final cleaning based on the results of the OSHA required personnel air sampling.
- F. Full containment must be used during gross removal of all friable materials or materials that will become friable during removal. One layer of 6-mil poly must be used during construction of the containment (walls, floors and ceilings).
- G. High efficiency particulate air (HEPA) filter exhaust systems equipped with new HEPA filters for each project will be used. Exhaust equipment and systems will comply with ANSI Z9.2-79 and be used according to manufacturers' recommendations. Filtered air from the work area will be exhausted outside the building.
- H. A system of HEPA-equipped air filtration devices will be configured so that a pressure differential is established between the work area and the surrounding area (-0.02 to -0.04" water column).
- I. Additional air filtration devices will be provided inside the work area for emergency standby as well as for circulation of dead air spaces.
- J. It will be necessary to conduct selective demolition in portions of the building to access fireproofing and overspray for removal.
- K. First day air monitoring and Clearance air sampling of friable/regulated ACM will be performed using PCM. After the negative pressure decontamination unit is constructed and prior to gross removal, ECS or a representative of ECS will conduct a poly visual inspection and first day air monitoring using PCM. ECS will be available for a final visual inspection and air clearance using TEM at completion of abatement activities. The above minimum requirements are intended as a guide and do not supersede OSHA requirements.

Vibration Dampeners

- A. Vibration Dampeners will be removed in their entirety from the ductwork and double wrapped in a 2-mil poly sheet for proper disposal. Applicable State, EPA and OSHA regulations will be followed. A final visual inspection by ECS will be conducted to confirm vibration dampeners have been removed.

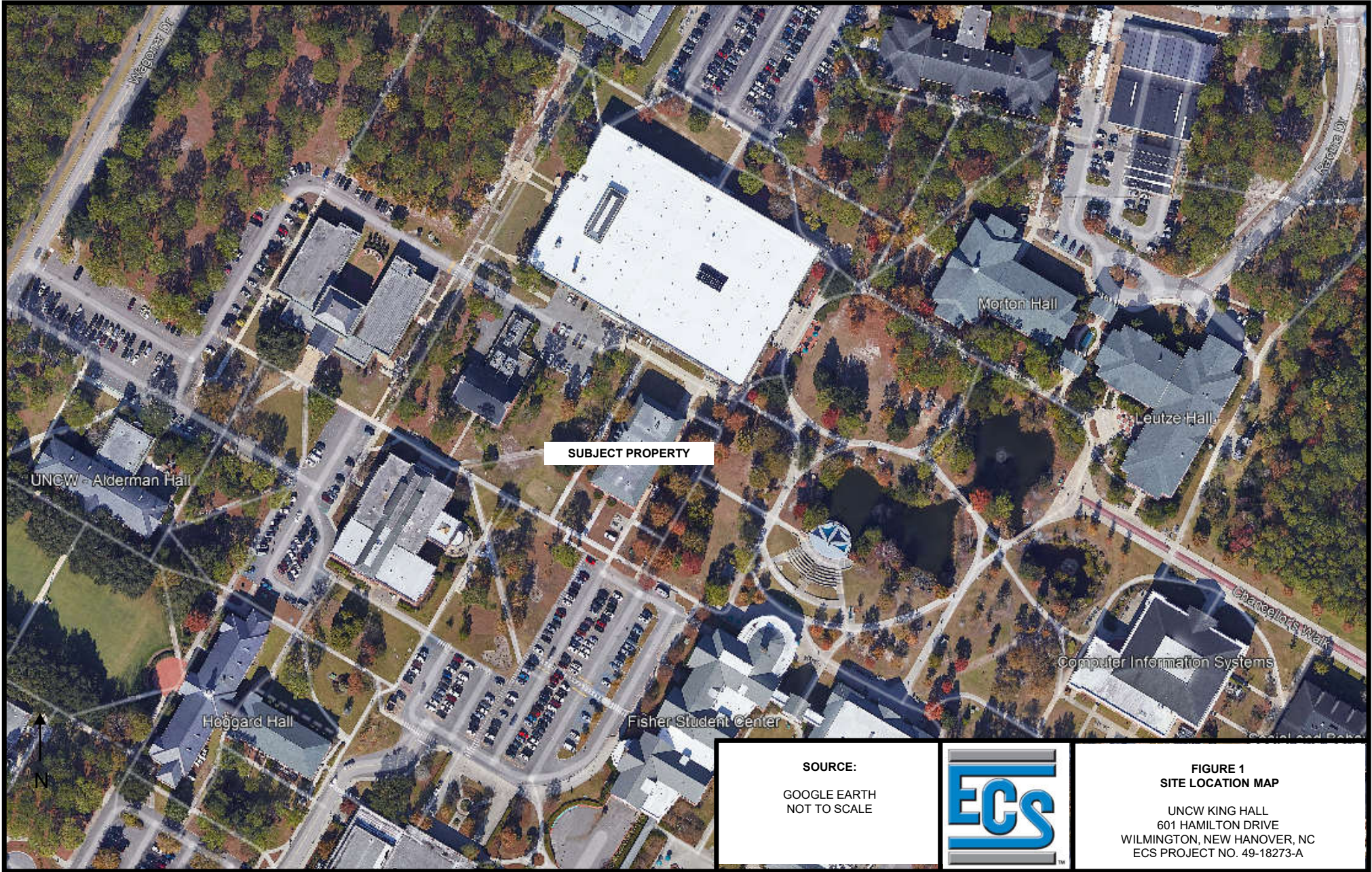
SECTION 02084

DISPOSAL OF ASBESTOS-CONTAINING WASTE MATERIAL

1.1 GENERAL

- A. All asbestos materials and miscellaneous contaminated debris shall be properly sealed and protected, and the loadout vehicle/dumpster shall be locked, while located on the facility site and then transported to a predesignated disposal site in accordance with 40 CFR 61.150 and DOT 49 CFR Parts 100-399.
- B. An enclosed vehicle will be used to haul waste material to the disposal site. No rental vehicles or trailers shall be used. Vehicle selection, vehicle covers, and work practices shall assure that no asbestos becomes airborne during the loading, transport and unloading activity, and that material is placed in the waste site without breaking any seals.
- C. Waste disposal polyethylene bags (6 mil) and containers, non-porous (steel/plastic) drums or equivalent, with labels, appropriate for storing asbestos waste during transportation to the disposal site shall be used. In addition to the OSHA labeling requirements, all containers shall be labeled with the name of the waste generator and the location at which the waste was generated.
- D. The contractor shall transport the containers and bags of waste material to the approved waste disposal site. The sealed plastic bags shall be placed into the burial site unless the bags have been broken or damaged. Upon the landfill's approval damaged bags shall be left in the non-porous containers and the entire contaminated package shall be buried. Uncontaminated containers may be reused.
- E. Workers loading and unloading the asbestos will wear respirators and disposable clothing when handling material. Asbestos warning signs shall be posted during loading and unloading of asbestos waste.
- F. The contractor shall use the HHCB's Waste Shipment Record for disposal records as per 40 CFR 61.150 and distribute a copy of all waste shipment records to the designer after the completion of the project.

END OF SPECIFICATION

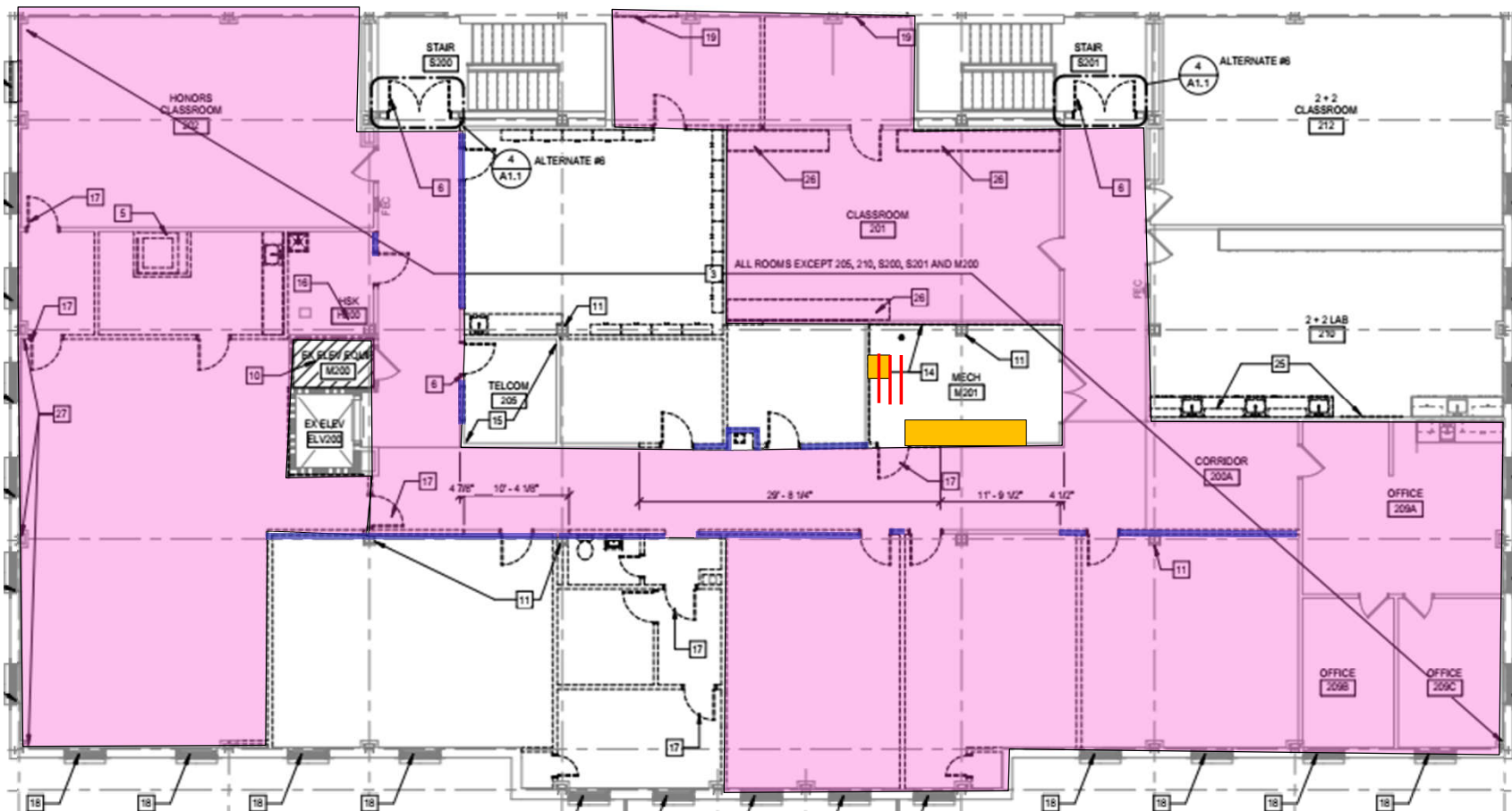


SUBJECT PROPERTY

SOURCE:
GOOGLE EARTH
NOT TO SCALE



FIGURE 1
SITE LOCATION MAP
UNCW KING HALL
601 HAMILTON DRIVE
WILMINGTON, NEW HANOVER, NC
ECS PROJECT NO. 49-18273-A



LEGEND

- ACM VCT/Mastic
- ACM Vibration Dampener
- Observed ACM Black Mastic TSI
- Wall with ACM Wall Texture

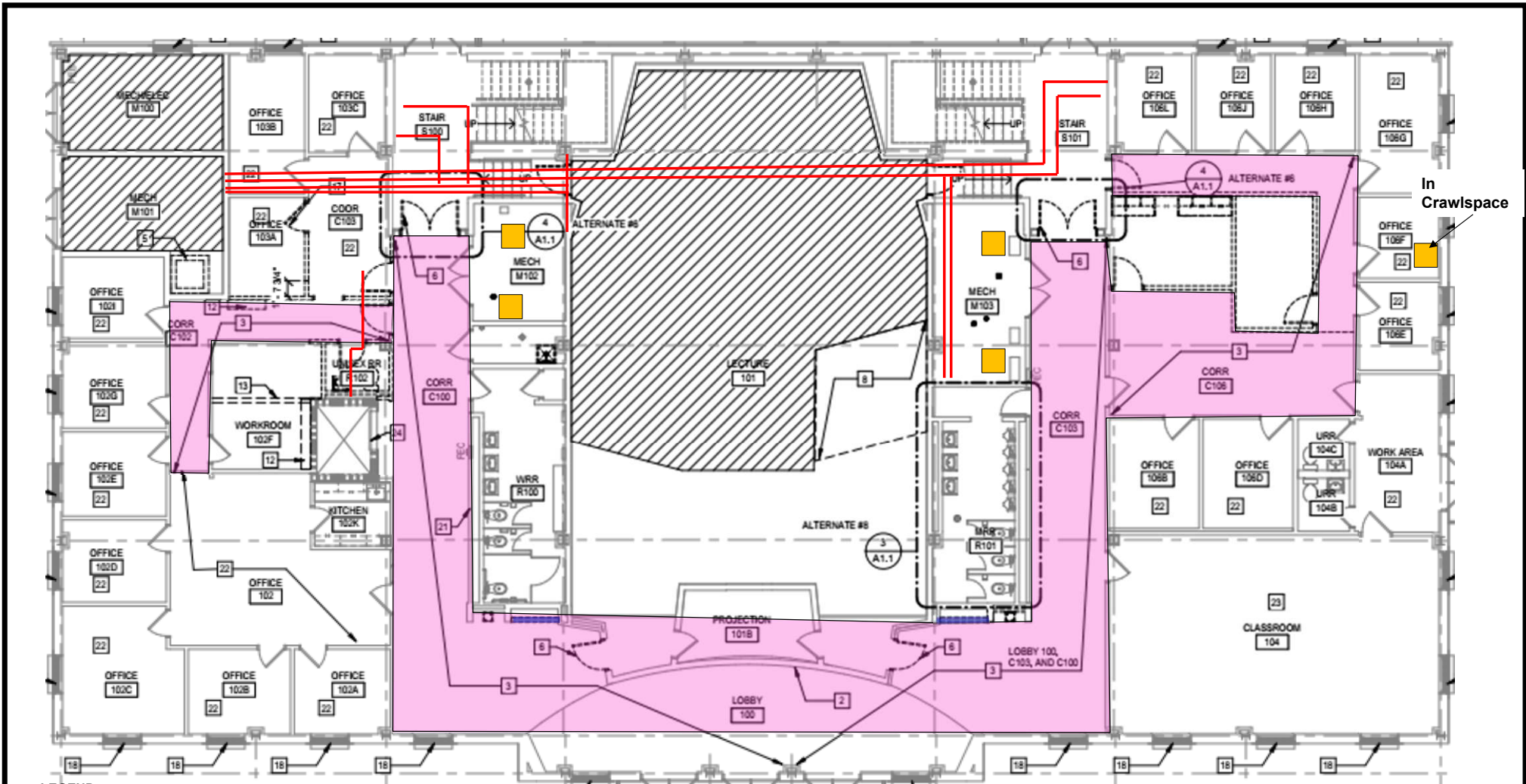
- NOTE:**
- 1) Contractor is responsible for removal and disposal of all ACM shown on the Drawings. The ACM shall be removed in accordance with the Asbestos Removal Plans and Specifications.
 - 2) The boundaries, locations and quantities are approximate. Contractor shall verify the location and quantity of ACM prior to bidding work. Any discrepancies identified should be conveyed to ECS prior to bidding.



SOURCE:
 MOSLEY ARCHITECTS AND ECS
 FIELD NOTES
 NOT TO SCALE



FIGURE 2
LOCATION OF ACM TO BE REMOVED
SECOND FLOOR
 UNCW KING HALL
 601 HAMILTON DRIVE
 WILMINGTON, NEW HANOVER, NC
 ECS PROJECT NO. 49-18273-A



In Crawlspace

- LEGEND**
- ACM VCT/Mastic
 - ACM Vibration Dampener
 - Observed ACM Black Mastic TSI
 - Wall with ACM Wall Texture

- NOTE:**
- 1) Contractor is responsible for removal and disposal of all ACM shown on the Drawings. The ACM shall be removed in accordance with the Asbestos Removal Plans and Specifications.
 - 2) The boundaries, locations and quantities are approximate. Contractor shall verify the location and quantity of ACM prior to bidding work. Any discrepancies identified should be conveyed to ECS prior to bidding.

SOURCE:
 MOSLEY ARCHITECTS AND ECS
 FIELD NOTES
 NOT TO SCALE



FIGURE 3
LOCATION OF ACM TO BE REMOVED
FIRST FLOOR
 UNCW KING HALL
 601 HAMILTON DRIVE
 WILMINGTON, NEW HANOVER, NC
 ECS PROJECT NO. 49-18273-A

APPENDIX A

PREWORK ASBESTOS INSPECTION CHECKLIST

Name of State Facility: _____

Project Name: _____

Project ID Number: _____

Date of Inspection: _____ Pass: _____ Fail: _____

A. DOCUMENTS	YES	NO
1) Asbestos Removal Permit/NESHAP Notification	_____	_____
2) Accreditation Documents for Workers & Supervisors	_____	_____
3) Asbestos Plans and Specifications	_____	_____
4) Air Monitoring Data	_____	_____
5) Waste Shipment Records	_____	_____
6) Sign-in Sheets and Bound Book for Comments	_____	_____
7) Calibration Record for Grade "D" Air	_____	_____
8) Items listed in Section 01043 of Specification	_____	_____
B. PPE SUPPLIES		
1) Tyvek Clothing	_____	_____
2) Rubber Boots	_____	_____
3) Respirators with HEPA Filters	_____	_____
C. CLEAN ROOM		
1) Entry Curtains	_____	_____
2) Emergency Phone Numbers Posted	_____	_____
3) First Aid Kit	_____	_____
4) Asbestos Signs	_____	_____
5) Decontamination Procedures Posted	_____	_____
6) Fire Extinguisher	_____	_____
D. SHOWER ROOM		
1) Polyethylene Curtains	_____	_____
2) Hot/Cold Water & Operational	_____	_____
3) Soap & Towels	_____	_____
4) Waste Water Filter Pump Operational	_____	_____
5) Extra Five Micron Size Filters	_____	_____
6) Filtered Waste Water to Sanitary Sewer	_____	_____

E. WORK AREA	YES	NO
1) Removable Items Out of Area	_____	_____
2) Non-removable Items Protected	_____	_____
3) Critical Barriers Installed	_____	_____
4) Polyethylene Curtains	_____	_____
5) Polyethylene on Walls/Floors as Specified	_____	_____
6) HVAC off	_____	_____
7) Air Filtration Devices in Place and Operational	_____	_____
8) Air Exhausted to Outside	_____	_____
9) Electricity Locked and Tagged Out	_____	_____
10) Temporary Power Installed with GFCI	_____	_____
11) Fire Extinguishers	_____	_____
12) Emergency and Fire Exits Marked	_____	_____
13) Audible Alarms Operational	_____	_____
14) Toilet Available	_____	_____

F. EQUIPMENT		
1) Safety Equipment	_____	_____
2) HEPA Vacuums	_____	_____
3) Waste Disposal Bags	_____	_____
4) Airless Sprayer with Water Source	_____	_____
5) Cleaning Equipment	_____	_____
6) Glove Bags	_____	_____
7) Emergency Power Generator (if required)	_____	_____
8) Temporary Lighting	_____	_____

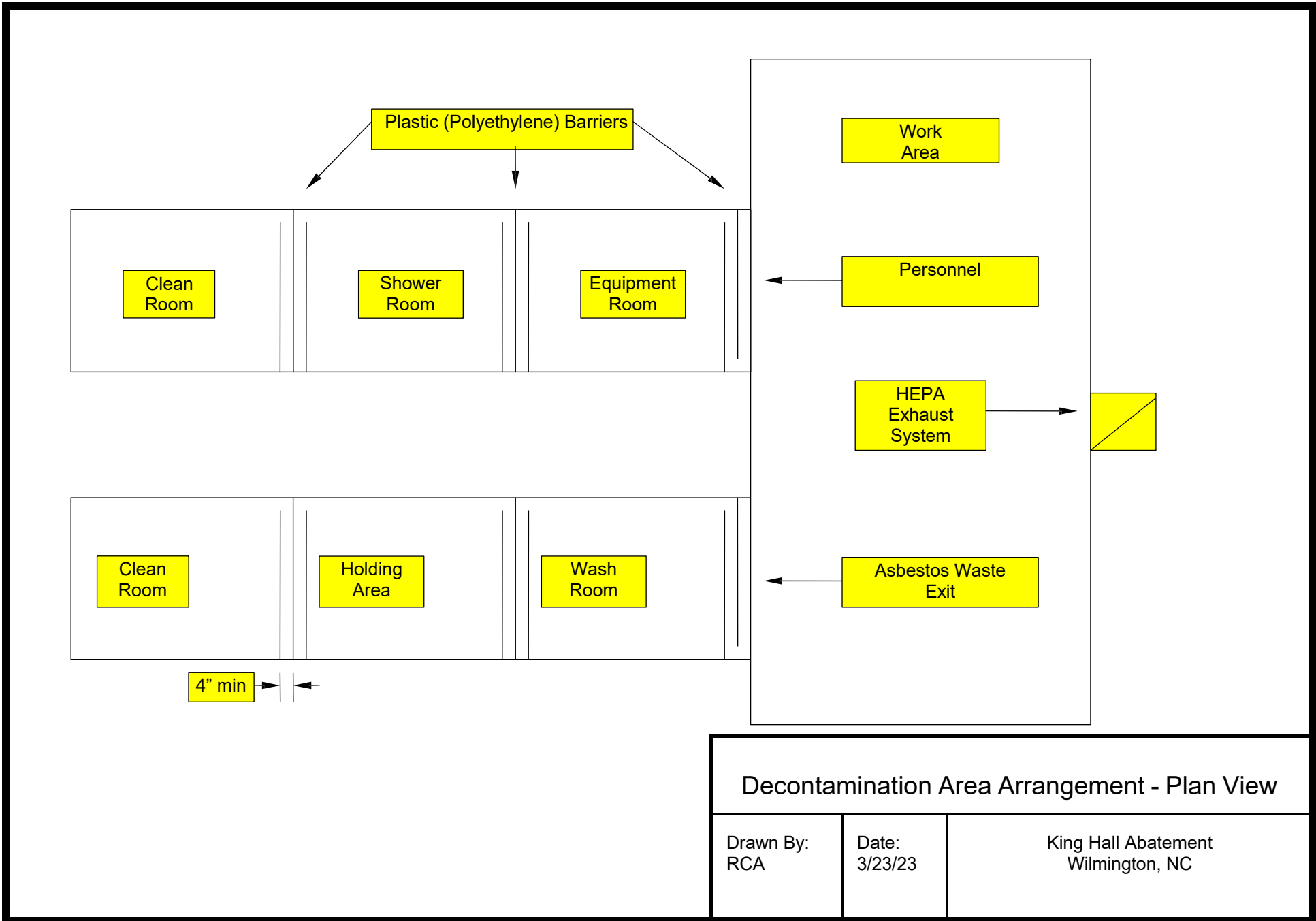
G. OTHER		
1) _____	_____	_____
2) _____	_____	_____
3) _____	_____	_____
4) _____	_____	_____

Asbestos Design Consultant

Date

Asbestos Contractor's Representative

Date





NC DEPARTMENT OF HEALTH AND HUMAN SERVICES

ROY COOPER • Governor
KODY H. KINSLEY • Secretary
MARK T. BENTON • Deputy Secretary for Health
SUSAN KANSANGRA • Assistant Secretary for Public Health
Division of Public Health

January 12, 2023

Ryan C Abrahamson
4811 Koger Blvd
Greensboro, NC 27407

Dear Mr. Abrahamson:

Based upon the review of your accreditation application, the Health Hazards Control Unit (HHCU) has determined that you have fulfilled the requirements and are eligible for asbestos accreditation as a(n) ABATEMENT PROJECT DESIGNER. Your assigned North Carolina accreditation number is 40528, which is reflected on your enclosed North Carolina Accreditation card. Please be sure to take this card with you to any asbestos work site where you are employed. The State requires that all persons conducting asbestos abatement or asbestos management activities be accredited and have their identification card on site.

Your North Carolina Abatement Project Designer accreditation will expire on NOVEMBER 30, 2023. It is NOT the policy of the HHCU to issue renewal notices. If you wish to continue working as a(n) Abatement Project Designer after this expiration date, you must successfully complete the required training and submit a completed application to this office prior to November 30, 2023. If you should continue to perform asbestos management activities as a(n) Abatement Project Designer without a valid North Carolina accreditation, you will be in violation of State regulations and may be cited for noncompliance.

North Carolina Asbestos Accreditation card for Ryan C Abrahamson. Includes photo, name, address, and a table with fields: EXPIRATION (11-30-2023), DOB (11-23-1979), SEX (M), HT (5'10"), WT (240), CLASS (#, EXP) for DESIGNER (40528, 11-23) and INSPECTOR (12691, 09-23).

Sincerely,

Ed Norman (signature)

Ed Norman
Program Manager
Health Hazards Control Unit

NC DEPARTMENT OF HEALTH AND HUMAN SERVICES . DIVISION OF PUBLIC HEALTH

LOCATION: 5505 Six Forks Road, Building 1, Raleigh, NC 27609
MAILING ADDRESS: 1912 Mail Service Center, Raleigh, NC 27699-1912
www.ncdhhs.gov . TEL: 919-707-5950 . FAX: 919-870-4808

AN EQUAL OPPORTUNITY / AFFIRMATIVE ACTION EMPLOYER



NC DEPARTMENT OF HEALTH AND HUMAN SERVICES

ROY COOPER • Governor

KODY H. KINSLEY • Secretary

HELEN WOLSTENHOLME • Interim Deputy Secretary for Health

MARK T. BENTON • Assistant Secretary for Public Health

Division of Public Health

June 21, 2022

Lindsey B Lucas
4634 Heritage Manor
Crestwood, KY 40014

Dear Ms. Lucas:

Based upon the review of your accreditation application, the Health Hazards Control Unit (HHCU) has determined that you have fulfilled the requirements and are eligible for asbestos accreditation as a(n) ABATEMENT PROJECT DESIGNER. Your assigned North Carolina accreditation number is 40513, which is reflected on your enclosed North Carolina Accreditation card. Please be sure to take this card with you to any asbestos work site where you are employed. The State requires that all persons conducting asbestos abatement or asbestos management activities be accredited and have their identification card on site.

Your North Carolina Abatement Project Designer accreditation will expire on JUNE 30, 2023. It is NOT the policy of the HHCU to issue renewal notices. If you wish to continue working as a(n) Abatement Project Designer after this expiration date, you must successfully complete the required training and submit a completed application to this office prior to June 30, 2023. If you should continue to perform asbestos management activities as a(n) Abatement Project Designer without a valid North Carolina accreditation, you will be in violation of State regulations and may be cited for noncompliance.

Sincerely,

Ed Norman (signature)

Ed Norman
Program Manager
Health Hazards Control Unit

North Carolina Asbestos Accreditation card for Lindsey B Lucas. Includes photo, name, address, and a table with columns: EXPIRATION (06-30-2023), DOB (11-10-1978), SEX (F), HT (5'7"), WT (165), CLASS, #, and EXP (06-23).

NC DEPARTMENT OF HEALTH AND HUMAN SERVICES . DIVISION OF PUBLIC HEALTH

LOCATION: 5505 Six Forks Road, Building 1, Raleigh, NC 27609
MAILING ADDRESS: 1912 Mail Service Center, Raleigh, NC 27699-1912
www.ncdhhs.gov . TEL: 919-707-5950 . FAX: 919-870-4808



AN EQUAL OPPORTUNITY / AFFIRMATIVE ACTION EMPLOYER

ASBESTOS AND LEAD PAINT SURVEY



UNC-WILMINGTON - KING HALL

601 HAMILTON DRIVE
WILMINGTON, NORTH CAROLINA 28403

ECS PROJECT NO. 49:18273

FOR: UNC-WILMINGTON

NOVEMBER 1, 2022





November 1, 2022

Mr. David Holsinger
UNC-Wilmington
601 South College Road
Wilmington, North Carolina 28403

ECS Project No. 49:18273

Reference: Asbestos and Lead Paint Survey, UNC-Wilmington - King Hall, 601 Hamilton Drive, Wilmington, North Carolina

Dear Mr. Holsinger:

ECS Southeast, LLP (ECS) is pleased to provide UNC-Wilmington with the results of the Asbestos and Lead Paint Survey performed at the UNC-Wilmington - King Hall. This report summarizes our observations, analytical results, findings, and recommendations related to the work performed. The work described in this report was performed by ECS in general accordance with the Scope of Services described in ECS Proposal Number 49:31775P and the terms and conditions of the agreement authorizing those services.

ECS appreciates this opportunity to provide UNC-Wilmington with our services. If we can be of further assistance to you, please do not hesitate to contact us.

Sincerely,

ECS Southeast, LLP

Tina M. Stewart, REM
Environmental Principal
tstewart@ecslimited.com
336-314-4691

Amy DeSaix, REM, CIEC
Environmental Principal
adesaix@ecslimited.com
910-686-9114

EXECUTIVE SUMMARY

The subject property consists of a two-story educational building located on the UNC Wilmington (UNCW) campus at 601 Hamilton Drive in Wilmington, New Hanover County, North Carolina. Based on the information available, the building is referred to as King Hall, contains 22,288 square feet of space, and was reportedly constructed in 1968. UNCW provided prior reports from 2002 and a spreadsheet with identified asbestos-containing materials (ACMs) including samples collected from 2018. The building consist of concrete masonry unit (CMU) block and plaster gypsum board wall finishes with floor tiles, and a drop down ceiling.

The purpose of this Asbestos and Lead Paint Survey is to evaluate if ACMs or lead-containing paint (LCP) may be present within portions of the buildings to be renovated which may require special handling and/or disposal if removed during construction activities. Reportedly, the proposed renovations include new carpet, paint, restrooms, ADA upgrades, window replacement, suite alterations including moving walls. Therefore, the survey was performed on accessible areas of the interior and exterior windows and excludes the remainder of the exterior of the building and roofing system(s).

Based on the laboratory analysis of the bulk samples collected during the survey, asbestos was identified to be in the building materials sampled. The ACMs identified included the following:

- Vibration Dampener;
- Black tar on white HVAC wrap;
- Various floor tiles and mastics;
- Black mastic on 6" pipes;
- White wall texture;
- Black residual mastic; and,
- Sink coating.

A trace amount of asbestos ($\leq 1\%$) was detected in the bulk samples of three homogeneous sampling areas including white/gray insulation in the boiler flu, white caulking on drywall to brick on first floor, and white exterior window glazing (Samples 3-1,-2, 23-1,-2, and 47-1,-2) analyzed by the laboratory.

ECS was provided previous asbestos survey reports that included the identification of ACMs in the following materials:

- Cloth vibration dampener in mechanical closets;
- Mudded insulation on the steam and hot water pipes throughout the building;
- Insulation located inside the boiler flue;
- Silver/black roof flashing;
- 12"x12" white with gray and black specs floor tile;
- Black mastic beneath carpet;
- 12"x12" cream with white and gray flecks floor tile;
- 12"x12" off-white with gray streak floor tile;
- 12"x12" cream with tan and gray streak floor tile;
- 12"x12" gray/black floor tile; and,
- 12"x12" white with black dots floor tile.

Based on the laboratory analysis of the paint chip samples collected during the survey, lead was identified in several of the paint samples that included white, black, and gray paint.

Recommendations regarding the removal and disposal of the ACMs, and LCPs identified by ECS can be found in Section 5.0 of this report.

This Executive Summary is an integral part of the report. ECS recommends that the report be read in its entirety.

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1.0 SITE DESCRIPTION

The subject property consists of a two-story educational building located on the UNC Wilmington (UNCW) campus at 601 Hamilton Drive in Wilmington, New Hanover County, North Carolina. Based on the information available, the building is referred to as King Hall, contains 22,288 square feet of space, and was reportedly constructed in 1968. UNCW provided prior reports from 2002 and a spreadsheet with identified asbestos-containing materials (ACMs) including samples collected from 2018. The building consist of concrete masonry unit (CMU) block and plaster gypsum board wall finishes with floor tiles, and a drop down ceiling.

2.0 PURPOSE

The purpose of this Asbestos and Lead Paint Survey is to evaluate if ACMs or lead-containing paint (LCP) may be present within portions of the buildings to be renovated which may require special handling and/or disposal if removed during construction activities. Reportedly, the proposed renovations include new carpet, paint, restrooms, ADA upgrades, window replacement, suite alterations including moving walls. Therefore, the survey was performed on accessible areas of the interior and exterior windows and excludes the remainder of the exterior of the building and roofing system(s).

The identification of ACMs may require trained labor, regulated work practices, and special disposal. The identification of LCP or other lead hazards may require disclosure to contractors and monitoring of lead exposure.

3.0 METHODOLOGY

ECS performed the authorized Scope of Services in general accordance with our proposal, standard industry practice(s) and methods specified by regulation(s) for the identification and confirmation of ACMs and LCPs. Prior reports indicated the following materials contained asbestos:

- Cloth Vibration Dampener in mechanical closets;
- Mudded Insulation on the steam and hot water pipes throughout the building;
- Insulation located inside the Boiler Flue;
- Silver/Black Roof Flashing;
- 12"x12" White with Gray and Black Specs Floor Tile;
- Black Mastic beneath carpet;
- 12"x12" Cream with White and Gray Flecks Floor Tile;
- 12"x12" Off-white with Gary Streak Floor Tile;
- 12"x12" Cream with Tan and Gray Streak Floor Tile;
- 12"x12" Grayish/Black Floor Tile; and,
- 12"x12" White with Black Dots Floor Tile.

Additionally the reports found the following lead-containing paints (LCPs):

- Interior Window Sills; and,
- Interior and Exterior Window Mullions.

It should be noted that ECS was unable to access the auditorium; however, prior reports indicate ACM tile and mastic within the auditorium.

3.1 Asbestos-Containing Materials

The minorly destructive asbestos survey was performed on August 29 and September 15, 2022 by Jennifer Turner and Amy DeSaix (NC License #12107), asbestos inspectors who have received EPA accredited training and is licensed by North Carolina. Samples of suspect ACMs were collected utilizing hand tools and placed into individual, labeled plastic bags. Unique bulk suspect ACM samples were submitted to Eurofins, CEI in Cary, North Carolina for analysis via Polarized Light Microscopy (PLM) in accordance with current EPA-600 methodology. Materials consisting of additional layers were analyzed separately. Eurofins, CEI is listed as an accredited laboratory by the National Voluntary Laboratory Accreditation Plan (NVLAP) managed by the National Institute of Standards and Technology (NIST) for bulk sample analysis by currently approved EPA methodology by PLM.

During the survey, ECS attempted to identify suspect ACMs in readily accessible areas. However, due to the destructive means required to identify some materials, certain areas were deemed inaccessible (i.e. behind walls or sub grade materials) and were not surveyed for suspect ACMs. Unidentified suspect ACMs may be located in these and/or other inaccessible areas.

Samples were collected in general accordance with EPA Standard 40 CFR 763 Subpart E, Asbestos Hazard Emergency Response Act (AHERA) and OSHA Standard 29 CFR 1926.1101 Inspection Protocol. Multiple samples of each unique material were submitted. Samples were analyzed using "Positive Stop" methodology. If one sample of a homogeneous material is reported to contain asbestos, the remaining samples of that material are not analyzed. EPA regulations stipulate that if one sample contains asbestos the entire quantity of that material contains asbestos, regardless of additional analysis.

3.2 Lead in Paint and Surface Coatings

The lead paint survey was performed by a North Carolina licensed Lead Inspector using a X-Ray Fluorescence (XRF) Spectrometer and paint chip sampling to identify lead concentrations in painted and glazed surfaces. Paint chip samples were collected utilizing hand tools and placed into individual, labeled plastic bags. Unique sample identifications were given to each sample and samples were submitted to Eurofins, CEI in Cary, North Carolina for analysis via Flame Atomic Absorption Spectrophotometry..

The survey was conducted utilizing the U.S. EPA definition of lead-based paint (LBP). Under this definition, painted surfaces which contain lead in concentrations equal to or greater than 1.0 milligrams per square centimeter ($\geq 1.0 \text{ mg/cm}^2$) using an XRF or 0.5% concentration by weight are classified as coated with LBP. Paints with detectable concentrations of lead are considered LCPs. Additionally, fixtures or components that are manufactured with a factory applied glazing (i.e., sinks, toilets, ceramic tiles, etc.) are tested as these factory-applied finishes often contain lead. Activities which disturb LCPs and glazing (while not LBPs by the U.S. EPA definition) are regulated by OSHA (29 CFR 1926.62).

Because the current or proposed use of the property is not residential or child-occupied, the scope of the survey was not conducted in accordance with HUD Chapter 7 requirements. This representative survey included walls, windows, doors, and miscellaneous components.

4.0 RESULTS

The following is a summary of laboratory results, findings and observations.

4.1 Asbestos-Containing Materials

In total, 94 bulk samples from 49 homogeneous areas were submitted to the laboratory of which 70 layers were analyzed. An ACM is defined as any material containing more than one percent (>1%) asbestos as determined using the method specified in Appendix E, Subpart E, 40 CFR Part 763, Section 1, PLM. Materials are categorized by the U.S. EPA in the following categories:

- Friable ACMs are defined as any ACM that, when dry, can be crumbled, pulverized or reduced to powder by hand pressure. Non-friable ACMs are defined as any ACM that, when dry, cannot be crumbled, pulverized, or reduced to powder by hand pressure.
- Category I non-friable ACM are listed as following: packings, gaskets, resilient floor coverings, and asphalt roofing products containing more than one percent (>1%) asbestos.
- Category II non-friable ACM are listed as any material, excluding Category I non-friable ACM, containing more than one percent (>1%) asbestos.

Regulated ACMs (RACMs) are friable ACMs or non-friable ACMs that will be or has been subjected to sanding, grinding, cutting, or abrading or has crumbled, been pulverized, or reduced to powder in the course of renovation and/or demolition operations.

Eurofins, CEI submitted a signed final laboratory report to ECS on September 7 and 22, 2022. Seventeen of the bulk samples submitted for analysis were reported to contain asbestos in detectable concentrations. These materials are summarized below. A complete list of the sampled materials submitted for analysis and sample locations are located in the Appendix of this report. Additional details regarding the overall locations of the materials identified as asbestos-containing are provided further in the report. Photographs of collected samples are also located in the Appendix of this report.

Summary of Asbestos-Containing Materials Identified

Sample Number	Location	Material Description	Analytical Results	Category	Estimated Quantity
12-1	Mechanical Room 102, 103, and 201 and Crawlspace	White Vibration Dampener	35% Chrysotile	Friable	7 Vibration Dampeners, one of which is 20 square feet

Sample Number	Location	Material Description	Analytical Results	Category	Estimated Quantity
13-1,2	Observed in Mechanical Room 103; Possibly located in other mechanical rooms	White HVAC sealant with Black Tar on HVAC Equipment	5% Chrysotile	Category II Non-Friable	20 square feet
18-1,2	Room 106-H	Cream Gray Floor Tile and associated Black Mastic	Floor Tile (FT): 2% Chrysotile Mastic: 3% Chrysotile	Category I Non-Friable	130 square feet
26-1,2	First Floor Ceiling into 2nd Floor Mech. Room	Black Mastic on 6" Pipes	5% Chrysotile	Category II Non-Friable	Unknown
27-1,2	Janitorial Room H200	White Wall Texture	2% Chrysotile	Friable	90 square feet
31-1,2	Room 211, Observed in Rooms 211A, 210, C200A, 208, 207, and 206	White Floor Tile	FT: 2% Chrysotile Mastic: None Detected (ND)	Category I Non-Friable	2,850 square feet
34-1	Room 209	Black Residual Mastic	3% Chrysotile	Category I Non-Friable	334 square feet
35-1,2	Room 208	Tan Floor Tile and associated Black Mastic	FT: 2% Chrysotile Mastic- 3% Chrysotile	Category I Non-Friable	450 square feet

Sample Number	Location	Material Description	Analytical Results	Category	Estimated Quantity
36-1	Room 203, 203A, 203B, and in Second Floor Hallway by Room 203 Door and Elevator	Yellow/Black Mastic associated with Light Gray Floor Tile with Gray Streaks	FT: ND Mastic: 5% Chrysotile	Category I Non-Friable	1,250 square feet
37-1	Second Floor Hallway and Room 201A	Gray Floor Tile with Black Streaks and associated Black Mastic	FT: 2% Chrysotile Mastic: 5% Chrysotile	Category I Non-Friable	750 square feet
40-1	Room 201E	White Floor Tile under Gray Carpet and associated Black Mastic	FT: 2% Chrysotile Mastic: 5% Chrysotile	Category I Non-Friable	160 square feet
41-1	Room 201	White Sink Undercoating	3% Chrysotile	Category II Non-Friable	10 square feet
42-1	First Floor Hallway	Cream Floor Tile with Tan Streaks	FT: 2% Chrysotile	Category I Non-Friable	2,500 square feet
43-1	Room 104	White Floor Tile with Gray Streaks	FT (Tan): 2% Chrysotile Mastic: 5% Chrysotile	Category I Non-Friable	270 square feet
44-1	Room 104	Olive Floor Tile and associated Black Mastic	FT: 2% Chrysotile Mastic: 5% Chrysotile	Category I Non-Friable	270 square feet

Sample Number	Location	Material Description	Analytical Results	Category	Estimated Quantity
48-1,2	Room 104A	Yellow/Black Mastic associated with White Floor Tile with Multi-color Specs	FT: ND Mastic: 3% Chrysotile	Category I Non-Friable	160 square feet
49-1,2,3,4,5,6,7	Interior Hallway and Room H200	White/Off-white Wall Texture	2% Chrysotile	Friable	2,500 square feet
Assumed	Throughout	Mudded Elbows	Previously Sampled	Friable	Observed 20

A trace amount of asbestos ($\leq 1\%$) was detected in the bulk samples of three homogeneous sampling areas including white/gray insulation in the boiler flu, white caulking on drywall to brick on first floor, and white exterior window glazing (Samples 3-1,-2, 23-1,-2, and 47-1,-2) analyzed by the laboratory.

It should be noted that the boiler had been removed along with the previously identified ACM boiler flue insulation.

Due to the non-destructive nature of the assessment, unless asbestos abatement documents are present, ACM floor tile mastic should be assumed present throughout.

4.2 Suspect or Assumed Asbestos-Containing Materials

Due to the inaccessibility or the destructive means that asbestos sampling requires, additional suspect ACMs may remain within the building hidden behind inaccessible areas that include, but are not limited to, sub-grade walls, structural members, topping slabs, sub-grade sealants, flooring located below underlayments, areas behind exterior walls, pipe trenches, and subsurface utilities, etc. These areas were deemed inaccessible and were not assessed.

If these materials are discovered during construction activities, they should be presumed to contain asbestos and be treated as ACMs or be sampled immediately upon discovery and prior to disturbance for asbestos content by a certified asbestos inspector in accordance with 29 CFR 1926.1101.

Based upon our past experience in the identification of ACMs in similarly constructed buildings, the following additional suspect ACMs may also be located in inaccessible areas of the structure:

- Underground Piping;
- Vapor Barrier on Exterior Structure of Foundation;
- Fire Doors;
- Pipe Insulation within Wall Chases; and,

- Mastic associated mirror and boards adhered to the wall.

4.3 Lead in Paint and Surface Coatings

Paint and surface coatings which contain detectable concentrations of lead considered LCP. Since OSHA has no specific action level for lead in paint, all paint on the site found to have a measurable concentration of lead should be assumed to be lead-containing. Work performed which may disturb LCP is regulated under OSHA as referenced under 29 CFR 1926.62. A total of 49 readings were collected during the survey, including calibration readings. Seven paint chip samples were collected and analyzed. Paint and other surface coatings which are defined by applicable regulation as lead-based paints are summarized in the table below and photographs of lead-based paint identified are located in the Appendix.

Lead-based paint is defined by the U.S. EPA and North Carolina as any paint or other surface coatings that contain lead equal to or in excess of 1.0 mg/cm² (XRF) or 0.5% by weight (paint chip).

The following types of materials were found to contain detectable concentrations of lead.

Summary of XRF Lead-Containing Paints

Location	Color	Substrate	Component
Exterior	White	Wood	Porch Overhang
Exterior	White	Wood	Porch Trim
Exterior	White	Metal	Door
Back Right Stairwell	White	CMU	Wall
Womens Restroom	Off-white	Ceramic	Tile
Interior	White	Wood	Window Sill
Halfmoon Window of Entrance	White	Wood	Window Casing
Front Office	Beige	Metal	Door Casing
Back Left Stairwell	Light Blue	CMU	Wall
2nd Floor Hallway	Tan	Metal	Door Casing
Exterior	White	Wood	Window Pannel
Exterior	White	Wood	Window Sill
Exterior	White	Wood	Window Casing

Summary of Paint Chip Lead-Containing Paint Results

Sample ID	Location	Color	Substrate	Component	Analytical Results
LBP01	Mechanical Room	White	Metal	Door	0.19%
LBP02	Mechanical Room	Gray	Concrete	Floor	0.0056%
LBP05	Exterior	Black	Metal	Stair Railing	0.033%
LBP06	Exterior	White	Wood	Window Sill	0.062%
LBP07	Exterior	White	Wood	Window Casing	0.19%

5.0 RECOMMENDATIONS AND REGULATORY REQUIREMENTS

Based on our understanding of the purpose of the Asbestos and Lead Paint Survey, the results of laboratory analysis, and our findings and observations, ECS presents the following recommendations.

5.1 Asbestos-Containing Materials

Several materials were identified as asbestos-containing as noted above. ECS recommends where a material type has been identified as asbestos-containing that other materials with similar color, texture, age and size throughout the building's interior and exterior be assumed to contain asbestos. Please refer to Section 4.1 for a complete list of building materials that were reported positive for asbestos and to Section 4.2 for materials that were assumed to contain asbestos.

A trace amount of asbestos ($\leq 1\%$) was detected in the bulk samples of three homogeneous samples including white/gray insulation in the boiler flu, white caulking on drywall to brick on first floor, and white exterior window glazing (Samples 3-1,-2, 23-1,-2, and 47-1,-2) analyzed by the laboratory. Although materials that contain trace amounts of asbestos are not subject to U.S. EPA or North Carolina regulations for the handling and disposal of asbestos, OSHA still regulates any work which will disturb materials identified with trace amounts of asbestos (reference the November 24, 2003 OSHA Interpretation document - Compliance Requirements For Renovation Work Involving Materials Containing Less Than 1% Asbestos). Therefore, any Contractors disturbing these materials will need to comply with components of 29 CFR 1926.1101, as detailed in the 2003 OSHA Interpretation document.

An asbestos abatement design is required for each individually permitted removal of more than 3,000 square feet, 1,500 linear feet, or 656 cubic feet of regulated ACMs conducted in public areas. Based on quantities of ACMs identified, an asbestos abatement design is required to delineate and quantify known and suspect ACMs in the building and to outline proper procedures for the abatement. This will help protect the owner's liability in better defining the scope of work and contractors' roles and responsibilities in the abatement process and holding the contractor accountable for the performance of the project. The specification typically defines the Contractor's scope of work

and outline requirements and procedures that must be followed for the project. The intent of the specification is to give performance requirements for the Contractor so that the project can be completed safely and in compliance with applicable federal and state regulations. Typically, the specification document serves as part of the site owner's contract with the contractor.

If ACMs are to be removed, it is recommended that an industrial hygienist monitor the project. This involves collecting air samples from within and outside abatement work areas to monitor the asbestos abatement contractor's work practices over the course of the project. The industrial hygienist should evaluate if the asbestos abatement work is in accordance with project specifications, U.S. EPA regulation 40 CFR Part 61-National Emission Standards for Hazardous Air Pollutants Subpart M: National Emission Standard for Asbestos, and U.S. Occupational Safety and Health Administration (OSHA) regulation 29 CFR 1926.1101 – Asbestos in Construction. The industrial hygienist should assess each work area to monitor the removal of ACMs. Only after the industrial hygienist has determined the identified ACMs have been removed should final clearance air samples be collected (if necessary).

Suspect ACMs not observed due to inaccessibility or not sampled due to the destructive means that sampling would require may also be encountered during construction activities. At the time of the survey, only limited destructive means were used to locate or sample suspect ACMs; therefore, additional suspect ACMs may remain within inaccessible areas that include, but are not limited to, [sub-grade walls, structural members, topping slabs, exterior areas, sub-grade sealants, flooring located below underlayments, vapor barriers, pipe trenches and other subsurface utilities, etc.] If additional suspect ACMs are uncovered which were not accessible during this survey, it is recommended that these materials either be assumed to contain asbestos or be sampled prior to disturbance upon discovery for asbestos content by an asbestos inspector in accordance with 29 CFR 1926.1101.

5.2 Lead in Paint and Surface Coatings

Based on the findings of the lead survey, detectable concentrations of lead were identified on some paints and surface coatings. The presence of lead is a concern primarily when conditions exist where it may be inhaled or ingested. Regardless of the analytical results of a material, all painted and/or glazed surfaces may still contain concentrations of lead in the paint, which when disturbed, may generate lead dust greater than the Permissible Exposure Limit (PEL) of 50 micrograms per cubic meter ($\mu\text{g}/\text{m}^3$) as an 8-hour Time Weighted Average (TWA) established by the OSHA "Lead Exposure in Construction Rule (29 CFR 1926.62)."

The OSHA standard gives no guidance on acceptable levels of lead in paint at which no exposure to airborne lead (above the action level) would be expected. Rather, OSHA defines airborne concentrations, and references specific types of work practices and operations from which a lead hazard may be generated (reference 29 CFR 1926.62, section d). Environmental and personnel monitoring should be conducted during any removal/demolition process (as appropriate) to verify that actual personal exposures are below the PEL of $50 \mu\text{g}/\text{m}^3$ as an 8-hour TWA. Under OSHA requirements, the contractor performing renovation work will be required to conduct this monitoring and follow applicable requirements under 29 CFR 1926.62 if disturbing LCP.

6.0 LIMITATIONS

The conclusions and recommendations presented within this report are based upon a reasonable level of assessment within normal bounds and standards of professional practice for a site in this particular geographic setting. ECS is not responsible or liable for the discovery and elimination of hazards that may potentially cause damage, accidents, or injuries.

The observations, conclusions, and recommendations pertaining to environmental conditions at the subject site are necessarily limited to conditions observed, and/or materials reviewed at the time this study was undertaken. No warranty, expressed or implied, is made with regard to the conclusions and recommendations presented within this report. This report is provided for the exclusive use of the client. This report is not intended to be used or relied upon in connection with other projects or by other unidentified third parties without the written consent of ECS and the client.

Our recommendations are in part based on federal, state, and local regulations and guidelines. ECS does not assume the responsibility of the person(s) in charge of the site, or otherwise undertake responsibility for reporting to any local, state, or federal public agencies, any conditions at the site that may present a potential danger to public health, safety, or the environment. Under this scope of services, ECS assumes no responsibility regarding any response actions initiated as a result of these findings. General compliance with regulations and response actions are the sole responsibility of the Client and should be conducted in accordance with local, state, and/or federal requirements.

During this study, samples were submitted for analysis at an accredited laboratory via polarized light microscopy. As with any similar survey of this nature, actual conditions exist only at the precise locations from which samples were collected. Certain inferences are based on the results of this sampling and related testing to form a professional opinion of conditions in areas beyond those from which the samples were collected. No warranty, expressed or implied, is made.

Appendix I: Figures



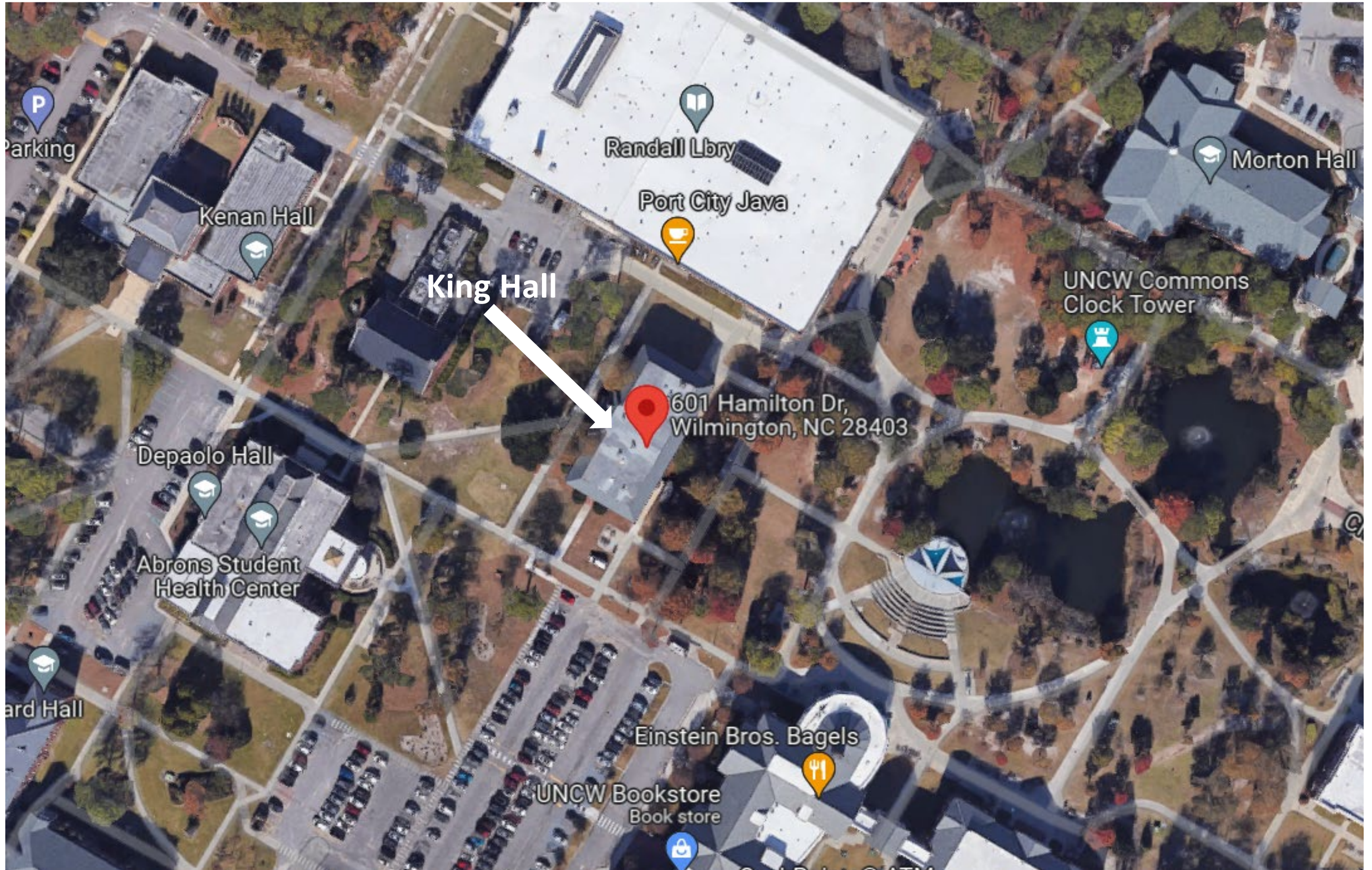
Figure 1

Site Location Map

UNCW King Hall
601 Hamilton Drive
Wilmington, North Carolina
ECS Project No. 49-18273

Source: Google Earth

Not to Scale





**Figure 2 – First Floor
Suspect Asbestos Sample Location Map**

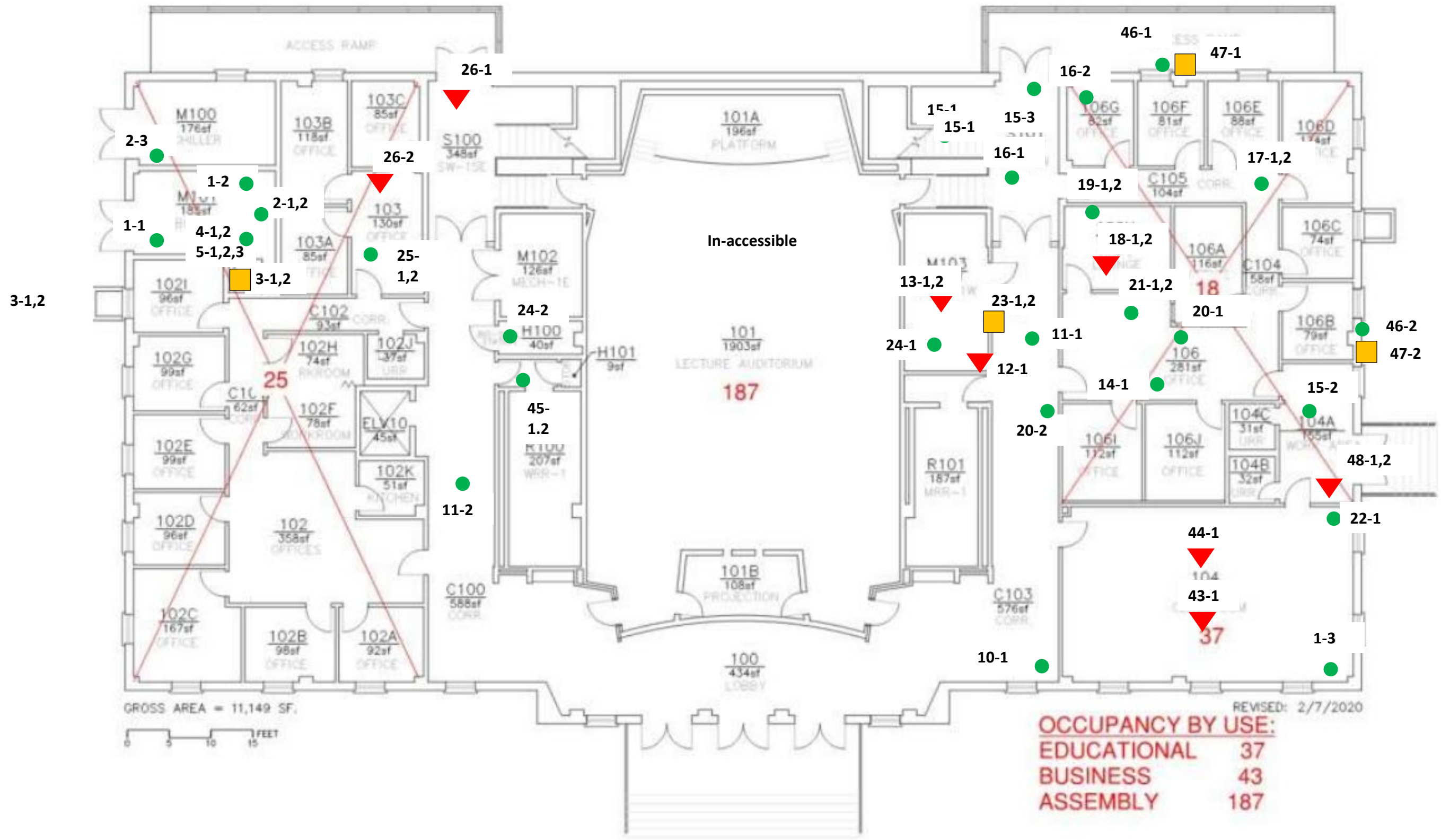
UNCW King Hall
601 Hamilton Drive
Wilmington, North Carolina
ECS Project No. 49-18273

Legend

- 1-1 Sample Number
- Non-ACM Sample Location
- ▼ ACM Sample Location
- Trace Asbestos (<1%)

Notes

Not to Scale





**Figure 3 – Second Floor
Suspect Asbestos Sample Location Map**

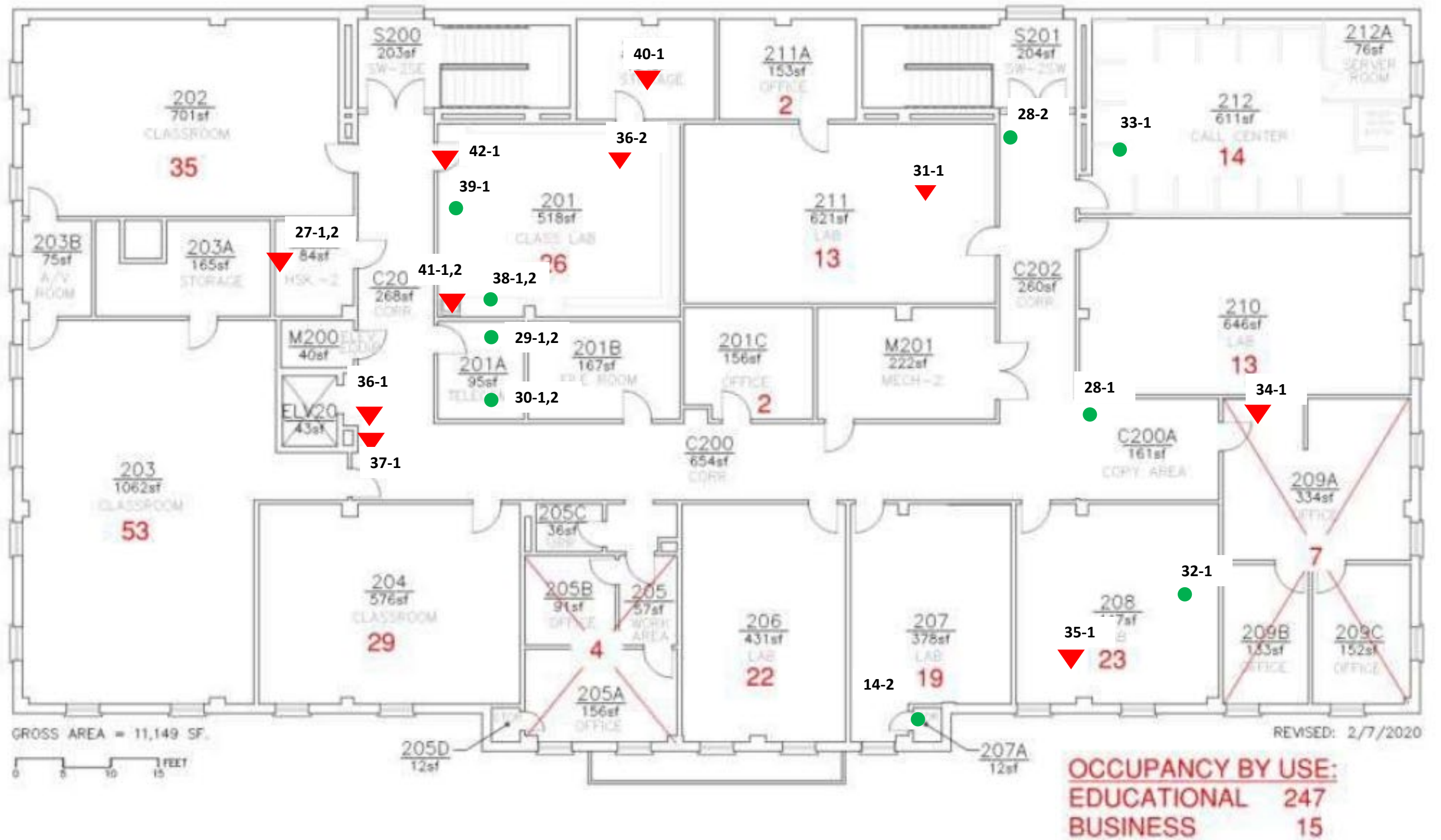
UNCW King Hall
601 Hamilton Drive
Wilmington, North Carolina
ECS Project No. 49-18273

Legend

- 1-1 Sample Number
- Non-ACM Sample Location
- ▼ ACM Sample Location

Notes

Not to scale





**Figure 4 – First Floor
Paint Chip Sample Location Map**

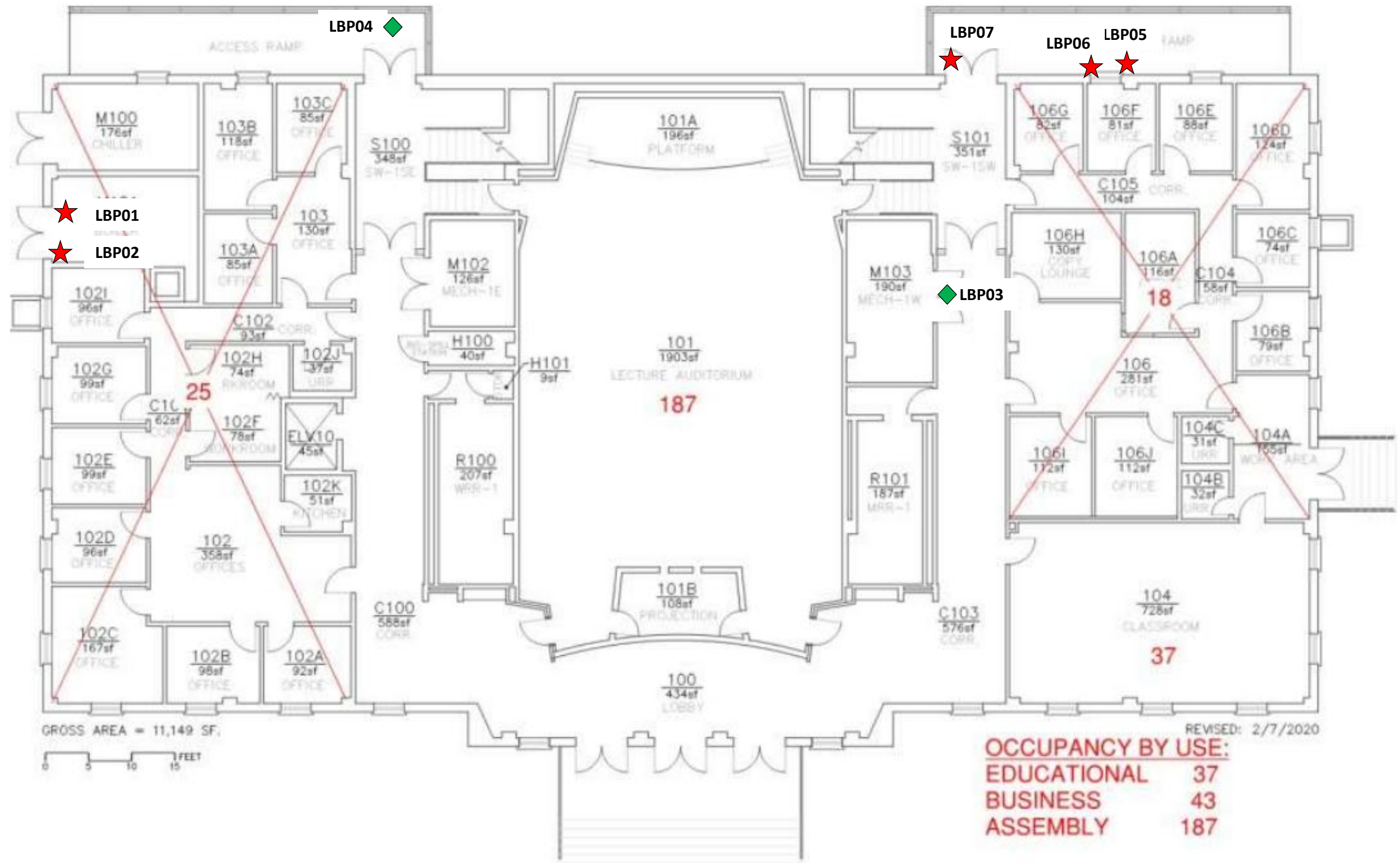
UNCW King Hall
601 Hamilton Drive
Wilmington, North Carolina
ECS Project No. 49-18273

Legend

- LBP01 Sample Number
- ◆ Lead Not Detected
- ★ Lead-Containing Paint

Notes

Not to Scale





**Figure 5 – Second Floor
Paint Chip Sample Location Map**

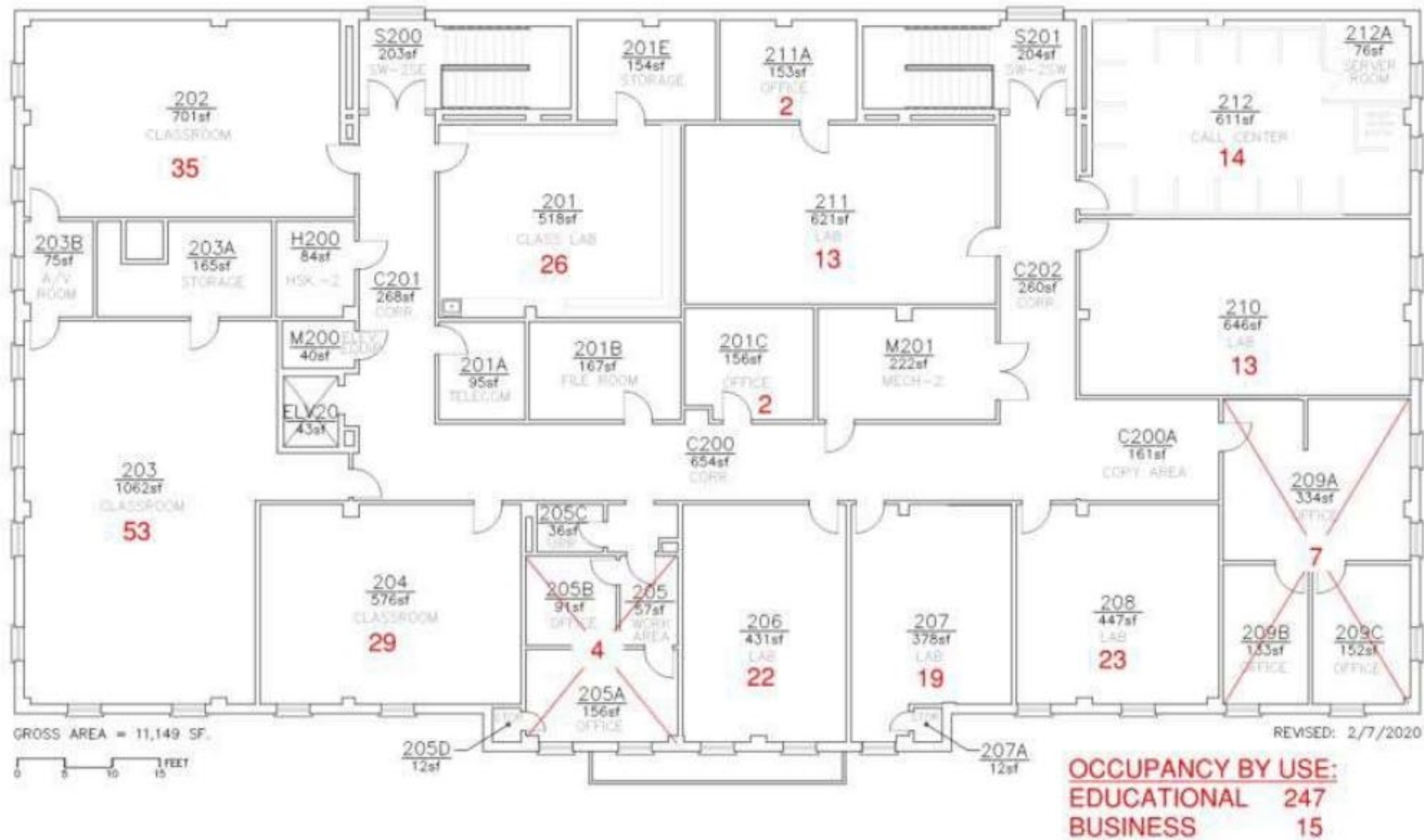
UNCW King Hall
601 Hamilton Drive
Wilmington, North Carolina
ECS Project No. 49-18273

Legend

- 1-1 Sample Number
- ◆ Lead Not Detected
- ★ Lead-Containing Paint

Notes

Not to Scale









**Figure 6 – First Floor
Asbestos Location Map**

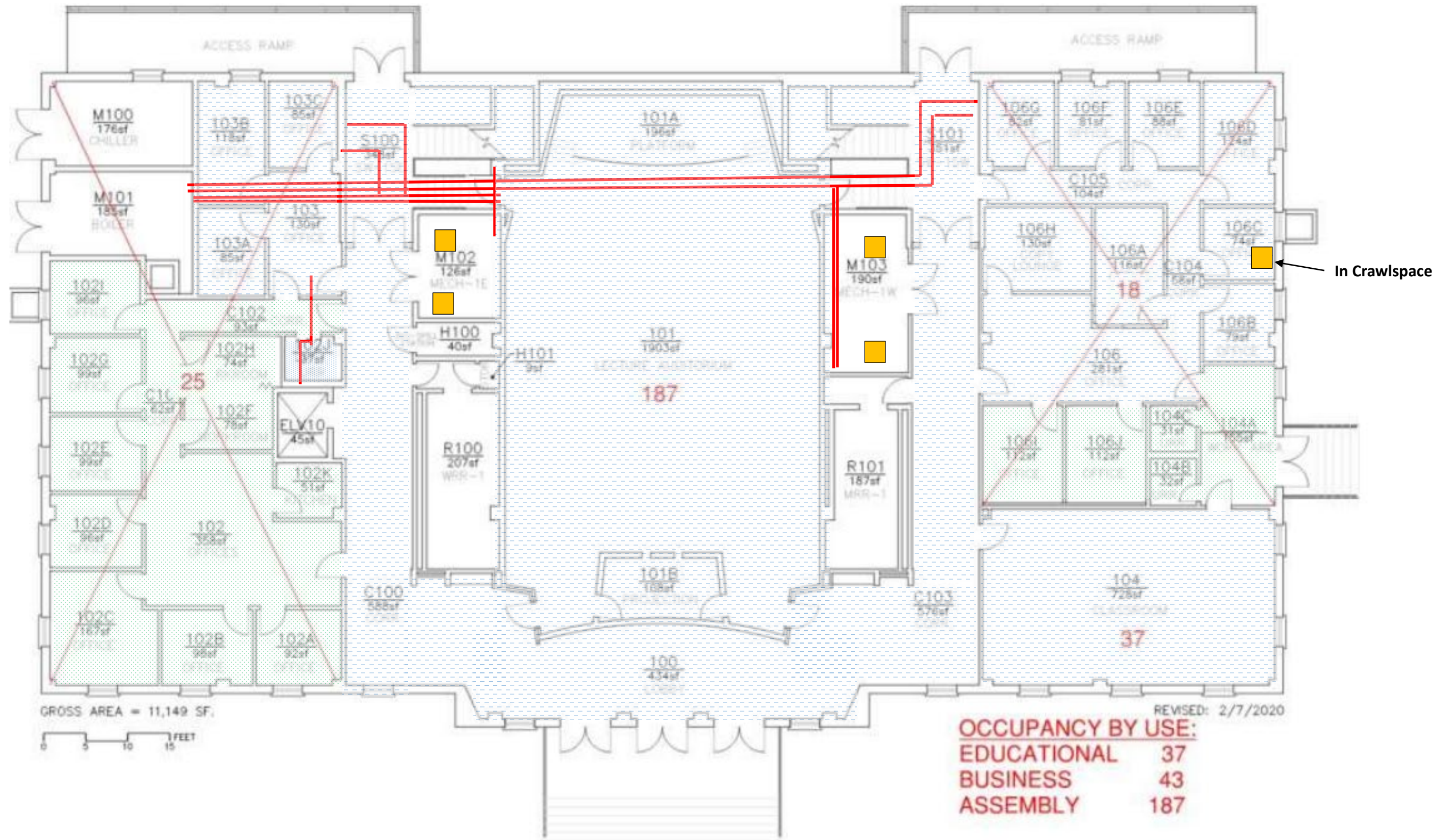
UNCW King Hall
601 Hamilton Drive
Wilmington, North Carolina
ECS Project No. 49-18273

Legend

-  ACM Vibration Dampener
-  ACM Black Mastic TSI
-  ACM FT and Mastic
-  ACM Black Mastic

Notes

Not to Scale









**Figure 7 – Second Floor
Asbestos Location Map**

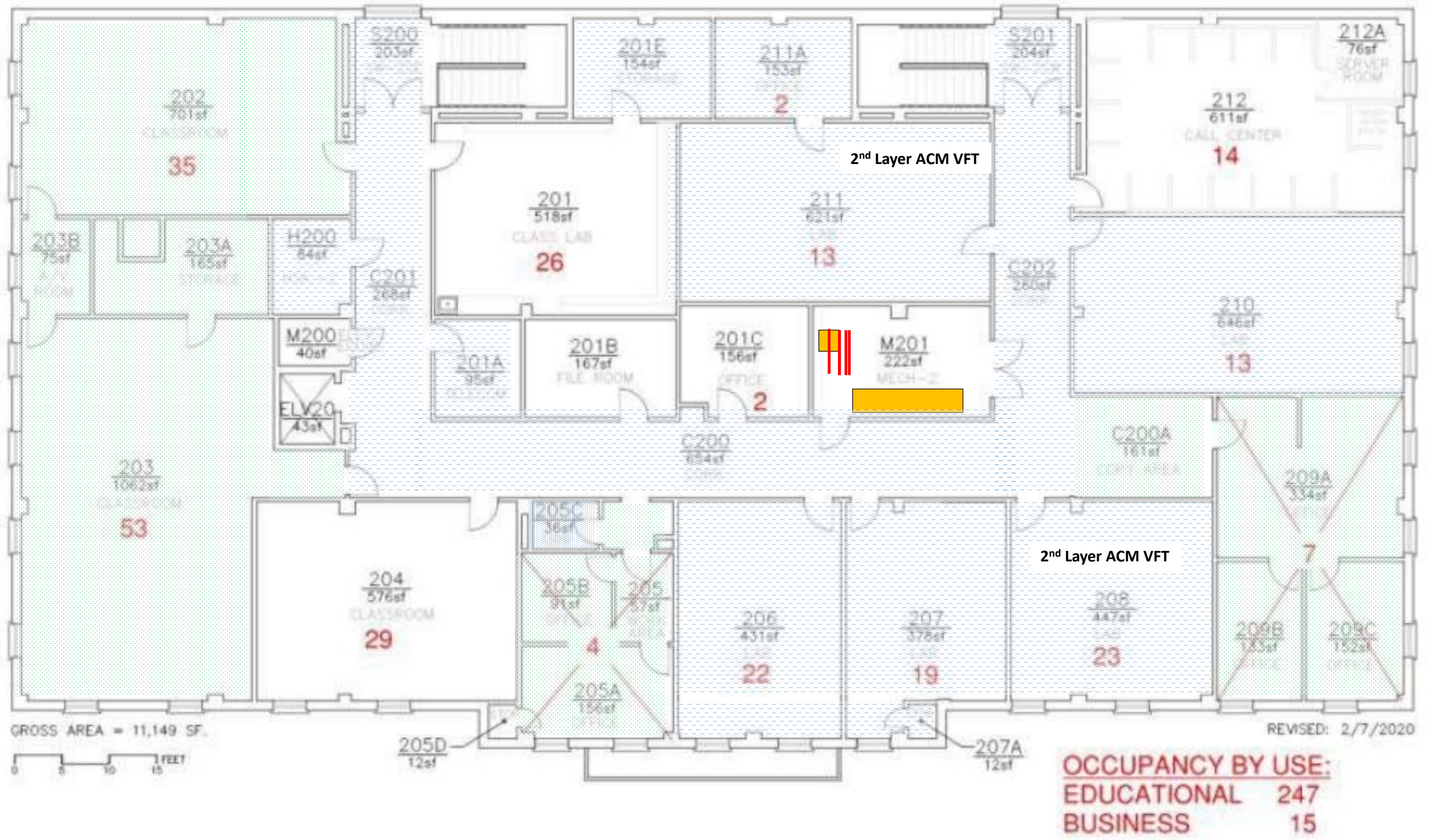
UNCW King Hall
601 Hamilton Drive
Wilmington, North Carolina
ECS Project No. 49-18273

Legend

-  ACM Vibration Dampener
-  ACM Black Mastic TSI
-  ACM FT and Mastic
-  ACM Black Mastic

Notes

Not to scale



Appendix II: Site Photographs



1 - View of Carpeting



2 - View of Carpeting, Black Mastic, Black Tile, and Yellow Mastic



3 - View of Black Mastic Under Carpet



4 - View of TSI and Pipe Elbows



5 - View of TSI, Ceiling Tiles, and Black Caulk



6 - View of Degraded TSI



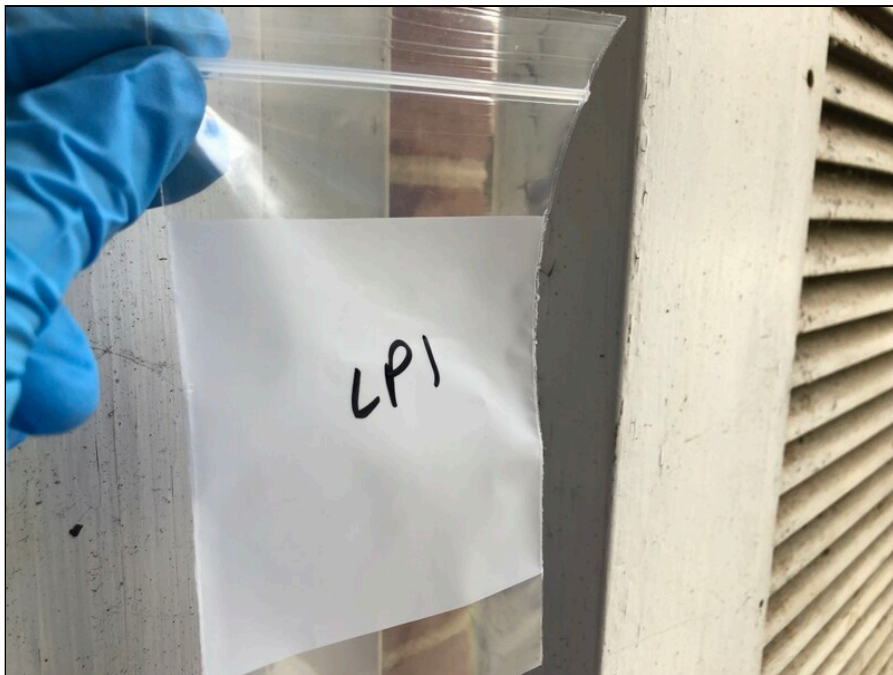
7 - View of Gray Mastic on Duct Work



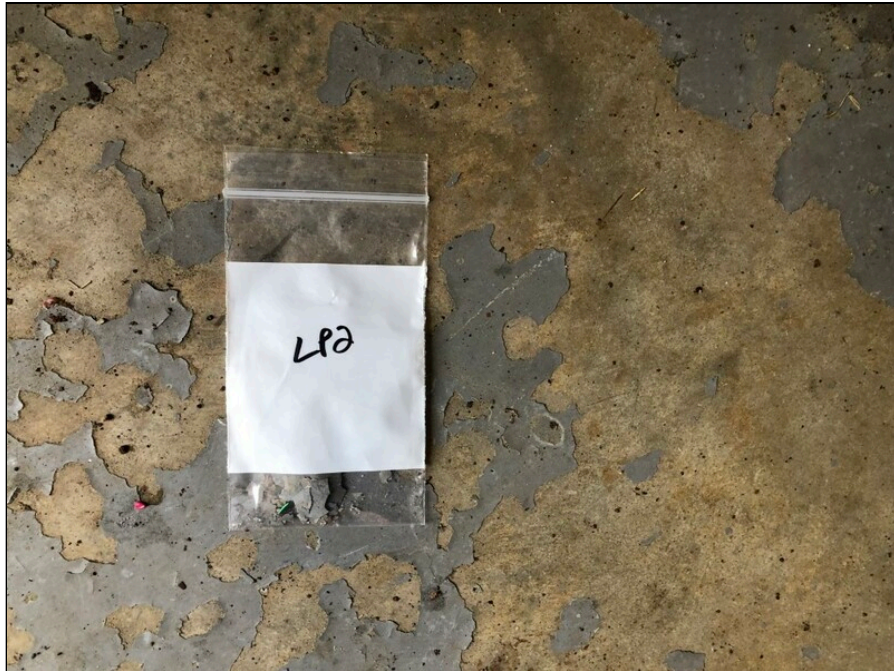
8 - View of HVAC Vibration Dampener



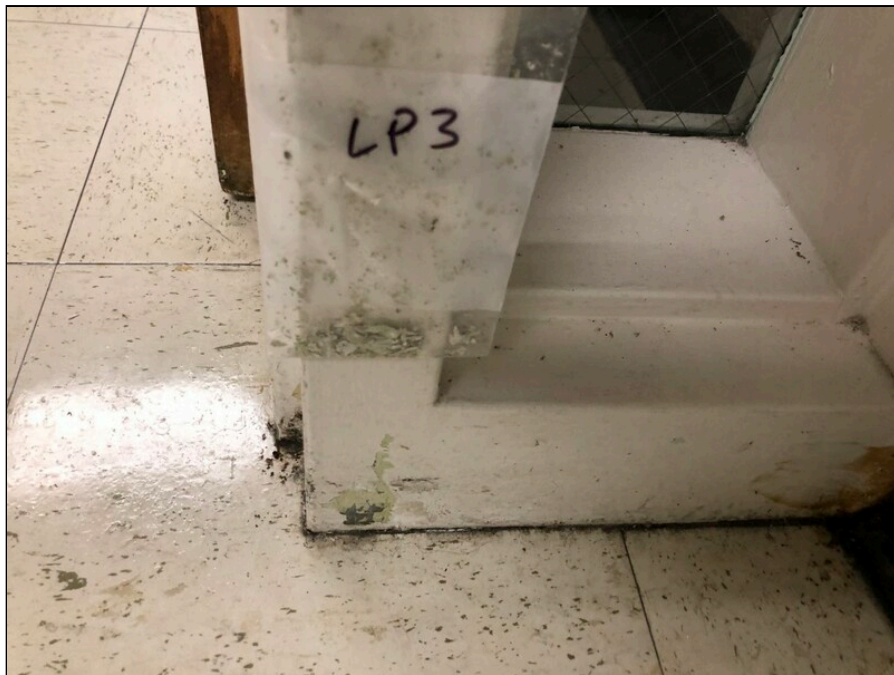
9 - View of Layered Tiles over Assumed ACM Black Mastic



10 - View of paint chip Sample LBP01, lead-containing



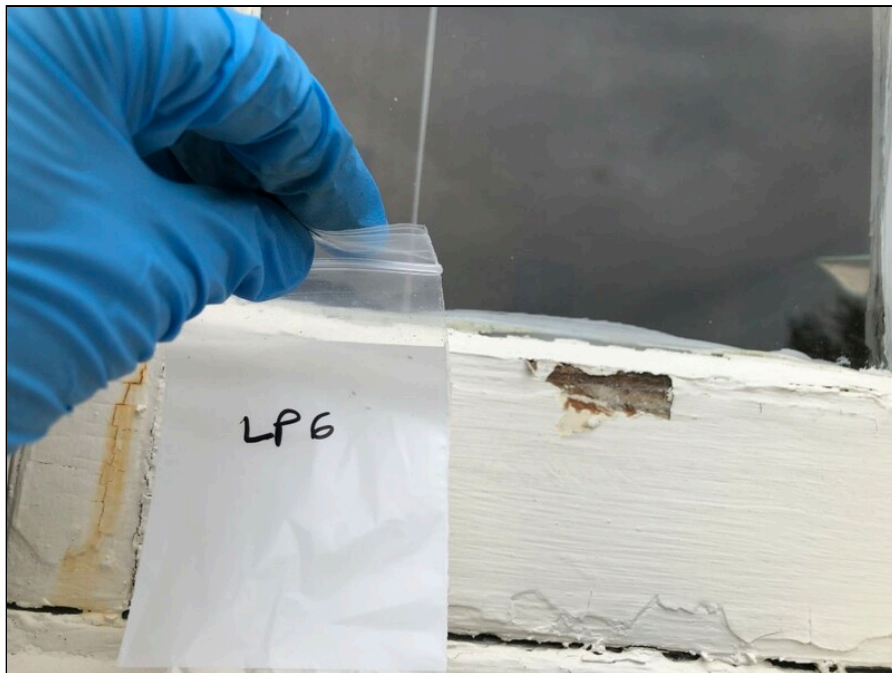
11 - View of paint chip Sample LBP02, lead-containing



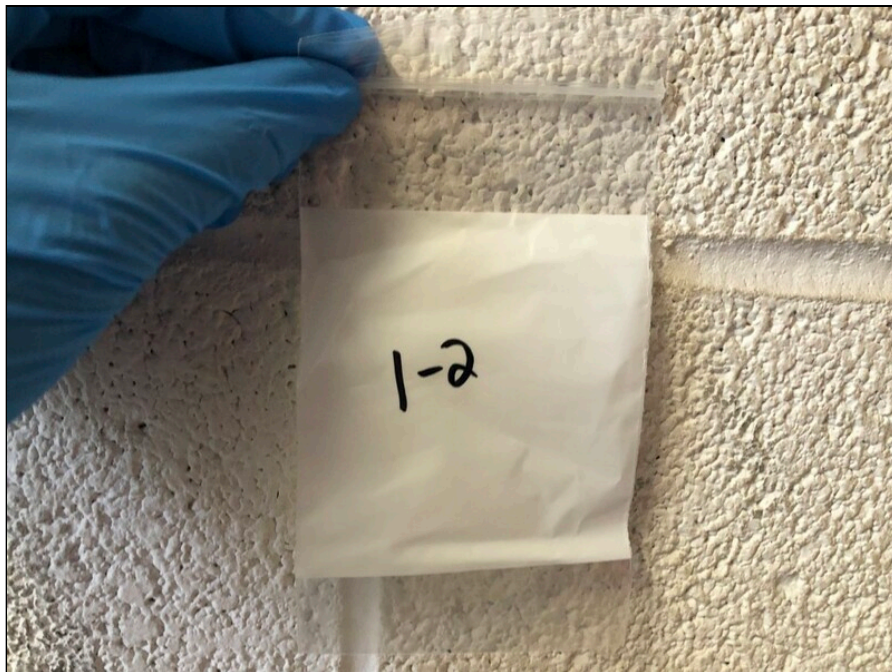
12 - View of paint chip Sample LBP03, lead paint not detected



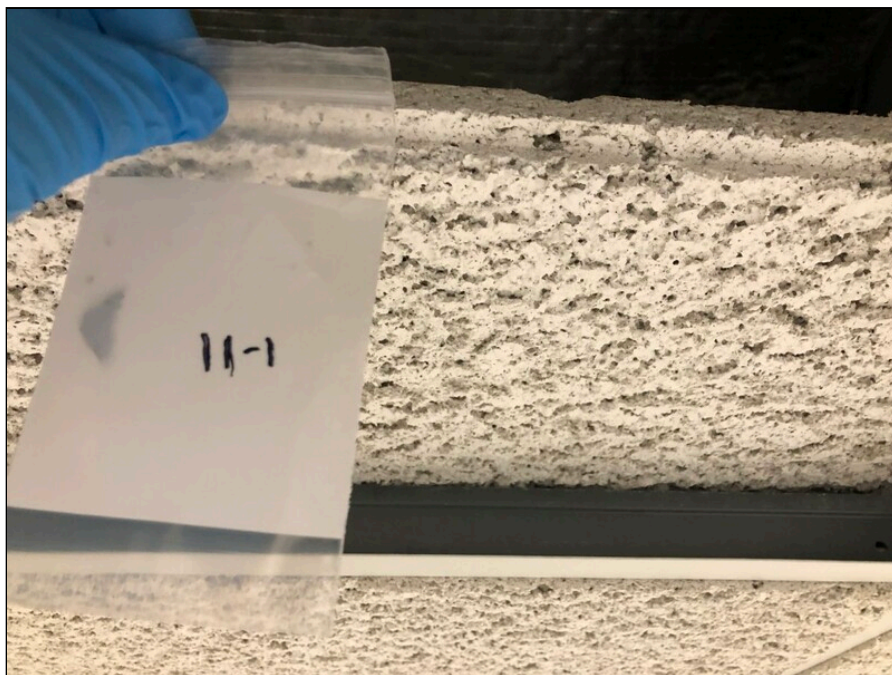
13 - View of Lead Paint (Sample LBP04), lead paint not detected



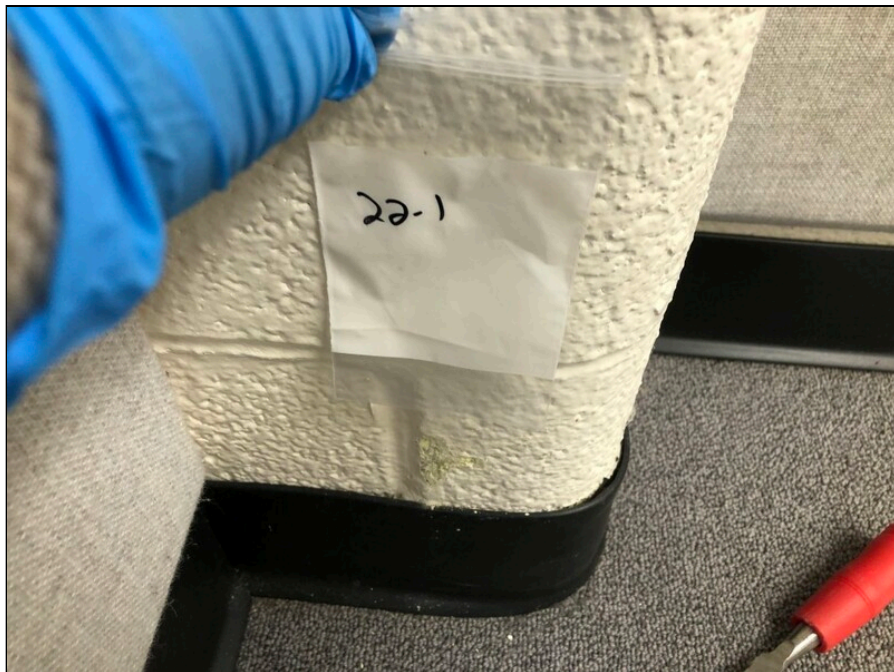
14 - View of paint chip Sample LBP06, lead-containing



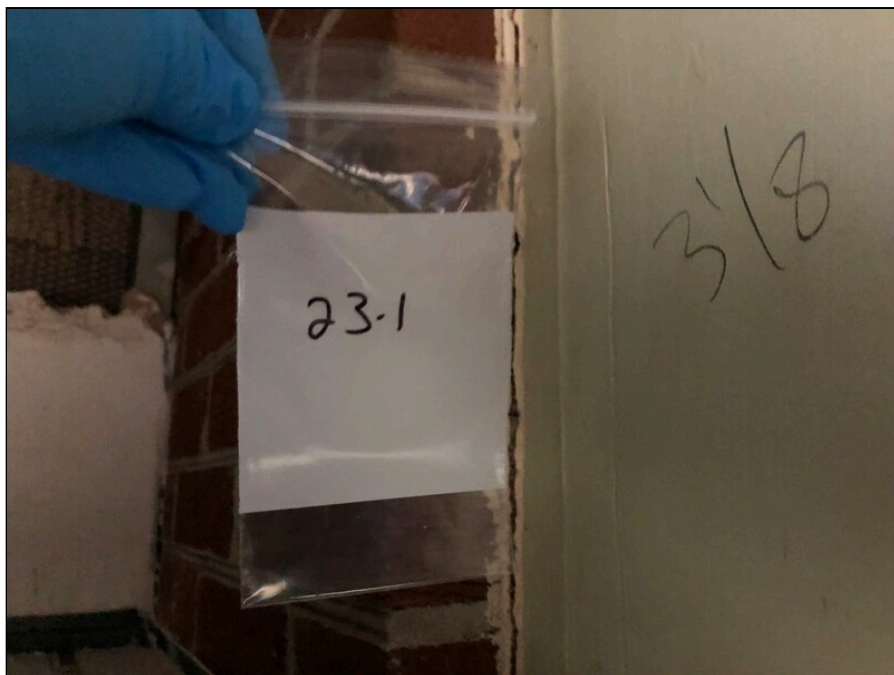
15 - View of Homogenous Area One (Samples 1-1,2,3)



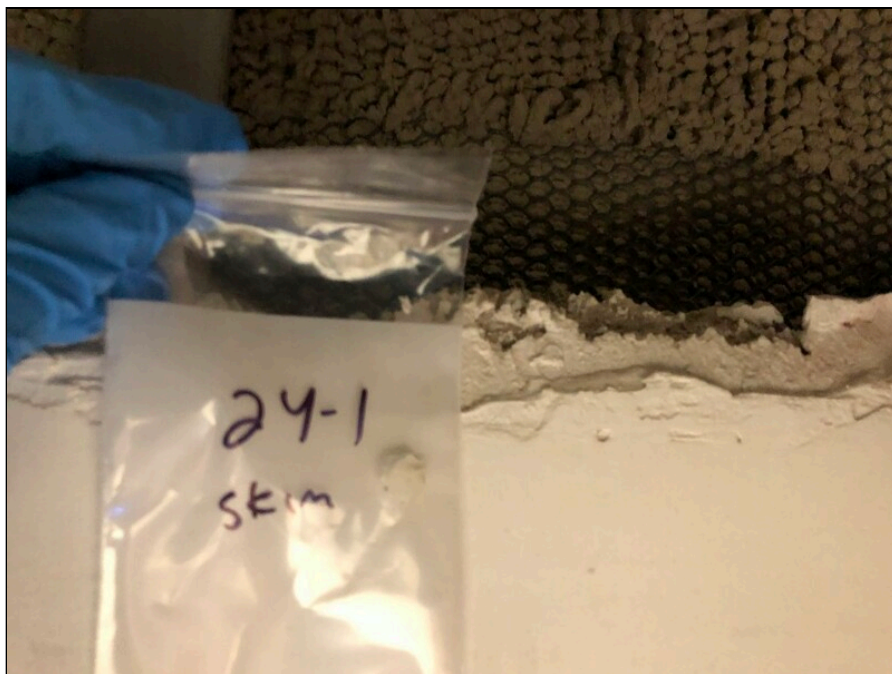
16 - View of Homogenous Area 11 (Samples 11-1,2)



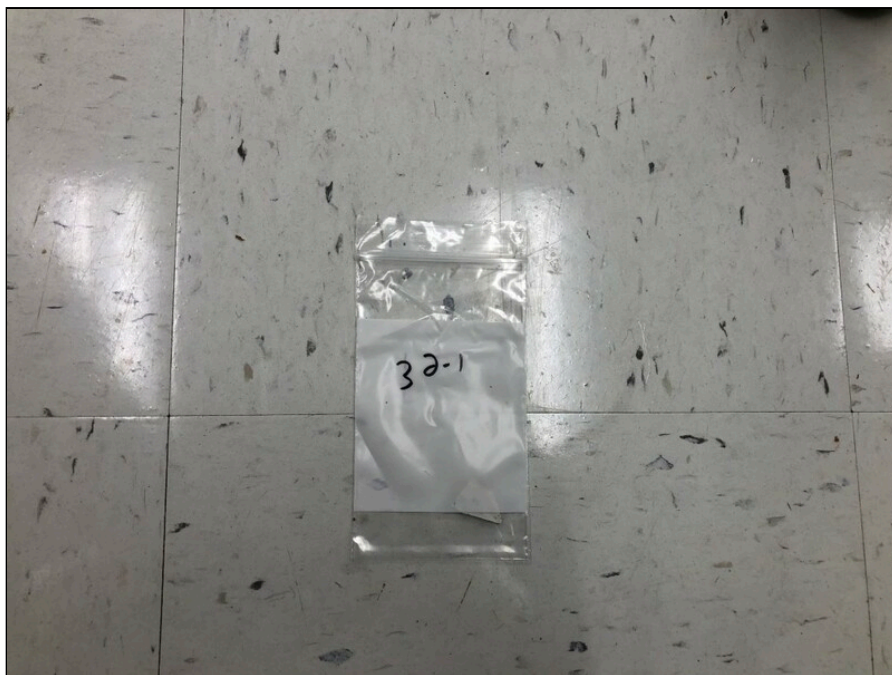
17 - View of Homogenous Area 22 (Sample 22-1)



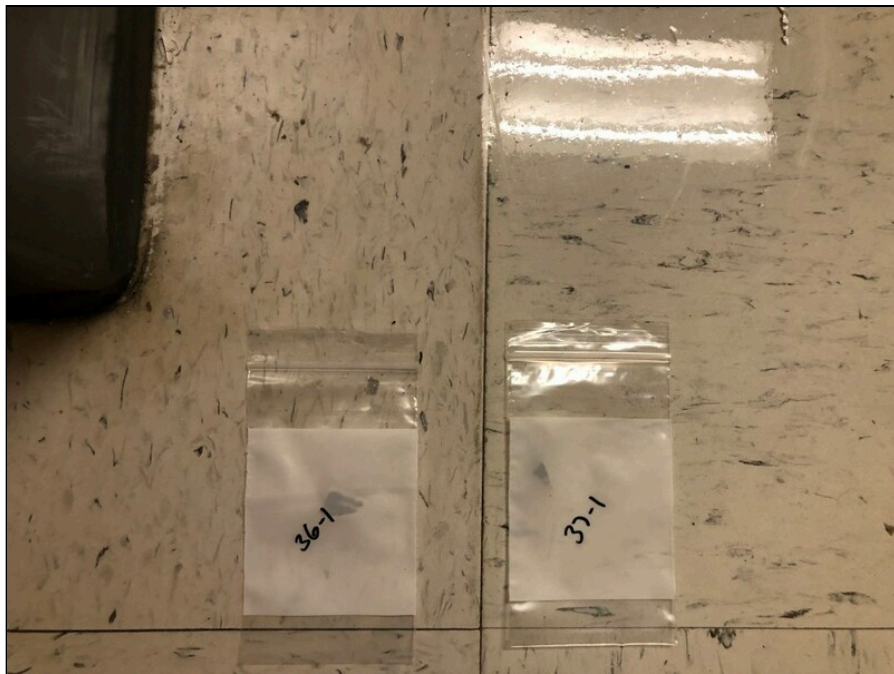
18 - View of Homogenous Area 23 (Samples 23-1,2)



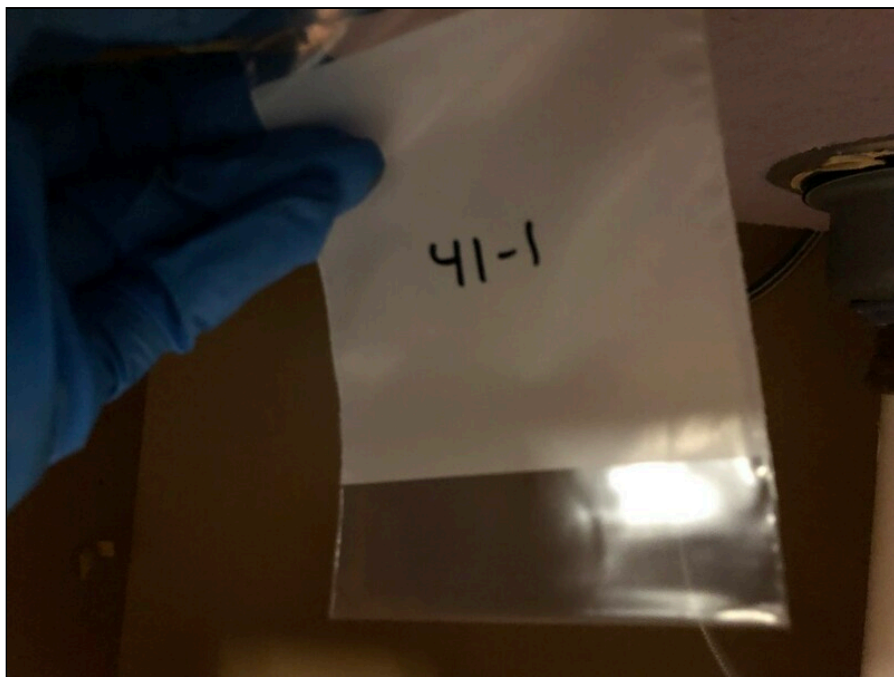
19 - View of Homogenous Area 24 (Samples 24-1,2)



20 - View of Homogenous Area 32 (Samples 32-1)



21 - View of Homogenous Areas 36 and 37



22 - View of Homogenous Area 41 (Samples 41-1,2)



23 - View of Homogenous Area 42 (Samples 42-1)



24 - View of Homogenous Area 45 (Samples 45-1,2)



25 - IMG 8199 (Medium)



26 - View of TSI



27 - IMG 8198 (Medium)



28 - IMG 8197 (Medium)



29 - IMG 8196 (Medium)

Appendix III: Asbestos Bulk Sample Results

September 7, 2022

ECS Southeast, LLP
6714 Netherlands Drive
Wilmington, NC 28405

CLIENT PROJECT: UNCW King Hall, 49:18273
CEI LAB CODE: B2210933

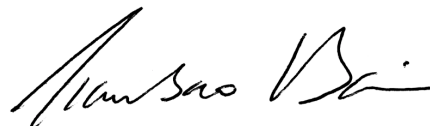
Dear Customer:

Enclosed are asbestos analysis results for PLM Bulk samples received at our laboratory on September 1, 2022. The samples were analyzed for asbestos using polarizing light microscopy (PLM) per the EPA 600 Method.

Sample results containing >1% asbestos are considered asbestos-containing materials (ACMs) per EPA regulatory requirements. The detection limit for the EPA 600 Method is <1% asbestos by weight as determined by visual estimation.

Thank you for your business and we look forward to continuing good relations.

Kind Regards,



Tianbao Bai, Ph.D., CIH
Laboratory Director



CEI

ASBESTOS ANALYTICAL REPORT

By: Polarized Light Microscopy

Prepared for

ECS Southeast, LLP

CLIENT PROJECT: UNCW King Hall, 49:18273

LAB CODE: B2210933

TEST METHOD: EPA 600 / R93 / 116 and EPA 600 / M4-82 / 020

REPORT DATE: 09/07/22

TOTAL SAMPLES ANALYZED: 81

SAMPLES >1% ASBESTOS: 22



CEI

Asbestos Report Summary

By: POLARIZING LIGHT MICROSCOPY

PROJECT: UNCW King Hall, 49:18273

LAB CODE: B2210933

METHOD: EPA 600 / R93 / 116 and EPA 600 / M4-82 / 020

Client ID	Layer	Lab ID	Color	Sample Description	ASBESTOS %
1-1		B2210933.01	White	Cmu Wall Texture	None Detected
1-2		B2210933.02	White	Cmu Wall Texture	None Detected
1-3		B2210933.03	White	Cmu Wall Texture	None Detected
2-1	Layer 1	B2210933.04	Red,Silver	Pipe Wrap	None Detected
	Layer 2	B2210933.04	Yellow	Insulation	None Detected
2-2	Layer 1	B2210933.05	White,Silver	Pipe Wrap	None Detected
	Layer 2	B2210933.05	Yellow	Insulation	None Detected
2-3	Layer 1	B2210933.06	Blue,Silver	Pipe Wrap	None Detected
	Layer 2	B2210933.06	Yellow	Insulation	None Detected
3-1		B2210933.07	White,Gray	Insulation	Amosite <1%
3-2		B2210933.08	White,Gray	Insulation	Amosite <1%
4-1		B2210933.09	Red	Brick	None Detected
4-2		B2210933.10	Red	Brick	None Detected
5-1		B2210933.11	Gray	Liner	None Detected
5-2		B2210933.12	Gray	Liner	None Detected
5-3		B2210933.13	Gray	Liner	None Detected
6-1	Layer 1	B2210933.14	Brown,Black	Pipe Wrap	None Detected
	Layer 2	B2210933.14	Yellow	Insulation	None Detected
6-2	Layer 1	B2210933.15	Brown,Black	Pipe Wrap	None Detected
	Layer 2	B2210933.15	Yellow	Insulation	None Detected
6-3	Layer 1	B2210933.16	Brown,Black	Pipe Wrap	None Detected
	Layer 2	B2210933.16	Yellow	Insulation	None Detected
7-1		B2210933.17	Gray	Hvac Sealant	None Detected
7-2		B2210933.18	Gray	Hvac Sealant	None Detected
8-1		B2210933.19	Black	Vibration Dampener	None Detected
8-2		B2210933.20	Black	Vibration Dampener	None Detected
9-1		B2210933.21	Black,Brown	Foundation Wp	None Detected
9-2		B2210933.22	Black,Brown	Foundation Wp	None Detected
10-1		B2210933.23A	Brown,Black	Covebase	None Detected
		B2210933.23B	Brown	Mastic	None Detected
11-1		B2210933.24	White	Textured Ceiling Tile	None Detected

PROJECT: UNCW King Hall, 49:18273

LAB CODE: B2210933

METHOD: EPA 600 / R93 / 116 and EPA 600 / M4-82 / 020

Client ID	Layer	Lab ID	Color	Sample Description	ASBESTOS %
11-2		B2210933.25	White	Textured Ceiling Tile	None Detected
12-1		B2210933.26	White	Vibration Dampener	Chrysotile 35%
13-1	Layer 1	B2210933.27	White	Hvac Sealant	None Detected
	Layer 2	B2210933.27	Black	Tar	Chrysotile 5%
13-2		B2210933.28		Sample Not Analyzed per COC	
14-1		B2210933.29	White,Beige	Drywall/Joint Compound	None Detected
14-2		B2210933.30	White	Drywall/Joint Compound	None Detected
15-1	Layer 1	B2210933.31	White	Pipe Wrap	None Detected
	Layer 2	B2210933.31	Yellow	Insulation	None Detected
15-2	Layer 1	B2210933.32	White	Pipe Wrap	None Detected
	Layer 2	B2210933.32	Yellow	Insulation	None Detected
15-3		B2210933.33	Gray,White	Pipe Wrap	None Detected
16-1		B2210933.34	White	Ceiling Tile	None Detected
16-2		B2210933.35	White	Ceiling Tile	None Detected
17-1		B2210933.36	Gray	Leveling Compound	None Detected
17-2		B2210933.37	Gray	Leveling Compound	None Detected
18-1		B2210933.38A	Cream Gray, Tan	Floor Tile	Chrysotile 2%
		B2210933.38B	Black	Mastic	Chrysotile 3%
18-2		B2210933.39A		Sample Not Analyzed per COC	
		B2210933.39B		Sample Not Analyzed per COC	
19-1		B2210933.40	Black	Sink Undercoating	None Detected
19-2		B2210933.41	Black	Sink Undercoating	None Detected
20-1		B2210933.42A	Cream,Brown	Covebase	None Detected
		B2210933.42B	Yellow,Beige	Mastic	None Detected
20-2		B2210933.43A	Cream,Brown	Covebase	None Detected
		B2210933.43B	Yellow,Beige	Mastic	None Detected
21-1		B2210933.44	Yellow	HVAC Mastic	None Detected
21-2		B2210933.45	Yellow	HVAC Mastic	None Detected
22-1		B2210933.46	White	Cmu Block Fill	None Detected
23-1		B2210933.47	White	Wall Caulk	Chrysotile <1%



CEI

Asbestos Report Summary

By: POLARIZING LIGHT MICROSCOPY

PROJECT: UNCW King Hall, 49:18273

LAB CODE: B2210933

METHOD: EPA 600 / R93 / 116 and EPA 600 / M4-82 / 020

Client ID	Layer	Lab ID	Color	Sample Description	ASBESTOS %
23-2		B2210933.48	White	Wall Caulk	Chrysotile <1%
24-1	Layer 1	B2210933.49	White	Plaster Skim Coat	None Detected
	Layer 2	B2210933.49	Gray	Plaster Base Coat	None Detected
24-2	Layer 1	B2210933.50	White	Plaster Skim Coat	None Detected
	Layer 2	B2210933.50	Gray	Plaster Base Coat	None Detected
25-1		B2210933.51	White	Ceiling Tile	None Detected
25-2		B2210933.52	White	Ceiling Tile	None Detected
26-1		B2210933.53	Black	Mastic	Chrysotile 5%
26-2		B2210933.54		Sample Not Analyzed per COC	
27-1		B2210933.55	White	Wall Texture	Chrysotile 2%
27-2		B2210933.56		Sample Not Analyzed per COC	
28-1		B2210933.57A	Brown	Cove Base	None Detected
		B2210933.57B	Yellow	Mastic	None Detected
28-2		B2210933.58A	Brown	Cove Base	None Detected
		B2210933.58b	Yellow	Mastic	None Detected
29-1		B2210933.59	Red	Firestop	None Detected
29-2		B2210933.60	Red	Firestop	None Detected
30-1		B2210933.61	Pink	Firestop	None Detected
30-2		B2210933.62	Pink	Firestop	None Detected
31-1	Layer 1	B2210933.63A	Yellow	Mastic	None Detected
	Layer 2	B2210933.63A	White	Floor Tile	Chrysotile 2%
		B2210933.63B	Black, Yellow	Mastic	None Detected
32-1		B2210933.64	White, Black	Floor Tile	None Detected
33-1		B2210933.65A	Blue	Floor Tile	None Detected
		B2210933.65B	Yellow	Mastic	None Detected
34-1		B2210933.66	Black	Residual Mastic	Chrysotile 3%
35-1		B2210933.67A	Tan	Floor Tile	Chrysotile 2%
		B2210933.67B	Black	Mastic	Chrysotile 3%
35-2		B2210933.68A		Sample Not Analyzed per COC	
		B2210933.68B		Sample Not Analyzed per COC	
36-1		B2210933.69A	Gray	Floor Tile	None Detected

PROJECT: UNCW King Hall, 49:18273

LAB CODE: B2210933

METHOD: EPA 600 / R93 / 116 and EPA 600 / M4-82 / 020

Client ID	Layer	Lab ID	Color	Sample Description	ASBESTOS %
		B2210933.69B	Yellow,Black	Mastic	Chrysotile 5%
37-1		B2210933.70A	Gray	Floor Tile	Chrysotile 2%
		B2210933.70B	Black	Mastic	Chrysotile 5%
38-1		B2210933.71A	Gray,White	Floor Tile	None Detected
		B2210933.71B	Yellow	Mastic	None Detected
38-2		B2210933.72A	Gray,White	Floor Tile	None Detected
		B2210933.72B	Yellow	Mastic	None Detected
39-1		B2210933.73A	Tan	Floor Tile	None Detected
		B2210933.73B	Yellow	Mastic	None Detected
40-1		B2210933.74A	White	Floor Tile	Chrysotile 2%
		B2210933.74B	Black	Mastic	Chrysotile 5%
41-1		B2210933.75	White	Sink Undercoating	Chrysotile 3%
41-2		B2210933.76		Sample Not Analyzed per COC	
42-1		B2210933.77	Tan	Floor Tile	Chrysotile 2%
43-1		B2210933.78A	Tan	Floor Tile	Chrysotile 2%
		B2210933.78B	Black	Mastic	Chrysotile 5%
44-1		B2210933.79A	Olive	Floor Tile	Chrysotile 2%
		B2210933.79B	Black	Mastic	Chrysotile 5%
45-1		B2210933.80	Gray	Thin Set	None Detected
45-2		B2210933.81	Gray	Thin Set	None Detected
46-1		B2210933.82	White	Ext Window Caulk	None Detected
46-2		B2210933.83	White	Ext Window Caulk	None Detected
47-1		B2210933.84	White	Ext Window Glazing	Chrysotile <1%
47-2		B2210933.85	White	Ext Window Glazing	None Detected
48-1		B2210933.86A	White,Multicolor	Floor Tile	None Detected
		B2210933.86B	Yellow,Black	Mastic	Chrysotile 3%
48-2		B2210933.87A	White,Multicolor	Floor Tile	None Detected
		B2210933.87B		Sample Not Analyzed per COC	

ASBESTOS BULK ANALYSIS

By: POLARIZING LIGHT MICROSCOPY

Client: ECS Southeast, LLP
 6714 Netherlands Drive
 Wilmington, NC 28405

Lab Code: B2210933
Date Received: 09-01-22
Date Analyzed: 09-07-22
Date Reported: 09-07-22

Project: UNCW King Hall, 49:18273

ASBESTOS BULK PLM, EPA 600 METHOD

Client ID Lab ID	Lab Description	Lab Attributes	NON-ASBESTOS COMPONENTS				ASBESTOS %
			Fibrous		Non-Fibrous		
1-1 B2210933.01	Cmu Wall Texture	Heterogeneous	60%	Cellulose	35%	Binder	None Detected
		White			5%	Calc Carb	
		Non-fibrous				Silicates	
		Bound					
1-2 B2210933.02	Cmu Wall Texture	Heterogeneous	60%	Cellulose	35%	Binder	None Detected
		White			5%	Calc Carb	
		Non-fibrous				Silicates	
		Bound					
1-3 B2210933.03	Cmu Wall Texture	Heterogeneous	60%	Cellulose	35%	Binder	None Detected
		White			5%	Calc Carb	
		Non-fibrous				Silicates	
		Bound					
2-1 Layer 1 B2210933.04	Pipe Wrap	Heterogeneous	60%	Cellulose	35%	Metal Foil	None Detected
		Red,Silver			5%	Paint	
		Fibrous					
		Bound					
Layer 2 B2210933.04	Insulation	Homogeneous	100%	Fiberglass			None Detected
		Yellow					
		Fibrous					
		Loose					
2-2 Layer 1 B2210933.05	Pipe Wrap	Heterogeneous	60%	Cellulose	35%	Metal Foil	None Detected
		White,Silver			5%	Paint	
		Fibrous					
		Bound					
Layer 2 B2210933.05	Insulation	Homogeneous	100%	Fiberglass			None Detected
		Yellow					
		Fibrous					
		Loose					



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ASBESTOS BULK ANALYSIS

By: POLARIZING LIGHT MICROSCOPY

Client: ECS Southeast, LLP
6714 Netherlands Drive
Wilmington, NC 28405

Lab Code: B2210933
Date Received: 09-01-22
Date Analyzed: 09-07-22
Date Reported: 09-07-22

Project: UNCW King Hall, 49:18273

ASBESTOS BULK PLM, EPA 600 METHOD

Client ID Lab ID	Lab Description	Lab Attributes	NON-ASBESTOS COMPONENTS				ASBESTOS %
			Fibrous	Non-Fibrous			
2-3 Layer 1 B2210933.06	Pipe Wrap	Heterogeneous	60%	Cellulose	35%	Metal Foil	None Detected
		Blue,Silver Fibrous Bound			5%	Paint	
Layer 2 B2210933.06	Insulation	Homogeneous Yellow Fibrous Loose	100%	Fiberglass			None Detected
3-1 B2210933.07	Insulation	Homogeneous White,Gray Fibrous Loosely Bound	15%	Fiberglass	83%	Binder 2% Paint	<1% Amosite
Sample appears to be insulation. No caulking present.							
3-2 B2210933.08	Insulation	Homogeneous White,Gray Fibrous Loosely Bound	15%	Fiberglass	83%	Binder 2% Paint	<1% Amosite
Sample appears to be insulation. No caulking present.							
4-1 B2210933.09	Brick	Homogeneous Red Non-fibrous Tightly Bound			70%	Silicates 30% Binder	None Detected
4-2 B2210933.10	Brick	Homogeneous Red Non-fibrous Tightly Bound			70%	Silicates 30% Binder	None Detected
5-1 B2210933.11	Liner	Homogeneous Gray Non-fibrous Tightly Bound			70%	Silicates 30% Binder	None Detected

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ASBESTOS BULK PLM, EPA 600 METHOD

Client ID Lab ID	Lab Description	Lab Attributes	NON-ASBESTOS COMPONENTS				ASBESTOS %
			Fibrous		Non-Fibrous		
5-2 B2210933.12	Liner	Homogeneous	70%	Cellulose	20%	Metal Foil	None Detected
		Gray	30%	Binder	Tar		
		Non-fibrous Tightly Bound					
5-3 B2210933.13	Liner	Homogeneous	70%	Cellulose	20%	Metal Foil	None Detected
		Gray	30%	Binder	Tar		
		Non-fibrous Tightly Bound					
6-1 Layer 1 B2210933.14	Pipe Wrap	Homogeneous	60%	Cellulose	20%	Metal Foil	None Detected
		Brown,Black			20%	Tar	
		Fibrous Bound					
Layer 2 B2210933.14	Insulation	Homogeneous	100%	Fiberglass			None Detected
		Yellow					
		Fibrous Loose					
6-2 Layer 1 B2210933.15	Pipe Wrap	Homogeneous	60%	Cellulose	20%	Metal Foil	None Detected
		Brown,Black			20%	Tar	
		Fibrous Bound					
Layer 2 B2210933.15	Insulation	Homogeneous	100%	Fiberglass			None Detected
		Yellow					
		Fibrous Loose					
6-3 Layer 1 B2210933.16	Pipe Wrap	Homogeneous	60%	Cellulose	20%	Metal Foil	None Detected
		Brown,Black			20%	Tar	
		Fibrous Bound					

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ASBESTOS BULK PLM, EPA 600 METHOD

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			Fibrous	Non-Fibrous		
Layer 2 B2210933.16	Insulation	Homogeneous Yellow Fibrous Loose	100%	Fiberglass		None Detected
7-1 B2210933.17	Hvac Sealant	Homogeneous Gray Non-fibrous Bound	100%	Mastic		None Detected
7-2 B2210933.18	Hvac Sealant	Homogeneous Gray Non-fibrous Bound	100%	Mastic		None Detected
8-1 B2210933.19	Vibration Dampener	Homogeneous Black Fibrous Bound	70%	Cellulose	30% Tar	None Detected
8-2 B2210933.20	Vibration Dampener	Homogeneous Black Fibrous Bound	70%	Cellulose	30% Tar	None Detected
9-1 B2210933.21	Foundation Wp	Heterogeneous Black,Brown Fibrous Bound	90%	Cellulose	10% Tar	None Detected
9-2 B2210933.22	Foundation Wp	Heterogeneous Black,Brown Fibrous Bound	90%	Cellulose	10% Tar	None Detected

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ASBESTOS BULK PLM, EPA 600 METHOD

Client ID Lab ID	Lab Description	Lab Attributes	NON-ASBESTOS COMPONENTS				ASBESTOS %
			Fibrous		Non-Fibrous		
10-1 B2210933.23A	Covebase	Homogeneous Brown, Black Non-fibrous Bound	100%	Vinyl			None Detected
B2210933.23B	Mastic	Homogeneous Brown Non-fibrous Bound	100%	Mastic			None Detected
11-1 B2210933.24	Textured Ceiling Tile	Heterogeneous White Fibrous Loosely Bound	15% 5%	Fiberglass Cellulose	5% 75%	Metal Foil Binder	None Detected
11-2 B2210933.25	Textured Ceiling Tile	Heterogeneous White Fibrous Loosely Bound	15% 5%	Fiberglass Cellulose	5% 75%	Metal Foil Binder	None Detected
12-1 B2210933.26	Vibration Dampener	Homogeneous White Fibrous Bound	20%	Cellulose	45%	Binder	35% Chrysotile
13-1 Layer 1 B2210933.27	Hvac Sealant	Homogeneous White Non-fibrous Bound	100%	Mastic			None Detected
Layer 2 B2210933.27	Tar	Homogeneous Black Non-fibrous Bound	95%	Tar			5% Chrysotile
13-2 B2210933.28	Sample Not Analyzed per COC						

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ASBESTOS BULK PLM, EPA 600 METHOD

Client ID Lab ID	Lab Description	Lab Attributes	NON-ASBESTOS COMPONENTS				ASBESTOS %
			Fibrous		Non-Fibrous		
14-1 B2210933.29	Drywall/Joint Compound	Heterogeneous White,Beige Fibrous Bound	15%	Cellulose	75%	Gypsum	None Detected
					10%	Calc Carb	
14-2 B2210933.30	Drywall/Joint Compound	Heterogeneous White Fibrous Bound	15%	Cellulose	75%	Gypsum	None Detected
					10%	Calc Carb	
15-1 Layer 1 B2210933.31	Pipe Wrap	Homogeneous White Fibrous Bound	100%	Cellulose			None Detected
Layer 2 B2210933.31	Insulation	Homogeneous Yellow Fibrous Loose	100%	Fiberglass			None Detected
15-2 Layer 1 B2210933.32	Pipe Wrap	Homogeneous White Fibrous Bound	100%	Cellulose			None Detected
Layer 2 B2210933.32	Insulation	Homogeneous Yellow Fibrous Loose	100%	Fiberglass			None Detected
15-3 B2210933.33	Pipe Wrap	Heterogeneous Gray,White Fibrous Bound	80%	Cellulose	10%	Metal Foil	None Detected
					10%	Binder	

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ASBESTOS BULK PLM, EPA 600 METHOD

Client ID Lab ID	Lab Description	Lab Attributes	NON-ASBESTOS COMPONENTS				ASBESTOS %
			Fibrous		Non-Fibrous		
16-1 B2210933.34	Ceiling Tile	Heterogeneous	60%	Cellulose	15%	Perlite	None Detected
		White Fibrous Loosely Bound	20%	Fiberglass	5%	Binder	
16-2 B2210933.35	Ceiling Tile	Heterogeneous	60%	Cellulose	15%	Perlite	None Detected
		White Fibrous Loosely Bound	20%	Fiberglass	5%	Binder	
17-1 B2210933.36	Leveling Compound	Homogeneous	3%	Cellulose	97%	Binder	None Detected
		Gray Non-fibrous Bound					
17-2 B2210933.37	Leveling Compound	Homogeneous	3%	Cellulose	97%	Binder	None Detected
		Gray Non-fibrous Bound					
18-1 B2210933.38A	Floor Tile	Homogeneous			98%	Vinyl	2% Chrysotile
		Cream Gray, Tan Non-fibrous Tightly Bound					
B2210933.38B	Mastic	Homogeneous			97%	Mastic	3% Chrysotile
		Black Non-fibrous Bound					
18-2 B2210933.39A	Sample Not Analyzed per COC						
B2210933.39B	Sample Not Analyzed per COC						

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ASBESTOS BULK PLM, EPA 600 METHOD

Client ID Lab ID	Lab Description	Lab Attributes	NON-ASBESTOS COMPONENTS				ASBESTOS %
			Fibrous		Non-Fibrous		
19-1 B2210933.40	Sink Undercoating	Homogeneous	<1%	Cellulose	90%	Tar	None Detected
		Black Non-fibrous Bound			10%	Binder	
19-2 B2210933.41	Sink Undercoating	Homogeneous	<1%	Cellulose	90%	Tar	None Detected
		Black Non-fibrous Bound			10%	Binder	
20-1 B2210933.42A	Covebase	Homogeneous			100%	Vinyl	None Detected
		Cream,Brown Non-fibrous Bound					
B2210933.42B	Mastic	Homogeneous			100%	Mastic	None Detected
		Yellow,Beige Non-fibrous Bound					
20-2 B2210933.43A	Covebase	Homogeneous			100%	Vinyl	None Detected
		Cream,Brown Non-fibrous Bound					
B2210933.43B	Mastic	Homogeneous			100%	Mastic	None Detected
		Yellow,Beige Non-fibrous Bound					
21-1 B2210933.44	HVAC Mastic	Homogeneous			100%	Mastic	None Detected
		Yellow Non-fibrous Bound					

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ASBESTOS BULK PLM, EPA 600 METHOD

Client ID Lab ID	Lab Description	Lab Attributes	NON-ASBESTOS COMPONENTS		ASBESTOS %
			Fibrous	Non-Fibrous	
21-2 B2210933.45	HVAC Mastic	Homogeneous Yellow Non-fibrous Bound	100%	Mastic	None Detected
22-1 B2210933.46	Cmu Block Fill	Homogeneous White Non-fibrous Bound	60% 40%	Binder Paint	None Detected
23-1 B2210933.47	Wall Caulk	Homogeneous White Non-fibrous Bound	80% 20%	Binder Calc Carb	<1% Chrysotile
23-2 B2210933.48	Wall Caulk	Homogeneous White Non-fibrous Bound	80% 20%	Binder Calc Carb	<1% Chrysotile
24-1 Layer 1 B2210933.49	Plaster Skim Coat	Homogeneous White Non-fibrous Bound	80% 20%	Binder Calc Carb	None Detected
Layer 2 B2210933.49	Plaster Base Coat	Homogeneous Gray Non-fibrous Bound	75% 25%	Silicates Binder	None Detected
24-2 Layer 1 B2210933.50	Plaster Skim Coat	Homogeneous White Non-fibrous Bound	80% 20%	Binder Calc Carb	None Detected

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ASBESTOS BULK PLM, EPA 600 METHOD

Client ID Lab ID	Lab Description	Lab Attributes	NON-ASBESTOS COMPONENTS				ASBESTOS %
			Fibrous		Non-Fibrous		
Layer 2 B2210933.50	Plaster Base Coat	Homogeneous Gray Non-fibrous Bound	75%	Cellulose	15%	Silicates	None Detected
25-1 B2210933.51	Ceiling Tile	Heterogeneous White Fibrous Loosely Bound	60%	Cellulose	15%	Perlite	None Detected
25-2 B2210933.52	Ceiling Tile	Heterogeneous White Fibrous Loosely Bound	60%	Cellulose	15%	Perlite	None Detected
26-1 B2210933.53	Mastic	Homogeneous Black Non-fibrous Bound	95%	Mastic			5% Chrysotile
26-2 B2210933.54	Sample Not Analyzed per COC						
27-1 B2210933.55	Wall Texture	Heterogeneous White Non-fibrous Bound	58%	Binder	35%	Calc Carb	2% Chrysotile
27-2 B2210933.56	Sample Not Analyzed per COC						
28-1 B2210933.57A	Cove Base	Homogeneous Brown Non-fibrous Bound	100%	Vinyl			None Detected

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ASBESTOS BULK PLM, EPA 600 METHOD

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			Fibrous		Non-Fibrous		
B2210933.57B	Mastic	Homogeneous Yellow Non-fibrous Bound	100%		Mastic		None Detected
28-2 B2210933.58A	Cove Base	Homogeneous Brown Non-fibrous Bound	100%		Vinyl		None Detected
B2210933.58b	Mastic	Homogeneous Yellow Non-fibrous Bound	100%		Mastic		None Detected
29-1 B2210933.59	Firestop	Homogeneous Red Non-fibrous Bound	2%	Cellulose	98%	Caulk	None Detected
29-2 B2210933.60	Firestop	Homogeneous Red Non-fibrous Bound	2%	Cellulose	98%	Caulk	None Detected
30-1 B2210933.61	Firestop	Homogeneous Pink Non-fibrous Bound	2%	Cellulose	98%	Caulk	None Detected
30-2 B2210933.62	Firestop	Homogeneous Pink Non-fibrous Bound	2%	Cellulose	98%	Caulk	None Detected

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ASBESTOS BULK PLM, EPA 600 METHOD

Client ID Lab ID	Lab Description	Lab Attributes	NON-ASBESTOS COMPONENTS			ASBESTOS %	
			Fibrous	Non-Fibrous			
31-1 Layer 1 B2210933.63A	Mastic	Homogeneous Yellow Non-fibrous Bound	100%	Mastic		None Detected	
Layer 2 B2210933.63A	Floor Tile	Homogeneous White Non-fibrous Tightly Bound	98%	Vinyl		2% Chrysotile	
B2210933.63B	Mastic	Homogeneous Black, Yellow Non-fibrous Bound	2%	Cellulose	98%	Mastic	None Detected
32-1 B2210933.64	Floor Tile	Homogeneous White, Black Non-fibrous Tightly Bound	100%	Vinyl		None Detected	
33-1 B2210933.65A	Floor Tile	Homogeneous Blue Non-fibrous Tightly Bound	100%	Vinyl		None Detected	
B2210933.65B	Mastic	Homogeneous Yellow Non-fibrous Bound	100%	Mastic		None Detected	
34-1 B2210933.66	Residual Mastic	Homogeneous Black Non-fibrous Bound	97%	Mastic		3% Chrysotile	



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ASBESTOS BULK PLM, EPA 600 METHOD

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			Fibrous	Non-Fibrous	
35-1 B2210933.67A	Floor Tile	Homogeneous Tan Non-fibrous Tightly Bound	98%	Vinyl	2% Chrysotile
B2210933.67B	Mastic	Homogeneous Black Non-fibrous Bound	97%	Mastic	3% Chrysotile
35-2 B2210933.68A	Sample Not Analyzed per COC				
B2210933.68B	Sample Not Analyzed per COC				
36-1 B2210933.69A	Floor Tile	Homogeneous Gray Non-fibrous Tightly Bound	100%	Vinyl	None Detected
B2210933.69B	Mastic	Homogeneous Yellow,Black Non-fibrous Bound	95%	Mastic	5% Chrysotile
37-1 B2210933.70A	Floor Tile	Homogeneous Gray Non-fibrous Tightly Bound	98%	Vinyl	2% Chrysotile
B2210933.70B	Mastic	Homogeneous Black Non-fibrous Bound	95%	Mastic	5% Chrysotile

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			Fibrous	Non-Fibrous	
38-1 B2210933.71A	Floor Tile	Homogeneous Gray,White Non-fibrous Tightly Bound	100%	Vinyl	None Detected
	B2210933.71B Mastic	Homogeneous Yellow Non-fibrous Bound	100%	Mastic	None Detected
38-2 B2210933.72A	Floor Tile	Homogeneous Gray,White Non-fibrous Tightly Bound	100%	Vinyl	None Detected
	B2210933.72B Mastic	Homogeneous Yellow Non-fibrous Bound	100%	Mastic	None Detected
39-1 B2210933.73A	Floor Tile	Homogeneous Tan Non-fibrous Tightly Bound	100%	Vinyl	None Detected
	B2210933.73B Mastic	Homogeneous Yellow Non-fibrous Bound	100%	Mastic	None Detected
40-1 B2210933.74A	Floor Tile	Homogeneous White Non-fibrous Tightly Bound	98%	Vinyl	2% Chrysotile

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			Fibrous	Non-Fibrous	
B2210933.74B	Mastic	Homogeneous Black Non-fibrous Bound	95%	Mastic	5% Chrysotile
41-1 B2210933.75	Sink Undercoating	Homogeneous White Fibrous Bound	97%	Binder	3% Chrysotile
41-2 B2210933.76	Sample Not Analyzed per COC				
42-1 B2210933.77	Floor Tile	Homogeneous Tan Non-fibrous Tightly Bound	98%	Vinyl	2% Chrysotile
43-1 B2210933.78A	Floor Tile	Homogeneous Tan Non-fibrous Tightly Bound	98%	Vinyl	2% Chrysotile
B2210933.78B	Mastic	Homogeneous Black Non-fibrous Bound	95%	Mastic	5% Chrysotile
44-1 B2210933.79A	Floor Tile	Homogeneous Olive Non-fibrous Tightly Bound	98%	Vinyl	2% Chrysotile
B2210933.79B	Mastic	Homogeneous Black Non-fibrous Bound	95%	Mastic	5% Chrysotile

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			Fibrous	Non-Fibrous	
45-1 B2210933.80	Thin Set	Homogeneous	75%	Silicates	None Detected
		Gray	25%	Binder	
		Non-fibrous			
		Bound			
45-2 B2210933.81	Thin Set	Homogeneous	75%	Silicates	None Detected
		Gray	25%	Binder	
		Non-fibrous			
		Bound			
46-1 B2210933.82	Ext Window Caulk	Homogeneous	100%	Caulk	None Detected
		White			
		Non-fibrous			
		Bound			
46-2 B2210933.83	Ext Window Caulk	Homogeneous	100%	Caulk	None Detected
		White			
		Non-fibrous			
		Bound			
47-1 B2210933.84	Ext Window Glazing	Homogeneous	80%	Binder	<1% Chrysotile
		White	20%	Calc Carb	
		Non-fibrous			
		Bound			
47-2 B2210933.85	Ext Window Glazing	Homogeneous	80%	Binder	None Detected
		White	20%	Calc Carb	
		Non-fibrous			
		Bound			
48-1 B2210933.86A	Floor Tile	Homogeneous	100%	Vinyl	None Detected
		White, Multicolor			
		Non-fibrous			
		Tightly Bound			

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			Fibrous	Non-Fibrous	
B2210933.86B	Mastic	Homogeneous Yellow,Black Non-fibrous Bound	97%	Mastic	3% Chrysotile
Unable to separate mastics for analysis.					
48-2 B2210933.87A	Floor Tile	Homogeneous White,Multicolor Non-fibrous Tightly Bound	100%	Vinyl	None Detected
B2210933.87B	Sample Not Analyzed per COC				

LEGEND: Non-Anth = Non-Asbestiform Anthophyllite
Non-Trem = Non-Asbestiform Tremolite
Calc Carb = Calcium Carbonate

METHOD: EPA 600 / R93 / 116 and EPA 600 / M4-82 / 020

REPORTING LIMIT: <1% by visual estimation

REPORTING LIMIT FOR POINT COUNTS: 0.25% by 400 Points or 0.1% by 1,000 Points

REGULATORY LIMIT: >1% by weight

Due to the limitations of the EPA 600 method, nonfriable organically bound materials (NOBs) such as vinyl floor tiles can be difficult to analyze via polarized light microscopy (PLM). EPA recommends that all NOBs analyzed by PLM, and found not to contain asbestos, be further analyzed by Transmission Electron Microscopy (TEM). Please note that PLM analysis of dust and soil samples for asbestos is not covered under NVLAP accreditation. *Estimated measurement of uncertainty is available on request.*

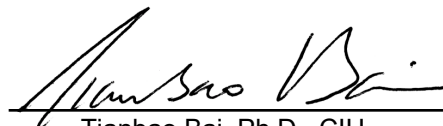
This report relates only to the samples tested or analyzed and may not be reproduced, except in full, without written approval by Eurofins CEI. Eurofins CEI makes no warranty representation regarding the accuracy of client submitted information in preparing and presenting analytical results. Interpretation of the analytical results is the sole responsibility of the client. Samples were received in acceptable condition unless otherwise noted. This report may not be used by the client to claim product endorsement by NVLAP or any other agency of the U.S. Government.

Information provided by customer includes customer sample ID and sample description.

ANALYST:


Ryan Steele

APPROVED BY:


Tianbao Bai, Ph.D., CIH
Laboratory Director



September 22, 2022

ECS Southeast, LLP
6714 Netherlands Drive
Wilmington, NC 28405

CLIENT PROJECT: UNCW King Hall, 49:18273
CEI LAB CODE: B2212107

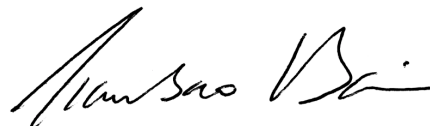
Dear Customer:

Enclosed are asbestos analysis results for PLM Bulk samples received at our laboratory on September 19, 2022. The samples were analyzed for asbestos using polarizing light microscopy (PLM) per the EPA 600 Method.

Sample results containing >1% asbestos are considered asbestos-containing materials (ACMs) per EPA regulatory requirements. The detection limit for the EPA 600 Method is <1% asbestos by weight as determined by visual estimation.

Thank you for your business and we look forward to continuing good relations.

Kind Regards,



Tianbao Bai, Ph.D., CIH
Laboratory Director



CEI

ASBESTOS ANALYTICAL REPORT

By: Polarized Light Microscopy

Prepared for

ECS Southeast, LLP

CLIENT PROJECT: UNCW King Hall, 49:18273

LAB CODE: B2212107

TEST METHOD: EPA 600 / R93 / 116 and EPA 600 / M4-82 / 020

REPORT DATE: 09/22/22

TOTAL SAMPLES ANALYZED: 7

SAMPLES >1% ASBESTOS: 1



CEI

Asbestos Report Summary

By: POLARIZING LIGHT MICROSCOPY

PROJECT: UNCW King Hall, 49:18273

LAB CODE: B2212107

METHOD: EPA 600 / R93 / 116 and EPA 600 / M4-82 / 020

Client ID	Layer	Lab ID	Color	Sample Description	ASBESTOS %
49-1		B2212107.01	White	Wall Texture	None Detected
49-2		B2212107.02	White,Green	Wall Texture	None Detected
49-3		B2212107.03	White,Off-white	Wall Texture	Chrysotile 2%
49-4		B2212107.04	White,Green	Paint	None Detected
49-5		B2212107.05	White,Blue	Wall Texture	None Detected
49-6		B2212107.06	White	Wall Texture	None Detected
49-7		B2212107.07	White,Blue	Wall Texture	None Detected

ASBESTOS BULK ANALYSIS

By: POLARIZING LIGHT MICROSCOPY

Client: ECS Southeast, LLP
 6714 Netherlands Drive
 Wilmington, NC 28405

Lab Code: B2212107
Date Received: 09-19-22
Date Analyzed: 09-22-22
Date Reported: 09-22-22

Project: UNCW King Hall, 49:18273

ASBESTOS BULK PLM, EPA 600 METHOD

Client ID Lab ID	Lab Description	Lab Attributes	NON-ASBESTOS COMPONENTS		ASBESTOS %
			Fibrous	Non-Fibrous	
49-1 B2212107.01	Wall Texture	Heterogeneous	60%	Binder	None Detected
		White	35%	Silicates	
		Non-fibrous	5%	Paint	
		Bound			
49-2 B2212107.02	Wall Texture	Heterogeneous	60%	Binder	None Detected
		White,Green	35%	Calc Carb	
		Non-fibrous	5%	Paint	
		Bound			
49-3 B2212107.03	Wall Texture	Heterogeneous	58%	Binder	2% Chrysotile
		White,Off-white	35%	Calc Carb	
		Non-fibrous	5%	Paint	
		Bound			
49-4 B2212107.04	Paint	Heterogeneous	100%	Paint	None Detected
		White,Green			
		Non-fibrous			
		Bound			
No wall texture present.					
49-5 B2212107.05	Wall Texture	Heterogeneous	60%	Binder	None Detected
		White,Blue	35%	Silicates	
		Non-fibrous	5%	Paint	
		Bound			
49-6 B2212107.06	Wall Texture	Heterogeneous	60%	Binder	None Detected
		White	35%	Calc Carb	
		Non-fibrous	5%	Paint	
		Bound			
49-7 B2212107.07	Wall Texture	Heterogeneous	60%	Binder	None Detected
		White,Blue	35%	Silicates	
		Non-fibrous	5%	Paint	
		Bound			

LEGEND: Non-Anth = Non-Asbestiform Anthophyllite
Non-Trem = Non-Asbestiform Tremolite
Calc Carb = Calcium Carbonate

METHOD: EPA 600 / R93 / 116 and EPA 600 / M4-82 / 020

REPORTING LIMIT: <1% by visual estimation

REPORTING LIMIT FOR POINT COUNTS: 0.25% by 400 Points or 0.1% by 1,000 Points

REGULATORY LIMIT: >1% by weight

Due to the limitations of the EPA 600 method, nonfriable organically bound materials (NOBs) such as vinyl floor tiles can be difficult to analyze via polarized light microscopy (PLM). EPA recommends that all NOBs analyzed by PLM, and found not to contain asbestos, be further analyzed by Transmission Electron Microscopy (TEM). Please note that PLM analysis of dust and soil samples for asbestos is not covered under NVLAP accreditation. *Estimated measurement of uncertainty is available on request.*

This report relates only to the samples tested or analyzed and may not be reproduced, except in full, without written approval by Eurofins CEI. Eurofins CEI makes no warranty representation regarding the accuracy of client submitted information in preparing and presenting analytical results. Interpretation of the analytical results is the sole responsibility of the client. Samples were received in acceptable condition unless otherwise noted. This report may not be used by the client to claim product endorsement by NVLAP or any other agency of the U.S. Government.

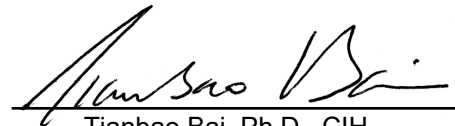
Information provided by customer includes customer sample ID and sample description.

ANALYST:



Jacob Morgan

APPROVED BY:



Tianbao Bai, Ph.D., CIH
Laboratory Director



Scott Minyard



CEI

CHAIN OF CUSTODY

730 SE Maynard Road, Cary, NC 27511
 Tel: 866-481-1412; Fax: 919-481-1442

LAB USE ONLY:	
CEI Lab Code:	B2210933
CEI Lab I.D. Range:	

87

COMPANY INFORMATION	PROJECT INFORMATION
CEI CLIENT #:	Job Contact: Jennifer Turner
Company: ECS Southeast	Email / Tel: Jturner1@ecslimited.com 910-599-6285
Address: 6714 Netherlands Dr. Wilmington, NC 28405	Project Name: UNCW King Hall
Email: Jturner1@ecslimited.com	Project ID#: 49:18273
Tel: 910-599-6285 Fax:	PO #: 49:18273
	STATE SAMPLES COLLECTED IN: NC

IF TAT IS NOT MARKED STANDARD 3 DAY TAT APPLIES.

ASBESTOS	METHOD	TURN AROUND TIME					
		4 HR	8 HR	1 DAY	2 DAY	3 DAY	5 DAY
PLM BULK	EPA 600	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
PLM POINT COUNT (400)	EPA 600	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
PLM POINT COUNT (1000)	EPA 600	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
PLM GRAV w POINT COUNT	EPA 600	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
PLM BULK	CARB 435	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
PCM AIR	NIOSH 7400	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
TEM AIR	EPA AHERA	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
TEM AIR	NIOSH 7402	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
TEM AIR (PCME)	ISO 10312	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
TEM AIR	ASTM 6281-15	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
TEM BULK	CHATFIELD	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
TEM DUST WIPE	ASTM D6480-05 (2010)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
TEM DUST MICROVAC	ASTM D5755-09 (2014)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
TEM SOIL	ASTM D7521-16	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
TEM VERMICULITE	CINCINNATI METHOD	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
TEM QUALITATIVE	IN-HOUSE METHOD	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
OTHER:		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

REMARKS / SPECIAL INSTRUCTIONS:		<input checked="" type="checkbox"/> Accept Samples <input type="checkbox"/> Reject Samples	
Positive STOP per HA Please call w/ Questions 910-599-6285 Except DW/JC + Plusus / Tertus			

Relinquished By:	Date/Time	Received By:	Date/Time
Jennifer Turner	8-30-22 5:30PM	BF	9/1 10:20

Samples will be disposed of 30 days after analysis



CEI

SAMPLING FORM

COMPANY CONTACT INFORMATION	
Company: ECS Southeast	Job Contact:
Project Name: UNCW King Hall	
Project ID #: 49:18273	Tel:

SAMPLE ID#	DESCRIPTION / LOCATION	VOLUME/ AREA	TEST	
			PLM <input type="checkbox"/>	TEM <input type="checkbox"/>
1-1,2,3	CMU Wall Texture	HA1	PLM <input checked="" type="checkbox"/>	TEM <input type="checkbox"/>
2-1,2,3	Mech Rm Pipe Wrap	HA2	PLM <input checked="" type="checkbox"/>	TEM <input type="checkbox"/>
3-1,2	Boiler Flu Stack White Caulking	HA3	PLM <input checked="" type="checkbox"/>	TEM <input type="checkbox"/>
4-1,2	Boiler Flu Stack Brick	HA4	PLM <input checked="" type="checkbox"/>	TEM <input type="checkbox"/>
5-1,2,3	Boiler Flu Stack Liner	HA5	PLM <input checked="" type="checkbox"/>	TEM <input type="checkbox"/>
6-1,2,3	Crawl Space 3" Pipe Wrap	HA6	PLM <input checked="" type="checkbox"/>	TEM <input type="checkbox"/>
7-1,2	Gray HVAC Sealant	HA7	PLM <input checked="" type="checkbox"/>	TEM <input type="checkbox"/>
8-1,2	Crawl Space 1st Fl. Vibration ^{Dampener}	HA8	PLM <input checked="" type="checkbox"/>	TEM <input type="checkbox"/>
9-1,2	Crawl Space BIK Foundation WP	HA9	PLM <input checked="" type="checkbox"/>	TEM <input type="checkbox"/>
10-1	Bm Covebase w/ Mastics	HA10	PLM <input checked="" type="checkbox"/>	TEM <input type="checkbox"/>
11-1,2	2'x2' White Textured ^{Ceiling} _{Tile}	HA11	PLM <input checked="" type="checkbox"/>	TEM <input type="checkbox"/>
12-1	HVAC Vibration Damper	HA12	PLM <input checked="" type="checkbox"/>	TEM <input type="checkbox"/>
13-1,2	White HVAC Sealant	HA13	PLM <input checked="" type="checkbox"/>	TEM <input type="checkbox"/>
14-1,2	Drumwall / Joint Compound	HA14	PLM <input checked="" type="checkbox"/>	TEM <input type="checkbox"/>
15-1,2,3	2" Pipe Wrap	HA15	PLM <input checked="" type="checkbox"/>	TEM <input type="checkbox"/>
16-1,2	2'x2' White Pinhole CT	HA16	PLM <input checked="" type="checkbox"/>	TEM <input type="checkbox"/>
17-1,2	Gray Leveling Compound	HA17	PLM <input checked="" type="checkbox"/>	TEM <input type="checkbox"/>
18-1,2	12'x12' Cement Cream w/ Gum + Tan Mottling FT	HA18	PLM <input checked="" type="checkbox"/>	TEM <input type="checkbox"/>
19-1,2	BIK Sink Undercoating	HA19	PLM <input checked="" type="checkbox"/>	TEM <input type="checkbox"/>
20-1,2	Cream Covebase w/ Yel Mastic	HA20	PLM <input checked="" type="checkbox"/>	TEM <input type="checkbox"/>
21-1,2	Yellow HVAC Mastic	HA21	PLM <input checked="" type="checkbox"/>	TEM <input type="checkbox"/>
22-1	CMU Block Fill	HA22	PLM <input checked="" type="checkbox"/>	TEM <input type="checkbox"/>
23-1,2	Wall Caulk	HA23	PLM <input checked="" type="checkbox"/>	TEM <input type="checkbox"/>
24-1,2	Plaster Wall System	HA24	PLM <input checked="" type="checkbox"/>	TEM <input type="checkbox"/>
25-1,2	2'x4' White Pinhole CT	HA25	PLM <input checked="" type="checkbox"/>	TEM <input type="checkbox"/>
26-1,2	Black Mastic on 6" Pipe	HA26	PLM <input checked="" type="checkbox"/>	TEM <input type="checkbox"/>
27-1,2	Wall Texture 2nd Fl	HA27	PLM <input checked="" type="checkbox"/>	TEM <input type="checkbox"/>

COMPANY CONTACT INFORMATION	
Company:	Job Contact:
Project Name:	
Project ID #:	Tel:

SAMPLE ID#	DESCRIPTION / LOCATION	VOLUME/ AREA	TEST			
			PLM	<input type="checkbox"/>	TEM	<input type="checkbox"/>
28-1,2	Brn CB w/ Yellow Mastic	HA28	PLM	<input checked="" type="checkbox"/>	TEM	<input type="checkbox"/>
29-1,2	Red Firestop	HA29	PLM	<input type="checkbox"/>	TEM	<input type="checkbox"/>
30-1,2	Pink Firestop	HA30	PLM	<input type="checkbox"/>	TEM	<input type="checkbox"/>
31-1	Unknow FT under ^{12x12} white w/ BK spots FT + BIK / Yellow Mastic	HA31	PLM	<input type="checkbox"/>	TEM	<input type="checkbox"/>
32-1			PLM	<input type="checkbox"/>	TEM	<input type="checkbox"/>
32-1	12" x 12" White w/ Black Specs FT	HA32	PLM	<input type="checkbox"/>	TEM	<input type="checkbox"/>
33-1	12x12 Lt Blue FT w/ Yellow Mastic	HA33	PLM	<input type="checkbox"/>	TEM	<input type="checkbox"/>
34-1	Residual Black Mastic	HA34	PLM	<input type="checkbox"/>	TEM	<input type="checkbox"/>
35-1,2	Unknow Tan FT w/ Black Mas	HA35	PLM	<input type="checkbox"/>	TEM	<input type="checkbox"/>
36-1	12" x 12" Gray FT w/ Gray / BIK streaks	HA36	PLM	<input type="checkbox"/>	TEM	<input type="checkbox"/>
37-1	12" x 12" Whit FT w/ BIK streak	HA37	PLM	<input type="checkbox"/>	TEM	<input type="checkbox"/>
38-1,2	12" x 12" Gray FT w/ white streaks	HA38	PLM	<input type="checkbox"/>	TEM	<input type="checkbox"/>
39-1	12" x 12" Tan FT under 12" x 12" Gray FT	HA39	PLM	<input type="checkbox"/>	TEM	<input type="checkbox"/>
40-1	White FT under Carpet	HA40	PLM	<input type="checkbox"/>	TEM	<input type="checkbox"/>
41-1,2	White Sink Under Coating	HA41	PLM	<input type="checkbox"/>	TEM	<input type="checkbox"/>
42-1	12x12 Cream w/ Tan Streaks FT 1st Fl	HA42	PLM	<input type="checkbox"/>	TEM	<input type="checkbox"/>
43-1	12x12 white w/ Gray Streaks FT	HA43	PLM	<input type="checkbox"/>	TEM	<input type="checkbox"/>
44-1	12x12 olive FT	HA44	PLM	<input type="checkbox"/>	TEM	<input type="checkbox"/>
45-1,2	Gray Thin Set Under Ceramic	HA45	PLM	<input type="checkbox"/>	TEM	<input type="checkbox"/>
46-1,2	Gray Ext Window Caulk	HA46	PLM	<input type="checkbox"/>	TEM	<input type="checkbox"/>
47-1,2	Gray Ext Window Glazing	HA47	PLM	<input type="checkbox"/>	TEM	<input type="checkbox"/>
48-1,2	12x12 white w/ Multi-Color Specs FT	HA48	PLM	<input checked="" type="checkbox"/>	TEM	<input type="checkbox"/>



CHAIN OF CUSTODY

7

CEI

730 SE Maynard Road, Cary, NC 27511
Tel: 866-481-1412; Fax: 919-481-1442

LAB USE ONLY:

CEI Lab Code: B2212107

CEI Lab I.D. Range:

COMPANY INFORMATION	PROJECT INFORMATION
CEI CLIENT #:	Job Contact: <i>Jenn Turner</i>
Company: <i>ECS Southeast</i>	Email / Tel: <i>910-599-6285 jturner2@ecslimited.com</i>
Address: <i>6714 Netherlands Drive</i>	Project Name: <i>UNCW King Hall</i>
<i>Wilmington, NC 28405</i>	Project ID#: <i>49:18273</i>
Email: <i>Jturner2@ecslimited.com</i>	PO #: <i>49:18273</i>
Tel: <i>910-599-6285</i> Fax:	STATE SAMPLES COLLECTED IN: <i>NC</i>

IF TAT IS NOT MARKED STANDARD 3 DAY TAT APPLIES.

ASBESTOS	METHOD	TURN AROUND TIME					
		4 HR	8 HR	1 DAY	2 DAY	3 DAY	5 DAY
PLM BULK	EPA 600	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
PLM POINT COUNT (400)	EPA 600	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
PLM POINT COUNT (1000)	EPA 600	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
PLM GRAV w POINT COUNT	EPA 600	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
PLM BULK	CARB 435	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
PCM AIR	NIOSH 7400	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
TEM AIR	EPA AHERA	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
TEM AIR	NIOSH 7402	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
TEM AIR (PCME)	ISO 10312	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
TEM AIR	ASTM 6281-15	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
TEM BULK	CHATFIELD	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
TEM DUST WIPE	ASTM D6480-05 (2010)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
TEM DUST MICROVAC	ASTM D5755-09 (2014)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
TEM SOIL	ASTM D7521-16	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
TEM VERMICULITE	CINCINNATI METHOD	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
TEM QUALITATIVE	IN-HOUSE METHOD	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
OTHER:		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

REMARKS / SPECIAL INSTRUCTIONS:

No Positive Stop

Accept Samples
 Reject Samples

Relinquished By:	Date/Time	Received By:	Date/Time
<i>Jenn Turner</i>	<i>9/15/22 5:00 PM</i>	<i>BF</i>	<i>9/19/22 9:30</i>

Samples will be disposed of 30 days after analysis



SAMPLING FORM

CEI

COMPANY CONTACT INFORMATION	
Company: ECS Southeast	Job Contact:
Project Name: UNCW King Hall	
Project ID #: 49:18273	Tel:

SAMPLE ID#	DESCRIPTION / LOCATION	VOLUME/ AREA	TEST			
			PLM	<input checked="" type="checkbox"/>	TEM	<input type="checkbox"/>
49-1	Wall texture - 1st Fl by MeasRm	HA 1	PLM	<input checked="" type="checkbox"/>	TEM	<input type="checkbox"/>
-2	1st Fl Hallway		PLM	<input type="checkbox"/>	TEM	<input type="checkbox"/>
-3	1st Fl Front Hall		PLM	<input type="checkbox"/>	TEM	<input type="checkbox"/>
-4	1st Fl Hall by Office		PLM	<input type="checkbox"/>	TEM	<input type="checkbox"/>
-5	2nd Fl by Electric Panel		PLM	<input type="checkbox"/>	TEM	<input type="checkbox"/>
-6	2nd Fl Front Hallway		PLM	<input type="checkbox"/>	TEM	<input type="checkbox"/>
-7	2nd Fl Inner Hallway		PLM	<input checked="" type="checkbox"/>	TEM	<input type="checkbox"/>
			PLM	<input type="checkbox"/>	TEM	<input type="checkbox"/>
			PLM	<input type="checkbox"/>	TEM	<input type="checkbox"/>
			PLM	<input type="checkbox"/>	TEM	<input type="checkbox"/>
			PLM	<input type="checkbox"/>	TEM	<input type="checkbox"/>
			PLM	<input type="checkbox"/>	TEM	<input type="checkbox"/>
			PLM	<input type="checkbox"/>	TEM	<input type="checkbox"/>
			PLM	<input type="checkbox"/>	TEM	<input type="checkbox"/>
			PLM	<input type="checkbox"/>	TEM	<input type="checkbox"/>
			PLM	<input type="checkbox"/>	TEM	<input type="checkbox"/>
			PLM	<input type="checkbox"/>	TEM	<input type="checkbox"/>
			PLM	<input type="checkbox"/>	TEM	<input type="checkbox"/>
			PLM	<input type="checkbox"/>	TEM	<input type="checkbox"/>
			PLM	<input type="checkbox"/>	TEM	<input type="checkbox"/>
			PLM	<input type="checkbox"/>	TEM	<input type="checkbox"/>
			PLM	<input type="checkbox"/>	TEM	<input type="checkbox"/>

Appendix IV: Lead Laboratory Analytical Results

Client: ECS Southeast, LLP
 6714 Netherlands Drive
 Wilmington, NC 28405

Lab Code: C220783
Received: 09-01-22
Analyzed: 09-07-22
Reported: 09-07-22

Project: UNCW King Hall, 49:18273

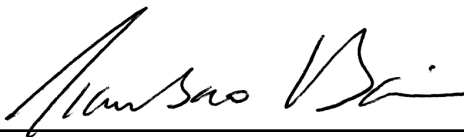
METHOD: EPA SW846 7000B

CLIENT ID	LAB ID	PPM (µg/g)	CONCENTRATION % BY WEIGHT
LBP01	CA4105	1900	0.19
LBP02	CA4106	56	0.0056
LBP03	CA4107	<39	<0.0039
LBP04	CA4108	<35	<0.0035
LBP05	CA4109	330	0.033
LBP06	CA4110	620	0.062
LBP07	CA4111	1900	0.19
Sample contains substrate, potentially affecting results			

METHOD: EPA SW846 7000B

CLIENT ID	LAB ID	PPM ($\mu\text{g/g}$)	CONCENTRATION % BY WEIGHT
-----------	--------	-------------------------	------------------------------

Reviewed By:



Tianbao Bai, Ph.D.
Laboratory Director

This method has been validated for sample weights of 0.020g or greater. When samples with a weight of less than that are analyzed those results fall outside of the scope of accreditations.

*** The analysis of composite wipe samples as a single samples is not included under AIHA accreditation.**

Minimum reporting limit is 10 μg total lead. Sample results denoted with a "less than" (<) sign contain less than 10.0 μg total lead, based on a 40ml sample volume.

Lead samples are not analyzed by Eurofins CEI Lead samples are submitted to an AIHA ELLAP accredited laboratory for lead analysis of soil, dust, paint, and TCLP samples.

Laboratory results represent the analysis of samples as submitted by the client. Information regarding sample location, description, area, volume, etc., was provided by the client. Unless notified in writing to return samples, Eurofins CEI discards client samples after 30 days. This report shall not be reproduced, except in full, without the written consent of Eurofins CEI.

Information provided by customer includes customer sample ID, location, volume and area as well as date and time of sampling.

REGULATORY LIMITS

OSHA Standard: No safe limit.
Consumer Products Safety Standard: Greater than 0.009% lead by weight.
Federal Lead Standard / HUD: 0.5% lead by weight.

LEGEND

μg = microgram ppm = parts per million g = grams
ml = milliliter Pb = lead wt = weight

End of Report



CEI

CHAIN OF CUSTODY

730 SE Maynard Road, Cary, NC 27511
 Tel: 866-481-1412; Fax: 919-481-1442

LAB USE ONLY:	
CEI Lab Code:	C220783
CEI Lab I.D. Range:	CA4105-CA4111

7

COMPANY INFORMATION		PROJECT INFORMATION
CEI CLIENT #:		Job Contact: <i>Jenn Turner</i>
Company: ECS Southeast, LLP		Email / Tel: <i>910-599-6285</i>
Address: 6714 Netherlands Drive		Project Name: <i>UNCW King Hall</i>
Wilmington, NC 28405		ID# <i>49:18273</i>
Email: <i>JTurner1@ECSlimited.com</i>		PO #: <i>49:18273</i>
Tel: 910-686-9114	Fax:	STATE SAMPLES COLLECTED IN: NC

IF TAT IS NOT MARKED STANDARD 3 DAY TAT APPLIES.

Analyte	METHOD	TURN AROUND TIME					
		4 HR**	8 HR**	1 DAY**	2 DAY	3 DAY	5 DAY
LEAD PAINT	EPA SW846 7000B				<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
LEAD WIPE	EPA SW846 7000B				<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
LEAD SOIL	EPA SW846 7000B				<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
LEAD AIR	EPA SW846 7000B				<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
LEAD TCLP	EPA SW846 7000B				<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
RCRA 8 METALS	EPA SW846 7000B				<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
RCRA 8 TCLP	EPA SW846 7000B				<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
OTHER:					<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

**TAT IS NOT AVAILABLE. LEAD SAMPLES ARE SUBCONTRACTED FOR ANALYSIS TO AN ELLAP ACCREDITED LAB.

REMARKS:		<input checked="" type="checkbox"/> Accept Samples <input type="checkbox"/> Reject Samples	
Relinquished By:	Date/Time	Received By:	Date/Time
<i>[Signature]</i>	<i>8-30-22 8:30PM</i>	<i>BF</i>	<i>9/1 10:20</i>

Samples will be disposed of 30 days after analysis



SAMPLING FORM

CEI

COMPANY CONTACT INFORMATION	
Company: ECS Southeast LLP	Job Contact:
Project Name: UNCW Eng Hall	
Project ID #: 4918273	Tel:

SAMPLE ID#	DESCRIPTION / LOCATION	VOLUME/AREA	COMMENTS
LBPO1	Meach RM Metal Door/White	1" x 1"	
LBPO2	Meach RM Floor/Green	↓	
LBPO3	Mechan Door Frame/White		
LBPO4	CMU @ in Class RM/White		
LBPO5	Stair Railing/Blk		
LBPO6	Ext Window Sill/White		
LBPO7	Ext Window Casing/White		

Appendix V: XRF Lead-Based Paint Readings

XRF shot number	XRF reading	Color	Substrate	Component	Location	Side
1	0.2	White	Wood	Porch Overhang	Exterior	A
2	0.3	White	Wood	Porch Trim	Exterior	A
3	0.4	White	Metal	Door Casing	Exterior	A
4	0.2	White	CMU	Wall	Back Right Stairwell	B
5	-0.3	Black	Metal	Stair Stinger	Back Right Stairwell	D
6	-0.1	Black	Metal	Stair Riser	Back Right Stairwell	D
7	-0.1	Beige	Metal	Door Casing	1st Floor Hallway	C
8	-0.1	Beige	Metal	Door Casing	1st Floor Hallway	B
9	0.2	Off-White	Ceramic	Tile	Womens Restroom	C
10	0.0	White	Wood	Window Casing	Interior	C
11	0.2	White	Wood	Window Sill	Interior	C
12	-0.3	Light Blue	Gypsum	Wall	By Front Entrance	C
13	0.4	White	Wood	Window Casing	Halfmoon Entrance Window	C
14	-0.1	White	Gypsum	Wall	By Front Office	D
15	-0.2	White	Plaster	Wall Texture	By Womens Restroom	B
16	0.1	Beige	Metal	Door Casing	Front Office	D
17	-0.2	Light Blue	Gypsum	Wall	By Womens Restroom	B
18	0.2	Light Blue	CMU	Wall	Back Left Stairwell	D
19	0.0	White	Metal	Door Casing	Mechanical Room	B
20	-0.2	White	Gypsum	Wall	Back Left Stairwell	B
21	-0.1	White	Wood	Window Sill	2nd Floor Interior	A
22	0.0	Gray	Metal	Electrical Panel	2nd Floor Hallway	D
23	-0.1	White	Metal	Door Casing	2nd Floor Hallway	B
24	0.1	Tan	Metal	Door Casing	2nd Floor Hallway	C
25	-0.2	Light Blue	Plaster	Wall Texture	2nd Floor Hallway	C
26	-0.3	White	Plaster	Wall Texture	2nd Floor Hallway	D
27	0.0	Gray	Metal	Radiator	2nd Floor Stairwell	B
28	0.0	White	Wood	Wood Casing	Exterior	A
29	0.2	White	Wood	Window Panel	Exterior	A
30	0.5	White	Wood	Window Sill	Exterior	A
31	0.3	White	Wood	Window Casing	Exterior	A

Appendix VI: Certifications/ Licenses



NC DEPARTMENT OF HEALTH AND HUMAN SERVICES

ROY COOPER • Governor

KODY H. KINSLEY • Secretary

HELEN WOLSTENHOLME • Interim Deputy Secretary for Health

MARK T. BENTON • Assistant Secretary for Public Health

Division of Public Health

June 20, 2022

Amy C Desaix
7424 Ern Way
Wilmington, NC 28411

Dear Ms. Desaix:

Based upon the review of your accreditation application, the Health Hazards Control Unit (HHCU) has determined that you have fulfilled the requirements and are eligible for asbestos accreditation as a(n) ABATEMENT PROJECT DESIGNER. Your assigned North Carolina accreditation number is 40530, which is reflected on your enclosed North Carolina Accreditation card. Please be sure to take this card with you to any asbestos work site where you are employed. The State requires that all persons conducting asbestos abatement or asbestos management activities be accredited and have their identification card on site.

Your North Carolina Abatement Project Designer accreditation will expire on MAY 31, 2023. It is NOT the policy of the HHCU to issue renewal notices. If you wish to continue working as a(n) Abatement Project Designer after this expiration date, you must successfully complete the required training and submit a completed application to this office prior to May 31, 2023. If you should continue to perform asbestos management activities as a(n) Abatement Project Designer without a valid North Carolina accreditation, you will be in violation of State regulations and may be cited for noncompliance.

Sincerely,

Ed Norman

Ed Norman
Program Manager
Health Hazards Control Unit



Amy C Desaix
7424 Ern Way
Wilmington, NC 28411

136671

North Carolina Asbestos Accreditation

Table with accreditation details: EXPIRATION 05-31-2023, DOB 07-19-1977, SEX F, HT 5'4", WT 140, CLASS # EXP, DESIGNER 40530 05-23, INSPECTOR 12107 03-23

NC DEPARTMENT OF HEALTH AND HUMAN SERVICES . DIVISION OF PUBLIC HEALTH

LOCATION: 5505 Six Forks Road, Building 1, Raleigh, NC 27609
MAILING ADDRESS: 1912 Mail Service Center, Raleigh, NC 27699-1912
www.ncdhhs.gov . TEL: 919-707-5950 . FAX: 919-870-4808

AN EQUAL OPPORTUNITY / AFFIRMATIVE ACTION EMPLOYER





NC DEPARTMENT OF HEALTH AND HUMAN SERVICES

ROY COOPER • Governor

KODY H. KINSLEY • Secretary

HELEN WOLSTENHOLME • Interim Deputy Secretary for Health

MARK T. BENTON • Assistant Secretary for Public Health

Division of Public Health

August 15, 2022

Amy C Desaix
7424 Ern Way
Wilmington, NC 28411

Dear Ms. Desaix:

The Health Hazards Control Unit (HHCU) has determined that you have fulfilled the application requirements and are eligible for lead certification as a(n) INSPECTOR. Your assigned Inspector certification number is 110230, which is reflected on your enclosed North Carolina Lead Certification card. The State requires that all persons conducting regulated lead-based paint activities be certified and have their identification card on-site.

A "Lead-Based Paint Activity Summary" shall be submitted to the HHCU by the certified inspector or risk assessor within 45 days of each inspection, risk assessment, or lead hazard screen conducted. The information shall be submitted on a form provided or approved by the Program, per 10A NCAC 41C .0807(b), Lead-Based Paint Hazard Management Program Rules.

Accredited refresher training must be completed at least every 24 months from the date of the last accredited training course AND within twelve months prior to applying for certification. The HHCU strongly recommends that individuals note the date of certification expiration and ensure all refresher training meets the above requirements.

Your North Carolina Inspector certification will expire on AUGUST 31, 2023. It is NOT the policy of the HHCU to issue renewal notices. If you wish to continue working as a(n) Inspector after this expiration date, you must successfully complete the required training and submit a completed application to this office prior to August 31, 2023. If you should perform lead-based paint activities as a(n) Inspector without a valid North Carolina certification, you will be in violation of State regulations and may be cited for noncompliance.

If you have any questions, please contact our office at (919) 707-5954.



NORTH CAROLINA LEAD CERTIFICATION

Amy C Desaix
7424 Ern Way
Wilmington, NC 28411

Table with columns: DOB, SEX, HT, WT, DISCIPLINE, #, LAST COURSE, EXPIRATION. Row 1: 07-19-1977, F, 5'4", 145, INSPECTOR, 110230, INS 08-02-2022, 08-31-2023

Sincerely,

Handwritten signature of Ed Norman

Ed Norman
Program Manager
Health Hazards Control Unit

NC DEPARTMENT OF HEALTH AND HUMAN SERVICES . DIVISION OF PUBLIC HEALTH

LOCATION: 5505 Six Forks Road, Building 1, Raleigh, NC 27609
MAILING ADDRESS: 1912 Mail Service Center, Raleigh, NC 27699-1912
www.ncdhhs.gov . TEL: 919-707-5950 . FAX: 919-870-4808

AN EQUAL OPPORTUNITY / AFFIRMATIVE ACTION EMPLOYER

Appendix VII: Previous Reports



ENGINEERING CONSULTING SERVICES, LTD.
Geotechnical • Construction Materials • Environmental

2242.02
B-3

August 20, 2003

Mr. Rick Wash
Wash Hatem Nelson Architects
330 West Tenth Street
Charlotte, North Carolina 28202

Reference: Report of Lead-Based Paint Survey
University of North Carolina Wilmington
King Hall
Wilmington, North Carolina
ECS, Ltd. Project G-8042

Dear Mr. Wash:

Engineering Consulting Services, Ltd. (ECS) has completed a lead-based paint survey at the above referenced property. The purpose of the testing was to determine the presence and general location of lead-based paint (LBP) on the interior and exterior of the building prior to planned renovation activities. This report contains the testing procedures and our conclusions and recommendations.

PROJECT INFORMATION

We understand that renovations are planned for King Hall located on the campus of the North Carolina Wilmington (UNCW) in Wilmington, North Carolina. King Hall is a two-story, 22,000 square foot building brick building that was constructed in the 1960s. The building contains a lecture auditorium, classrooms, offices, and laboratories. The building has brick and wood exterior walls and a pitched roof with shingles. Interior finishes in the building consist of drywall and masonry block walls; ceiling tile ceilings; and terrazzo, carpet, tile or linoleum floors over a concrete slab.

1.0 LEAD - BASED PAINT (LBP) TESTING

1.1 Lead-Based Paint Survey Procedures

The building was reportedly constructed in the 1960s. The Consumer Products Safety Commission banned the use of LBP in 1978. Therefore, there is the potential that lead-based paint may have been used in the facility. Lead-based paint testing was performed on July 22, 2003 by Mr. Shawn Tucker (NC Lead Inspector/Risk Assessor #120049) of ECS. The survey began by randomly selecting painted surfaces in the different areas of the building (storage areas, restrooms, offices, common areas, exterior areas, etc.) and exterior painted areas of the building. Typical test areas included walls, ceilings, doors, door frames, interior trim, columns, exterior walls, and handrails, gutters, etc. Lead testing was performed based on planned renovations to the building as communicated to us by Mr. Greg Walker with UNCW.

6909 International Drive, Suite 103 • Greensboro, NC 27409 • (336) 856-7150 • Fax (336) 856-7160

Offices: Aberdeen, MD • Atlanta, GA • Austin, TX • Baltimore, MD • Chantilly, VA • Charlotte, NC • Chicago, IL • Cornelia, GA • Dallas, TX
Danville, VA • Frederick, MD • Fredericksburg, VA • Greensboro, NC • Greenville, SC • Norfolk, VA • Orlando, FL • Raleigh, NC

1.2 Lead-Based Paint Test Procedures

The sampling was performed using a calibrated Scitec Spectrum Analyzer (X-Ray Fluorescence Lead-Based Paint Analyzer). An XRF screen reading was taken at each test location. The Department of Housing and Urban Development (HUD) and the State of North Carolina defines a lead-based paint as having "a lead content of 1.0 mg/cm² of painted surface". Approximately 94 test locations were analyzed in the building using the XRF. The results of the lead based paint survey using the XRF are presented in Table 2 - Summary of Lead Survey.

1.3 Lead-Based Paint Results

Lead in excess of EPA and State of North Carolina levels was detected in window sills and interior and exterior window mullions of the building.

1.4 Lead-Based Paint Conclusions and Recommendations

The lead-based paint can be maintained and monitored as part of an operations and maintenance program. It appears that lead-based paint is confined to older painted surfaces of the building. There are several options for managing lead-based paint during renovations to the facility. The most practical method for dealing with lead-based paint is to remove (in whole components) and dispose of the building components that contain lead-based paint (windows, etc.) and replace them with new components that do not contain lead-based paint. This option can increase building material costs on a renovation project, but it eliminates the majority of the lead-based paint at the facility. If lead-based paint will be disturbed (sanded, scraped), you must follow applicable EPA, State of North Carolina and OSHA lead-based paint guidelines when working with, handling and disposing of lead-based paint. In addition, subcontractors (such as painting contractors) must be informed of the location of lead-based paint prior to disturbing it. In most cases it is recommended that lead abatement contractors remove loose flakes and prepare the surface prior to repainting.

1.5 Qualifications of Lead-Based Paint Survey

This report summarizes our evaluation of the conditions observed at the site. The findings prepared by ECS are based upon testing performed in the facility. Additional lead-based paint may exist (undetected) in other areas due to their inaccessibility or due to the limited nature of our testing. Our recommendations are based on the guidelines presented in EPA, State of North Carolina or OSHA lead-based paint regulations.

UNCW - King Hall
Wilmington, North Carolina
ECS, Ltd. Project G-8042
August 20, 2003

2.0 CLOSING

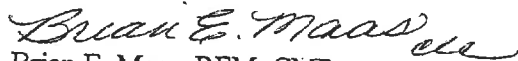
ECS appreciates the opportunity to provide our environmental services for this project. We can assist you with preparing lead removal plans and specifications, holding pre-bid meetings, and air monitoring and clearance testing. If you have questions or need additional information, please contact us at (336) 856-7150.

Respectfully,

ENGINEERING CONSULTING SERVICES, LTD.



Shawn M Tucker, REM
Project Scientist



Brian E. Maas, REM, CMR
Principal Scientist

Attachments: Table 1 - Summary of Lead Survey
Drawing 1 - Lead Sample Locations - 1st Floor
Drawing 2 - Lead Sample Locations - 2nd Floor

Table 1

Summary of Lead Survey
 UNCW - King Hall
 Wilmington, North Carolina
 ECS, Ltd. Project No. G-8042

Sample No.	Component	Location	Color	Substrate	Condition	K	L
1	Exterior Door	West Entrance	White	Wood	Fair	0.23	0.18
2	Exterior Door Frame	West Entrance	White	Metal	Fair	0.15	--
3	Exterior Handrail	West Entrance	Black	Metal	Fair	0.10	--
4	Exterior Handrail	West Entrance	Black	Metal	Fair	0.47	0.31
5	Exterior Door	Northeast Entrance	White	Wood	Fair	0.30	-0.10
6	Exterior Door Frame	Northeast Entrance	White	Metal	Fair	0.02	--
7	Exterior Window Sill	Northeast Entrance	White	Metal	Fair	0.23	0.16
8	Exterior Window Mullion	Northeast Entrance	White	Metal	Fair	6.12	0.59
9	Exterior Window Mullion	Southeast Entrance	White	Metal	Fair	5.65	0.94
10	Exterior Window Sill	Southeast Entrance	White	Metal	Fair	0.58	0.10
11	Exterior Handrail	South Entrance	Black	Metal	Fair	0.03	--
12	Gutter	South Side of Building	Brown	Metal	Fair	0.31	--
13	Exterior Door	South Entrance	White	Wood	Fair	-0.15	0.04
14	Exterior Door Frame	South Entrance	White	Metal	Fair	-0.08	--
15	Handrail	North Side	Yellow	Metal	Fair	0.16	--
16	Gutter	North Side	Brown	Metal	Fair	0.25	--
17	Piping	Boiler Room	Green	Metal	Fair	0.28	--
18	Piping	Boiler Room	Blue	Metal	Fair	0.39	--
19	Piping	Boiler Room	Red	Metal	Fair	0.06	--
20	Piping	Boiler Room	Gray	Metal	Fair	0.19	--
21	Wall	Boiler Room	White	Masonry	Fair	0.29	0.34
22	Door	Boiler Room	White	Metal	Fair	0.33	--
23	Door Frame	Boiler Room	White	Metal	Fair	0.44	--
24	Wall	Lobby	Green	Concrete	Good	0.11	0.32
25	Wall	Exterior of Room 104	White	Drywall	Good	-0.16	0.17

K & L Values are in mg/cm²

A result greater than 1.0 mg/cm² is considered lead-based paint

Steel/Metal substrates do not yield an L value

Bold indicates lead paint is present

Table 1

Summary of Lead Survey
 UNCW - King Hall
 Wilmington, North Carolina
 ECS, Ltd. Project No. G-8042

Sample No.	Component	Location	Color	Substrate	Condition	K	L
26	Wall	Across from Room 104	Tan	Ceramic Tile	Good	0.54	-0.98
27	Baseboard	Across from Room 104	Tan	Ceramic Tile	Good	0.06	0.29
28	Wall	Outside of Room 106	White	Drywall	Good	-0.23	0.48
29	Wall	Outside of Room 106G	White	Masonry Block	Good	-0.42	-0.14
30	Window Sill	Lobby, Near Room 104	White	Wood	Good	-0.26	-0.00
31	Window Frame	Lobby, Near Room 104	White	Wood	Good	0.28	0.38
32	Wall	Outside of Women's Restroom	White	Drywall	Good	-0.33	--
33	Door	Northeast Entrance	White	Wood	Good	0.08	0.15
34	Door Frame	Northeast Entrance	White	Metal	Good	-0.06	0.30
35	Wall Panel	Outside of Room 102	Green	Wood	Good	0.25	--
36	Wall	Room 102	White	Drywall	Good	0.12	0.40
37	Wall	Near Room 103A	White	Drywall	Good	-0.08	0.43
38	Wall	Room 103	White	Masonry Block	Good	-0.03	0.30
39	Wall	Near Room 102G	White	Drywall	Good	0.26	0.62
40	Door	Room 102I	Stain	Wood	Good	0.03	0.09
41	Door Frame	Room 102I	White	Metal	Good	-0.04	--
42	Window	Room 102C	Stain	Wood	Good	0.09	0.23
43	Window Sill	Room 102C	Stain	Wood	Good	-0.22	0.12
44	Door Frame	Room 102K	White	Metal	Good	-0.35	--
45	Door	Room 102K	Stain	Wood	Good	-0.08	-0.09
46	Baseboard	Women's Room	Green	Ceramic Tile	Good	0.30	-0.62
47	Floor	Women's Room	Green	Ceramic Tile	Good	0.00	0.18
48	Baseboard	Lobby	Tan	Ceramic Tile	Good	0.68	-1.01
49	Wall	Room 208	White	Masonry Block	Good	0.01	-0.30
50	Wall	Room 208	White	Drywall	Good	-0.12	0.18

K & L Values are in mg/cm²

A result greater than 1.0 mg/cm² is considered lead-based paint

Steel/Metal substrates do not yield an L value

Bold indicates lead paint is present

Table I

Summary of Lead Survey
UNCW - King Hall
Wilmington, North Carolina
ECS, Ltd. Project No. G-8042

Sample No.	Component	Location	Color	Substrate	Condition	K	L
51	Window Mullion	Room 208	White	Wood	Good	0.26	0.40
52	Window Sill	Room 208	White	Wood	Good	2.49	0.46
53	Window Sill	Room 208	White	Wood	Good	0.05	0.05
54	Window Mullion	Room 208	White	Wood	Good	8.22	0.91
55	Wall	2nd Floor, Mechanical Room	Gray	Drywall	Fair	0.21	0.18
56	Wall	Room 104	White	Masonry Block	Good	0.11	0.20
57	Window Mullion	Room 104	White	Wood	Good	6.66	0.94
58	Window Sill	Room 104	White	Wood	Good	-0.04	0.04
59	Window Mullion	Near Room 104	White	Wood	Good	7.44	0.55
60	Door	Room 106D	Stain	Wood	Good	-0.13	0.20
61	Door Frame	Room 106D	Stain	Wood	Good	0.19	0.30
62	Wall	Room 106 Hall	White	Drywall	Good	0.12	0.29
63	Door	Room 106	Stain	Wood	Good	0.32	0.11
64	Door Frame	Room 106	White	Metal	Good	-0.22	--
65	Window Mullion	Room 106	White	Wood	Good	8.35	0.89
66	Window Sill	Room 106	White	Wood	Good	-0.10	0.14
67	Wall	Room 106 Hall	White	Masonry Block	Good	-0.14	0.11
68	Wall	Auditorium	Gray	Masonry Block	Good	0.12	0.35
69	Wall	Auditorium	Gray	Masonry Block	Good	0.05	0.05
70	Stringer	South Stairwell	Black	Metal	Good	0.21	--
71	Riser	South Stairwell	Black	Metal	Good	-0.07	--
72	Newel Post	South Stairwell	Black	Metal	Good	0.17	--
73	Radiator	South Stairwell	Gray	Metal	Good	0.63	--
74	Window Mullion	South Stairwell	White	Wood	Good	1.01	0.27
75	Window Frame	South Stairwell	White	Wood	Good	0.07	0.28

K & L Values are in mg/cm²

A result greater than 1.0 mg/cm² is considered lead-based paint

Steel/Metal substrates do not yield an L value

Bold indicates lead paint is present

Table 1

Summary of Lead Survey

UNCW - King Hall

Wilmington, North Carolina

ECS, Ltd. Project No. G-8042

Sample No.	Component	Location	Color	Substrate	Condition	K	L
76	Wall	Room 212	White	Drywall	Good	-0.04	0.37
77	Window Mullion	Room 212	White	Wood	Good	10.27	1.17
78	Window Sill	Room 212	White	Wood	Good	0.11	0.06
79	Door	Room 211	Stain	Wood	Good	-0.13	0.17
80	Door Frame	Room 211	White	Steel	Good	0.15	--
81	Wall	Room 211	White	Drywall	Good	-0.04	0.09
82	Window Mullion	Room 209E	White	Wood	Good	6.00	0.63
83	Window Sill	Room 209E	White	Wood	Good	0.03	0.17
84	Wall	Room 209E	White	Masonry Block	Good	0.27	0.29
85	Cabinet	Room 209, Breakroom	White	Wood	Good	-0.23	-0.08
86	Wall	Room 206	Blue	Drywall	Good	0.13	0.35
87	Door Frame	Room 206	Blue	Steel	Good	-0.14	--
88	Window Mullion	Room 206	White	Wood	Good	7.31	0.87
89	Window Sill	Room 206	White	Wood	Good	0.01	0.04
90	Wall	Room 203	White	Drywall	Good	0.00	0.15
91	Wall	Room 203, Kitchen	Yellow	Drywall	Good	0.14	0.21
92	Door	2nd Floor, Elevator	Tan	Steel	Good	0.11	--
93	Door Frame	2nd Floor, Elevator	Tan	Steel	Good	0.20	--
94	Cabinet	Room 201	Stain	Wood	Good	-0.05	0.23

K & L Values are in mg/cm²A result greater than 1.0 mg/cm² is considered lead-based paint

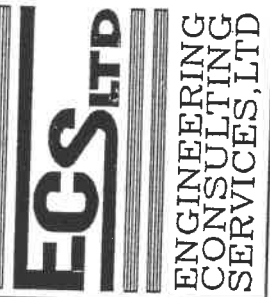
Steel/Metal substrates do not yield an L value

Bold indicates lead paint is present



NOT TO SCALE

REFERENCE:
SITE PLAN PROVIDED BY
WASH HATEM NELSON AND
ASSOCIATES



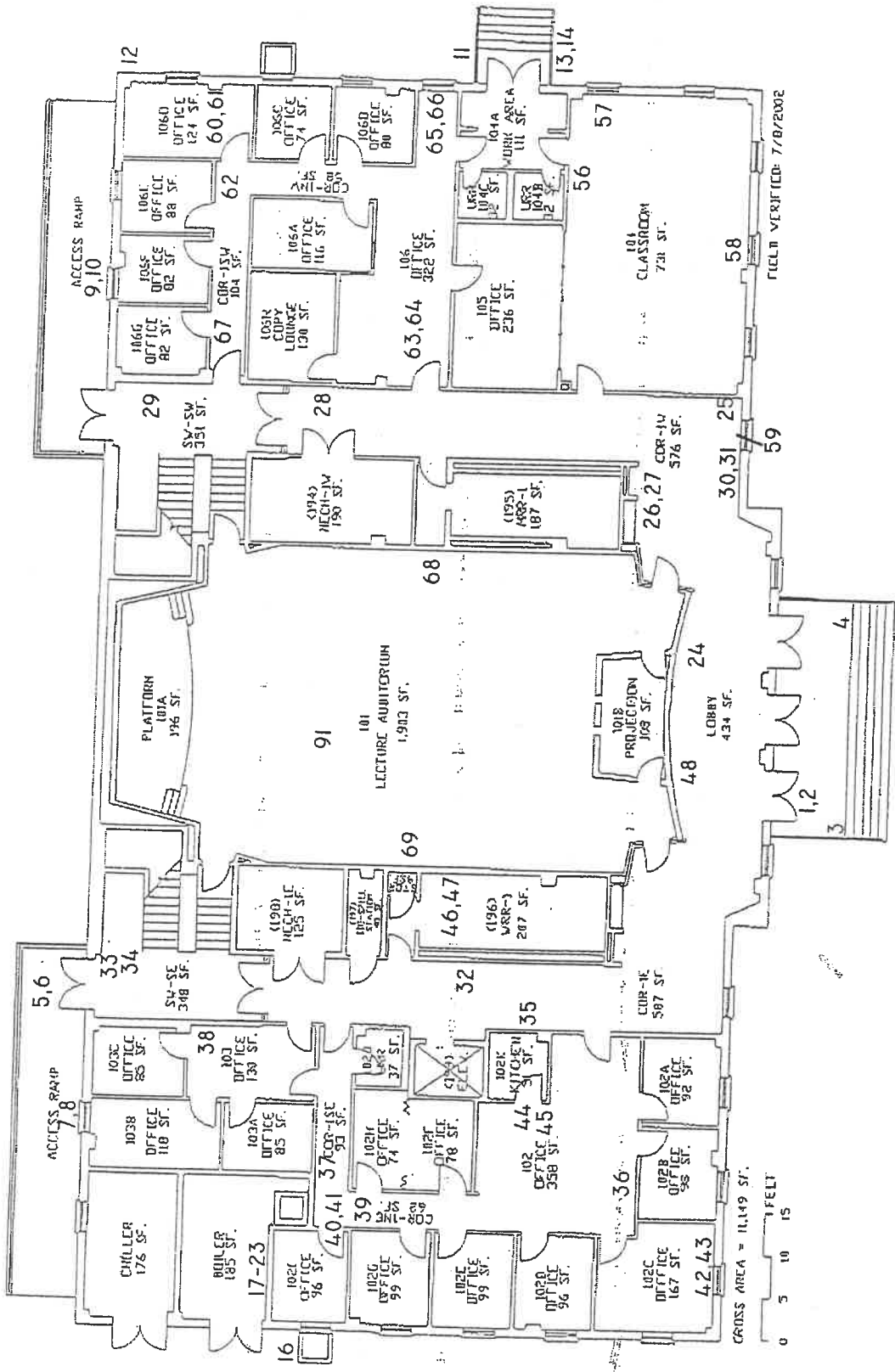
KING HALL FIRST FLOOR PLAN

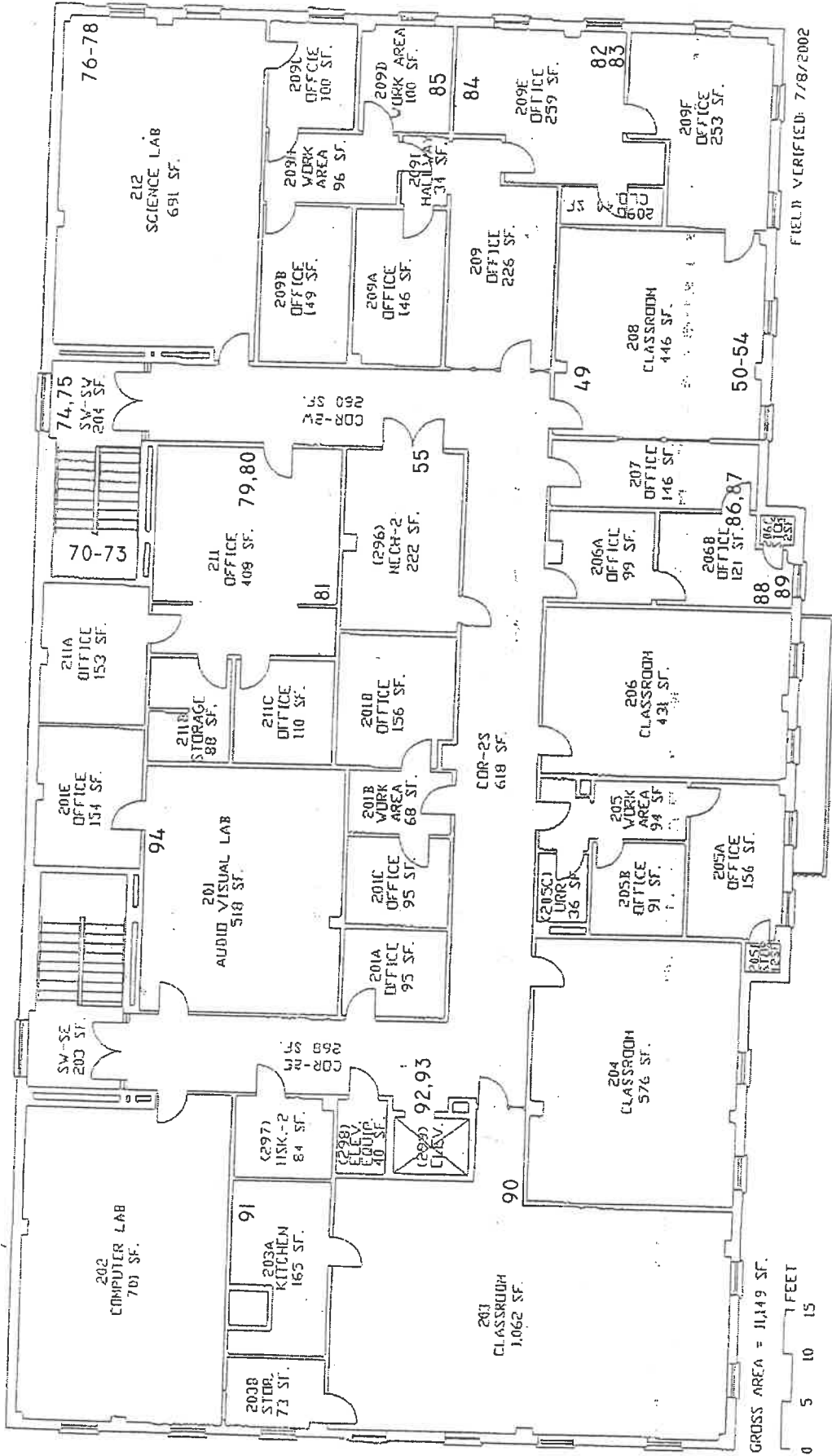
FIGURE 2
LEAD SAMPLE LOCATIONS
UNCW
KING HALL-1ST FLOOR
WILMINGTON, NORTH CAROLINA

DRAWN BY/DATE:
TAC/08-05-03

CHECKED BY/DATE:
7/8/2002

PROJECT NO.
G-8042





FIELD VERIFIED: 7/8/2002

KING HALL SECOND FLOOR PLAN

51

GROSS AREA = 11,149 SF.



NOT TO SCALE

REFERENCE:
SITE PLAN PROVIDED BY
WASH HATEM NELSON AND
ASSOCIATES

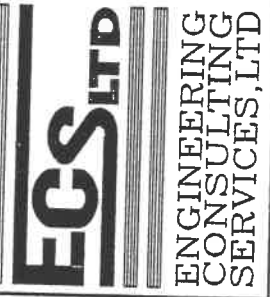


FIGURE 3
LEAD SAMPLE LOCATIONS
UNCW
KING HALL-2ND FLOOR
WILMINGTON, NORTH CAROLINA

DRAWN BY/DATE:
TAC/08-05-03

CHECKED BY/DATE:

PROJECT NO.
G-8042



April 15, 2002

Lee Nichols Architecture
301 East Ninth Street, Suite 110
Charlotte, North Carolina 28202

ATTENTION: Mr. Garry Neavitt

Reference: **ASBESTOS SURVEY**
King Hall
University of North Carolina - Wilmington
Wilmington, North Carolina
S&ME Project No. 1355-02-251

Dear Mr. Neavitt:

S&ME, Inc. (S&ME) is pleased to provide you with the results of an asbestos survey of King Hall classroom building at the University of North Carolina Wilmington (UNCW). On March 28, 2002 Jonathan Borntrager and Chris Hamblet of S&ME, Inc. (S&ME) visited the site in Wilmington, North Carolina to perform the fieldwork associated with the asbestos survey. The roof, building exterior and interior were included in the scope of work. This assessment was performed according to our Proposal No. 1355-10244-01, dated June 12, 2001 and is needed for the renovation plans that are being designed for the building.

BACKGROUND INFORMATION

King Hall is presently in use and houses classrooms, offices and an auditorium. The building is a two-story structure, approximately 23,000 square feet in size. It is a masonry structure with metal support beams that are not insulated. The perimeter walls and interior load bearing walls are concrete block covered with plaster. The non-load bearing walls are drywall construction. The floors throughout the building are concrete and are covered with various selections of floor tiles or carpet. Suspended ceiling tiles are located throughout the building, creating an open air-plenum for the ventilation system.

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All accessible areas of the building were included in the asbestos survey. However, surveys performed by S&ME for suspect asbestos-containing materials (ACM's) are limited to materials that are reasonably accessible. Suspect materials hidden in pipe chases, under a layer of flooring, behind walls and mechanical equipment, above solid ceilings or encased in columns should be assumed to contain asbestos if the inspector was not able to collect a sample of these materials. Further sampling may be needed to confirm the presence or absence of asbestos if a hidden suspect material becomes accessible during the renovation operations.

FINDINGS

During the asbestos survey, a total of 55 samples were collected for analysis, represent 25 types of suspect materials. Types of materials sampled include floor coverings, ceiling tiles, plaster, drywall components, textured wall covering, thermal system insulation and roofing materials.

Samples of suspect materials were placed in containers for transportation to S&ME's analytical laboratory in Charlotte, North Carolina. The samples were analyzed using polarized light microscopy (PLM) coupled with dispersion staining. This technique identifies asbestos fibers based on six unique optical and morphological characteristics: morphology, color, refractive index, extinction angle, signs of elongation, and dispersion staining colors. Refer to the appendix for a table displaying the results of the samples collected. Asbestos content is estimated and expressed as a percent of the total sample. Analytical forms can also be found in the appendix.

The United States Environmental Protection Agency (USEPA) considers a material to be asbestos containing if the asbestos content is greater than 1% by weight/volume. Asbestos material can be classified as friable or non-friable. A friable material can be easily crushed when dry with moderate hand pressure. Friable materials are more susceptible to damage and may potentially release fibers more readily than non-friable materials.

The following materials tested positive for the presence of asbestos.

Friable Asbestos-Containing Materials

- (KHK) A cloth vibration damper located in the second floor mechanical room contains 20% to 55% chrysotile asbestos. The damper is approximately three inches wide and 80 feet long (~20 square feet). It is installed in a large air-handling unit that occupies most of the room. This damper is in good condition.
- (KHW-KHP-KHO) The mud type insulation used on the steam and hot water pipes (2", 3" and 4" diameter pipes) throughout the building contain 2% amosite asbestos. The outer wrap on the 4" pipe fittings contains as much as 4% chrysotile asbestos. These pipe fitting insulations were found to be in good to fair condition. The inspector's noted approximately 22 2"-fittings, 46 3"-fittings, and 26 4"-fittings during the survey. However, additional fittings insulated with ACM may be located above the suspended ceiling tiles or in pipe chases.
- (KHY) In addition, the boiler flue located in the boiler room is insulated with a thermal system insulation that contains 15% amosite asbestos and 2% chrysotile asbestos. There is approximately 50 cubic feet of the insulation and it is in good condition.

Non-friable Asbestos-Containing Materials

- (KHB) A sample of the silver and black roof flashing was found to contain 2% chrysotile asbestos. This material is located around the 12 roof risers (approximately 12 square feet) that penetrate the field of the roof and is in good condition.
- Most of the floor tiles and mastics located throughout the building were found to contain 2% to 4% chrysotile asbestos. Following is a list of the positive floor tiles, which were all found to be in good condition:

(KHG) 1' x 1' white with gray and black specks	7,000 square feet
(KHI) black mastic beneath carpet	300 square feet
(KHJ) 1' x 1' cream with white and gray flecks	27 square feet
(KHQ) 1' x 1' off-white with gray streaks	4,000 square feet
(KHR) 1' x 1' cream with gray and tan streaks	145 square feet
(KHS) 1' x 1' grayish black tiles	370 square feet
(KHU) 1' x 1' white with black dots	2,200 square feet

RECOMMENDATIONS

For building renovation, the asbestos-containing materials are required to be removed if they are friable and will be disturbed or if the material is nonfriable and the renovation operations will render

the material to be a "Regulated Asbestos-Containing Material (RACM)". RACM is (a) friable asbestos material, (b) Category I nonfriable ACM that has become friable, (c) Category I nonfriable ACM that will be or has been subjected to sanding, grinding, cutting or abrading, or (d) Category II nonfriable ACM that has a high probability of becoming or has become crumbled, pulverized, or reduced to powder by forces expected to act on the material during demolition or renovation operations. These criteria are outlined in the "Asbestos/NESHAP Regulated Asbestos-Containing Materials Guidance, EPA 340/1-90-018".

It is probable that the thermal system insulations, vibration damper, roof flashing, floor tiles and mastics could be disturbed during the renovation to the building and should be carefully considered. Materials that will be disturbed will need to be properly removed before the renovations continue. The ACM should be removed in accordance with USEPA National Emission Standards for Hazardous Air Pollutants (NESHAP) Asbestos Regulations (40 CFR 61, Subpart M) and/or the approved state or local requirements equivalent to this regulation. It is required that a North Carolina Licensed Asbestos Abatement Contractor be used to properly remove and dispose of the ACM, because friable materials are involved.

CLOSING

We appreciate the opportunity to provide environmental services to Lee Nichols Architecture. If you have any questions, please call our office at (919) 872-2660.

Sincerely,
S&ME, Inc.



Beth Roberts
Project Professional



C. Mike Cashio, CIH
IH Department Manager

Enclosures

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TABLES

TABLE 1A
ASBESTOS SAMPLE TABLE
UNCW - KING HALL
WILMINGTON, NORTH CAROLINA
S&ME PROJECT NO: 1355-02-251

HOMOGENEOUS AREA (HGA)			SAMPLE		ASSESSMENT	
Name	Description	Location	Number	Results	Condition	Approx. Amount
KHA	MISC-NF-I Roof flashing - black	Roof - perimeter flashing	KHA-01	Roof - ND	Good	N/A
			KHA-02	Insulation - ND		
KHB	MISC-NF-I Roof flashing - silver and black	Roof - around penetrations	KHB-03	ND	Good	~ 12 square feet (12 risers)
			KHB-04	2% Chrysotile		
KHC	MISC-NF-I Roof felt and shingles	Roof - field	KHC-05	ND	Good	N/A
			KHC-06	ND		
KHD	MISC-F Drywall components	Wall partitions in the classrooms and offices	KHD-07	ND	Good	N/A
			KHD-08	<1% Chrysotile		
KHE	SURF-F Plaster	Walls partitions in the restrooms, auditorium, chiller room and boiler room	KHE-09	Smooth Coat - ND	Good	N/A
			KHE-32	Plaster - ND		
KHF	MISC-F Suspended ceiling tiles - 2' x 2' with fissures & pinholes	Offices and classrooms throughout most of the building and the back part of the auditorium	KHF-10	ND	Good	N/A
			KHF-45	ND		
KHG	MISC-NF-I Floor tiles - 1' x 1' white with gray and black specks	Flooring used throughout most of the second floor	KHG-11	Tile - 2% chrysotile	Good	~ 7,000 square feet
			KHG-12	Mastic - 3% chrysotile		
			KHG-21	Tile - 2% chrysotile Mastic - 4% chrysotile Tile - 2% chrysotile Mastic 1 - 3% chrysotile Mastic 2 - ND		

Inspector: Jonathan Borntrager (NC 12085)
 Sampling Date: March 28, 2002
 Page 1 of 4

ND = None Detected
 DNA = Did not analyze

SURF = Surfacing material
 MISC = Miscellaneous material
 TSI = Thermal system insulation

F = Friable material
 NF-I = Category I non-friable material
 NF-II = Category II non-friable material

**TABLE 1B
ASBESTOS SAMPLE TABLE
UNCW - KING HALL
WILMINGTON, NORTH CAROLINA
S&ME PROJECT NO: 1355-02-251**

HOMOGENEOUS AREA (HGA)			SAMPLE		ASSESSMENT	
Name	Description	Location	Number	Results	Condition	Approx. Amount
KHH	MISC-F Suspended ceiling tiles - 2' x 2' white textured tiles	Lobby and corridor around the auditorium on 1st floor and the main corridor on the 2nd floor	KHH-13	ND	Good	N/A
			KHH-38	ND		
KHI	MISC-NF-I Black Mastic - Beneath carpet and atop concrete in 206 Offices	Beneath the carpet in the 205 offices	KHI-14	2% chrysotile	Good	~ 300 square feet
			KHI-15	2% chrysotile		
KHJ	MISC-NF-I Floor tiles - 1' x 1' cream with white and gray flecks	205 Offices Restroom	KHJ-16	Tile - ND Mastic - 2% chrysotile	Good	~ 27 square feet
			KHJ-48	Tile - ND Mastic - <1% chrysotile		
KHK	MISC-F Cloth vibration damper	Mechanical Room - 2nd Floor	KHK-17	55% chrysotile	Good	~ 20 square feet
			KHK-18	20% chrysotile		
KHL	MISC-F Suspended ceiling tiles - 2' x 4' white with fissures and pinholes	Mechanical Room - 2nd Floor	KHL-19	ND	Fair	N/A
			KHL-28	ND		
KHM	MISC - F Suspended ceiling tiles - 2' x 4' white textured tiles	206 and 207 offices	KHM-20	ND	Good	N/A
			KHM-22	ND		
KHN	MISC-NF-I Floor tile - 1' x 1 dark gray with black & white spots	Corridor outside of the Dean's office on the 2nd floor	KHN-23	ND	Good	N/A
			KHN-24	ND		

Inspector: Jonathan Borntrager (NC 12085)
 Sampling Date: March 28, 2002
 Page 2 of 4

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**TABLE 1C
ASBESTOS SAMPLE TABLE
UNCW - KING HALL
WILMINGTON, NORTH CAROLINA
S&ME PROJECT NO: 1355-02-251**

HOMOGENEOUS AREA (HGA)		SAMPLE		ASSESSMENT		
Name	Description	Location	Number	Results	Condition	Approx. Amount
KHO	TSI-F Pipe fitting insulation (Note - pipe straight runs are insulated with fiberglass)	Mechanical equipment rooms, chiller room, boiler room and above plenum on 3" pipes	KHO-25	Wrap - ND Insulation - 2% amosite	Good	~ 46 fittings (visible)
			KHO-26	Wrap - ND Insulation - 2% amosite		
			KHO-27	Insulation - 2% amosite		
KHP	TSI-F Pipe fitting insulation (Note - pipe straight runs are insulated with fiberglass)	Mechanical equipment rooms, chiller room, boiler room and above plenum on 4" pipes	KHP-29	Wrap 1 - ND Wrap 2 - 4% chrysotile Insulation - 2% amosite	Good	~ 26 fittings (visible)
			KHP-30	Wrap 1 - ND Wrap 2 - 3% chrysotile Insulation - <1% amosite		
			KHP-31	Wrap 1 - ND Insulation - 2% amosite		
			KHP-53	Wrap - ND Insulation - 2% amosite		
			KHQ-34	Tile - 3% chrysotile Mastic - 4% chrysotile		
KHQ	MISC-NF-I Floor tiles - 1' x 1' off-white with gray streaks	Throughout most of the 1st floor office and classroom area.	KHQ-37	Tile - 3% chrysotile Mastic - 2% chrysotile	Good	~ 4,000 square feet
			KHQ-39	Tile - 3% chrysotile Mastic - ND		
			KHR-33	Tile - 2% chrysotile Mastic - 2% chrysotile		
KHR	MISC-NF-I Floor tiles - 1' x 1' cream with gray and tan streaks	1st floor kitchen areas	KHR-42	ND	Good	~ 145 square feet
KHS	MISC-NF-I Floor tiles - 1' x 1' grayish black tiles	Classroom 104 - 1st Floor	KHS-35	Tile - 4% chrysotile Mastic - 4% chrysotile	Good	~ 370 square feet
			KHS-36	Tile - 4% chrysotile Mastic - <1% chrysotile		

Inspector: Jonathan Bomtrager (NC 12085)
 Sampling Date: March 28, 2002
 Page 3 of 4

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TABLE ID
ASBESTOS SAMPLE TABLE
UNCW - KING HALL
WILMINGTON, NORTH CAROLINA
S&ME PROJECT NO: 1355-02-251

HOMOGENEOUS AREA (HGA)		SAMPLE		ASSESSMENT		
Name	Description	Location	Number	Results	Condition	Approx. Amount
KHT	MISC-F Suspended ceiling tiles - 2' x 4' white with fissures and pinholes	Office supply room and adjacent offices	KHT-40	ND	Good	N/A
			KHT-41	ND		
KHU	MISC-NF-I Floor Tiles - 1' x 1' white with black dots	Auditorium and adjacent storage room	KHU-43	Tile - 3% chrysotile Mastic - 4% chrysotile	Good	~ 2,200 square feet
			KHU-44	Tile - 3% chrysotile Mastic - 4% chrysotile		
KHV	MISC-F Drywall components with a white textured finish	Corridors, east mechanical room, bio. spill room and women's bathroom foyer	KHV-46	<1% chrysotile	Good	N/A
			KHV-47	ND		
KHW	TSI-F Pipe fitting insulation (Note - pipe straight runs are insulated with fiberglass)	Mechanical areas, boiler room, chiller room and above the plenum on the 2" pipes	KHW-49	Wrap - ND Insulation - 2% amosite, <1% chrysotile	Fair	~ 22 fittings (visible)
			KHW-50	Wrap - ND Insulation - 2% amosite		
KHX	MISC-NF-II Window glazing	Window exteriors throughout the building	KHX-51	ND	Fair	N/A
			KHX-52	ND		
KHY	TSI-F Boiler flue insulation	Boiler Room - 1st Floor	KHY-54	Wrap - ND Insulation - 15% amosite, 2% chrysotile	Good	~ 50 cubic feet
			KHY-55	Wrap - ND Insulation - 15% amosite, 2% chrysotile		

Inspector: Jonathan Borntrager (NC 12085)
 Sampling Date: March 28, 2002
 Page 4 of 4

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APPENDIX



9751 Southern Pine Boulevard
 Charlotte, NC 28273
 704-523-4726 Fax 704-523-3953
 NVLAP ID 102075-0

POLARIZED LIGHT MICROSCOPY
 Performed by EPA 600/R-93/116 Method

Asbestos Analysis Summary

Client Name Charlotte Branch
Client Job UNCW King Hall
 9751 Southern Pine Blvd.
 Charlotte
 NC 29273

Date Received 4/1/02
Date Analyzed 4/4/02

Job Number 1355-02-251

Laboratory ID:	Sample #:	Appearance	Comments	Total Asbestos %/Type	Non-Asbestos Fibrous %/Type	Non-Fibrous %/Type
02-4304A	KH-A-01	BLACK FIBROUS	ROOF	ND	10 GLASS	90 OTHER
02-4304B	KH-A-01	GREY FIBROUS	INSULATION	ND	98 CELLULOSE	2 PERLITE
02-4305A	KH-A-02	BLACK FIBROUS	ROOF	ND	10 GLASS	90 OTHER
02-4305B	KH-A-02	GREY FIBROUS	INSULATION	ND	98 CELLULOSE	2 PERLITE

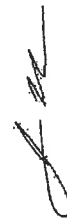
Analyzed by: Jane Wasilewski


Jane Wasilewski
 Laboratory Manager

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Job Number 1355-02-251

Laboratory ID: Sample #:	Appearance	Comments	Total Asbestos %/Type	Non-Asbestos Fibrous %/Type	Non-Fibrous %/Type
02-4306 KH-B-03	BLACK/SILVER FIBROUS		ND	25 SYNTHETIC <1 GLASS	75 OTHER
02-4307 KH-B-04	BLACK/SILVER FIBROUS		2 CHRYSOTILE	15 SYNTHETIC 2 GLASS	81 OTHER
02-4308 KH-C-05	BLACK FIBROUS		ND	20 GLASS	80 OTHER
02-4309 KH-C-06	BLACK FIBROUS		ND	20 GLASS	80 OTHER
02-4310 KH-D-07	TAN FIBROUS		ND	15 CELLULOSE 2 GLASS	60 GYPSUM 23 OTHER
02-4311 KH-D-08	TAN FIBROUS		<1 CHRYSOTILE	35 CELLULOSE 2 GLASS	63 GYPSUM <1 OTHER
02-4312A KH-E-09	WHITE NONFIBROUS	SMOOTH COAT	ND		100 OTHER


Analyzed by: Jane Wasilewski


Jane Wasilewski
Laboratory Manager

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Job Number 1355-02-251

Laboratory ID: Sample #: Appearance

02-4312B KH-E-09 GREY GRANULAR PLASTER ND ND 100 OTHER

02-4313 KH-F-10 GREY FIBROUS ND ND 75 MINERAL WOOL 25 CELLULOSE

02-4314A KH-G-11 GREY NONFIBROUS TILE 2 CHRYSOTILE 98 OTHER

02-4314B KH-G-11 BLACK FIBROUS MASTIC 3 CHRYSOTILE 97 OTHER

02-4315A KH-G-12 GREY NONFIBROUS TILE 2 CHRYSOTILE 98 OTHER

02-4315B KH-G-12 BLACK FIBROUS MASTIC 4 CHRYSOTILE 96 OTHER

02-4316 KH-H-13 SILVER/GREY FIBROUS ND ND 95 MINERAL WOOL 2 CELLULOSE 3 OTHER


Analyzed by: Jane Wasilewski


Jane Wasilewski
Laboratory Manager

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Job Number 1355-02-251

Laboratory ID: Sample #:

Appearance
YWB/LK NONFIBROUS

Total Asbestos %/Type
2 CHRYSOTILE

Non-Asbestos Fibrous %/Type

Non-Fibrous %/Type
98 OTHER

Comments

Job Number	Sample #	Appearance	Comments	Total Asbestos %/Type	Non-Asbestos Fibrous %/Type	Non-Fibrous %/Type
02-4317	KH-I-14	YWB/LK NONFIBROUS		2 CHRYSOTILE		98 OTHER
02-4318	KH-I-15	YWB/LK NONFIBROUS		2 CHRYSOTILE		98 OTHER
02-4319A	KH-J-16	GREY NONFIBROUS	TILE	ND		100 OTHER
02-4319B	KH-J-16	BLACK/YW FIBROUS	MASTIC	2 CHRYSOTILE		98 OTHER
02-4320	KH-K-17	GREYS FIBROUS		55 CHRYSOTILE	45 SYNTHETIC	
02-4321	KH-K-18	GREYS FIBROUS		20 CHRYSOTILE	40 GLASS 30 SYNTHETIC	10 OTHER
02-4322	KH-L-19	TAN FIBROUS		ND	75 MINERAL WOOL 25 CELLULOSE	

Analyzed by: Jane Wasilewski



Jane Wasilewski
Laboratory Manager

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Job Number 1355-02-251

Laboratory ID: Sample #: Appearance

		Comments	Total Asbestos %/Type	Non-Asbestos Fibrous %/Type	Non-Fibrous %/Type
02-4323	KH-M-20	GREY FIBROUS	ND	100 MINERAL WOOL	<1 OTHER
02-4324A	KH-G-21	GREY NONFIBROUS	TILE 2	CHRYSOITILE	98 OTHER
02-4324B	KH-G-21	BLACK FIBROUS	MASTIC 1	CHRYSOITILE	97 OTHER
02-4324C	KH-G-21	YELLOW NONFIBROUS	MASTIC 2	ND	100 OTHER
02-4325	KH-M-22	GREY FIBROUS	ND	100 MINERAL WOOL	<1 OTHER
02-4326	KH-N-23	GREY NONFIBROUS	TILE (ONLY)	ND	100 OTHER
02-4327	KH-N-24	GREY NONFIBROUS	TILE (ONLY)	ND	100 OTHER



Analyzed by: Jane Wasilewski


Jane Wasilewski
Laboratory Manager

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Job Number 1355-02-251

Laboratory ID: Sample #:

Appearance

Comments

Total Asbestos
%/Type

Non-Asbestos Fibrous
%/Type

Non-Fibrous
%/Type

98 OTHER

2 CHRYSOTILE

YW/BLK NONFIBROUS

KH-I-14

98 OTHER

2 CHRYSOTILE

YW/BLK NONFIBROUS

KH-I-15

100 OTHER

ND

TILE

GREY NONFIBROUS

KH-J-16

98 OTHER

2 CHRYSOTILE

MASTIC

BLACK/YW FIBROUS

KH-J-16

45 SYNTHETIC

55 CHRYSOTILE

GREYS FIBROUS

KH-K-17

10 OTHER

40 GLASS
30 SYNTHETIC

20 CHRYSOTILE

GREYS FIBROUS

KH-K-18

75 MINERAL WOOL
25 CELLULOSE

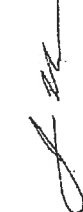
ND

TAN FIBROUS

KH-L-19



Analyzed by: Jane Wasilewski



Jane Wasilewski
Laboratory Manager

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Job Number 1355-02-251

Laboratory ID: Sample #: Appearance

02-4323 KH-M-20 GREY FIBROUS

Total Asbestos %/Type
ND

Non-Asbestos Fibrous %/Type
100 MINERAL WOOL

Non-Fibrous %/Type
<1 OTHER

Comments

02-4324A KH-G-21 GREY NONFIBROUS TILE 2 CHRYSOTILE 98 OTHER


02-4324B KH-G-21 BLACK FIBROUS MASTIC 1 3 CHRYSOTILE 97 OTHER


02-4324C KH-G-21 YELLOW NONFIBROUS MASTIC 2 ND 100 OTHER

02-4325 KH-M-22 GREY FIBROUS ND 100 MINERAL WOOL <1 OTHER

02-4326 KH-N-23 GREY NONFIBROUS TILE (ONLY) ND 100 OTHER

02-4327 KH-N-24 GREY NONFIBROUS TILE (ONLY) ND 100 OTHER

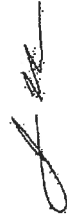

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Laboratory Manager


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Laboratory ID: Sample #:	Appearance	Comments	Total Asbestos %/Type	Non-Asbestos Fibrous %/Type	Non-Fibrous %/Type
02-4328A KH-O-25	GREY FIBROUS	WRAP	ND	100 CELLULOSE	<1 PAINT
02-4328B KH-O-25	GREY FIBROUS	INSULATION	2 AMOSITE	35 MINERAL WOOL	63 OTHER
02-4329A KH-O-26	GREY FIBROUS	WRAP	ND	100 CELLULOSE	<1 PAINT
02-4329B KH-O-26	GREY FIBROUS	INSULATION	2 AMOSITE	35 MINERAL WOOL	63 OTHER
02-4330 KH-O-27	GREY FIBROUS		2 AMOSITE	35 MINERAL WOOL	63 OTHER
02-4331 KH-L-28	TAN FIBROUS		ND	75 MINERAL WOOL 25 CELLULOSE	
02-4332A KH-P-29	GREY FIBROUS	WRAP 1	ND	100 CELLULOSE	<1 PAINT



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Laboratory Manager


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Job Number 1355-02-251

Laboratory ID: Sample #:

	Appearance	Comments	Total Asbestos %/Type	Non-Asbestos Fibrous %/Type	Non-Fibrous %/Type
02-4332B	KH-P-29 BLACK FIBROUS	WRAP 2	4 CHRYSOTILE	35 GLASS	61 OTHER
02-4332C	KH-P-29 GREY/YELLOW FIBROUS	INSULATION	2 AMOSITE	55 MINERAL WOOL	43 OTHER
02-4333A	KH-P-30 GREY FIBROUS	WRAP 1	ND	100 CELLULOSE	<1 PAINT
02-4333B	KH-P-30 BLACK/SILVER FIBROUS	WRAP 2	3	40 GLASS 20 CELLULOSE	37 OTHER
02-4333C	KH-P-30 GREY/YELLOW FIBROUS	INSULATION	<1 AMOSITE	75 MINERAL WOOL	25 OTHER
02-4334A	KH-P-31 BEIGE FIBROUS	WRAP	ND	100 CELLULOSE	
02-4334B	KH-P-31 GREY/YELLOW FIBROUS	INSULATION	2 AMOSITE	55 MINERAL WOOL	43 OTHER


Analyzed by: Jane Wasilewski


Jane Wasilewski
Laboratory Manager

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Job Number 1355-02-251

Laboratory ID: Sample #: Appearance
02-4335 KH-E-32 WHITE NONFIBROUS

Total Asbestos %/Type
ND

Non-Asbestos Fibrous %/Type

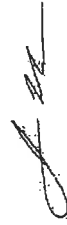
Non-Fibrous %/Type
100 OTHER

Comments

Sample #	Appearance	Comments	Total Asbestos %/Type	Non-Asbestos Fibrous %/Type	Non-Fibrous %/Type
02-4336A	KH-R-33 TAN NONFIBROUS	TILE	2 CHRYSOTILE		98 OTHER
02-4336B	KH-R-33 BLACK FIBROUS	MASTIC	2 CHRYSOTILE		98 OTHER
02-4337A	KH-Q-34 GREY NONFIBROUS	TILE	3 CHRYSOTILE		97 OTHER
02-4337B	KH-Q-34 BLACK FIBROUS	MASTIC	4 CHRYSOTILE		96 OTHER
02-4338A	KH-S-35 GREY NONFIBROUS	TILE	4 CHRYSOTILE		96 OTHER
02-4338B	KH-S-35 BLACK FIBROUS	MASTIC	4 CHRYSOTILE		96 OTHER



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Laboratory Manager

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Job Number 1355-02-251

Laboratory ID: Sample #:

Appearance

Comments

Total Asbestos
%/Type

Non-Asbestos Fibrous
%/Type

Non-Fibrous
%/Type

02-4339A KH-S-36 GREY NONFIBROUS TILE 4 CHRYSOTILE 96 OTHER

02-4339B KH-S-36 BLACK NONFIBROUS MASTIC <1 CHRYSOTILE 100 OTHER

02-4340A KH-Q-37 GREY NONFIBROUS TILE 3 CHRYSOTILE 97 OTHER

02-4340B KH-Q-37 BLACK FIBROUS MASTIC 2 CHRYSOTILE 98 OTHER

02-4341 KH-H-38 GREY FIBROUS ND 96 MINERAL WOOL 2 OTHER
2 CELLULOSE

02-4342A KH-Q-39 BEIGE NONFIBROUS TILE 3 CHRYSOTILE 97 OTHER

02-4342B KH-Q-39 YELLOW NONFIBROUS MASTIC ND 100 OTHER



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Job Number 1355-02-251

Laboratory ID: Sample #: Appearance

	Sample #	Appearance	Comments	Total Asbestos %/Type	Non-Asbestos Fibrous %/Type	Non-Fibrous %/Type
02-4343	KH-T-40	GREY FIBROUS		ND	40 MINERAL WOOL 30 CELLULOSE	30 PERLITE
02-4344	KH-T-41	GREY FIBROUS		ND	40 MINERAL WOOL 30 CELLULOSE	30 PERLITE
02-4345	KH-R-42	GREY NONFIBROUS	TILE (ONLY)	ND		100 OTHER
02-4346A	KH-U-43	BEIGE NONFIBROUS	TILE	3 CHRYSOTILE		97 OTHER
02-4346B	KH-U-43	BLACK FIBROUS	MASTIC	4 CHRYSOTILE		96 OTHER
02-4347A	KH-U-44	BEIGE NONFIBROUS	TILE	3 CHRYSOTILE		97 OTHER
02-4347B	KH-U-44	BLACK FIBROUS	MASTIC	4 CHRYSOTILE		96 OTHER



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Job Number 1355-02-251

Laboratory ID: Sample #: Appearance

02-4348 KH-F-45 GREY FIBROUS

02-4349 KH-V-46 TAN FIBROUS

02-4350 KH-V-47 TAN FIBROUS


02-4351A KH-J-48 BEIGE NONFIBROUS

02-4351B KH-J-48 YW/BLK NONFIBROUS

02-4352A KH-W-49 GREY FIBROUS

02-4352B KH-W-49 GREY FIBROUS

Comments	Total Asbestos %/Type	Non-Asbestos Fibrous %/Type	Non-Fibrous %/Type
	ND	80 MINERAL WOOL 20 CELLULOSE	<1 PERLITE
	<1 CHRYSOTILE	25 CELLULOSE	75 OTHER
	ND	75 CELLULOSE <1 GLASS	25 OTHER <1 GYPSUM
TILE	ND		100 OTHER
MASTIC	<1 CHRYSOTILE		100 OTHER
WRAP	ND	100 CELLULOSE	
INSULATION	2 AMOSITE <1 CHRYSOTILE	40 MINERAL WOOL	58 OTHER



Analyzed by: Jane Wasilewski



Jane Wasilewski
Laboratory Manager

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Job Number 1355-02-251

Laboratory ID: Sample #: Appearance

02-4353A KH-W-50 GREY FIBROUS WRAP ND 100 CELLULOSE <1 PAINT

02-4353B KH-W-50 GREY FIBROUS INSULATION 2 AMOSITE 40 MINERAL WOOL 58 OTHER

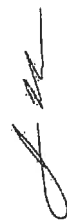
02-4354 KH-X-51 BEIGE NONFIBROUS ND ND 100 OTHER

02-4355 KH-X-52 BEIGE NONFIBROUS ND ND 100 OTHER

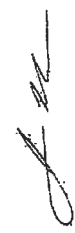
02-4356A KH-P-53 GREY FIBROUS WRAP ND 100 CELLULOSE <1 PAINT

02-4356B KH-P-53 GREY FIBROUS INSULATION 2 AMOSITE 40 MINERAL WOOL 58 OTHER

02-4357A KH-Y-54 GREY FIBROUS WRAP ND 100 CELLULOSE <1 PAINT



Analyzed by: Jane Wasilewski



Jane Wasilewski
Laboratory Manager

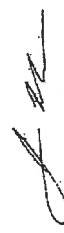
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Job Number 1355-02-251

Laboratory ID: Sample #:	Appearance	Comments	Total Asbestos %/Type	Non-Asbestos Fibrous %/Type	Non-Fibrous %/Type
02-4357B KH-Y-54	GREY FIBROUS	INSULATION	15 AMOSITE 2 CHRYSOTILE	5 MINERAL WOOL	78 OTHER
02-4358A KH-Y-55	GREY FIBROUS	WRAP	ND	100 CELLULOSE	<1 PAINT
02-4358B KH-Y-55	GREY FIBROUS	INSULATION	15 AMOSITE 2 CHRYSOTILE	5 MINERAL WOOL	78 OTHER



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ABATEMENT AND DEMOLITION BID FORM (REVISED)

for

UNCW King Hall
Asbestos Abatement
Wilmington, North Carolina

The undersigned, as bidder, proposes and agrees if this proposal is accepted to contract with ECS for the furnishing of all materials, equipment, and labor necessary to complete abatement of the work described in the Technical Specifications for Asbestos Abatement (and any subsequent Addendums) in full and complete accordance with plans, specifications, and contract documents, and to the full and entire satisfaction of ECS for the lump sum fee of:

BASE BID (ABATEMENT):

_____ Dollars

\$ _____

ADD/ALTERNATE PRICES AND UNIT RATES (if necessary)

In the event that additional asbestos is identified or the scope of work is expanded, the contractor is to include unit rates for removal of the following materials. These unit rates are to be based on performing asbestos removal during the project without the contractor having to remobilize to the site:

- Remobilization (if necessary): \$ _____ per mobilization
- Residual Flooring Mastic: \$ _____ per square foot
- VCT and Associated Mastic: \$ _____ per square foot
- Vibration Dampener: \$ _____ per unit
- Mudded Elbows: \$ _____ per elbow
- Black Mastic on Pipes \$ _____ per linear foot
- Black Tar on HVAC Wrap \$ _____ per linear foot
- Drywall/Joint Compound: \$ _____ per square foot
- ACM Textured Wall: \$ _____ per square foot
- Window Removal: \$ _____ per window

Respectively submitted this ____ day of _____ 2023

(Name of firm or corporation making bid)

Federal ID#: _____

Witness: _____

By: _____

(Proprietorship or Partnership)

Title: _____
(Owner, Partner, Pres. or VP)

Attest: _____

Address: _____

By: _____
(Corporate Seal)

Title: _____
(Corp. Sec./Ass't Sec.)

Phone Number _____

ACCEPTED: ECS

BY: _____ TITLE: _____

DATE: _____ 2023