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Health and Human
Services

**Texas Health and Human
Services Commission**

Maintenance and Construction

North Texas State Hospital – Wichita Falls Campus

MECHANICAL UPGRADE

Building: 700

M & C PROJECT No.: 22-147-WFH

Project Manual

Volume 2

August 1, 2022

BHB Project No. 2022.012.000

Prepared By: _____



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■ Facilities
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Asbestos Abatement Specification

North Texas State Hospital – Wichita Falls Campus

Building 700 Mechanical Upgrades Project
22-147-WFH

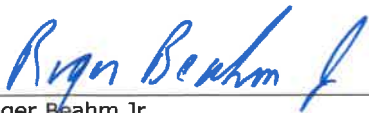
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Wichita Falls, Texas

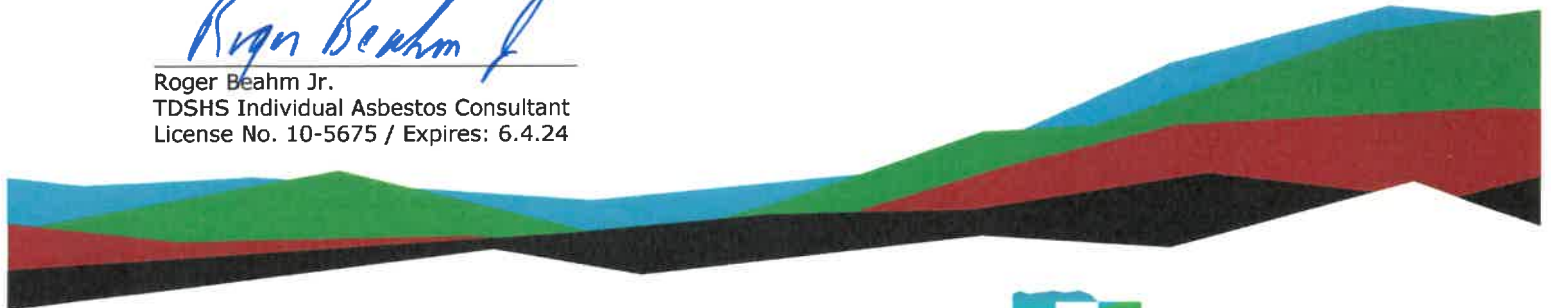
January 6, 2023 | Project Number: 95227431

Prepared for:

Texas Health and Human Services Commission
909 West 45th Street
Austin, TX 78751



Roger Beahm Jr.
TDSHS Individual Asbestos Consultant
License No. 10-5675 / Expires: 6.4.24



1801 Handley Ederville Rd.
Fort Worth, Texas 76118
P (817) 268-8600
F (817) 268-8602
Terracon.com



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Asbestos Abatement Specification

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1.0 INTRODUCTION

This project is being performed for the Texas Health and Human Services Commission, henceforth referred to as **OWNER**. Terracon Consultants, Inc. (**CONSULTANT**) prepared these work procedures. The licensed asbestos abatement contractor (**CONTRACTOR**) is responsible for completing the work that will include the abatement and disposal of asbestos-containing duct insulation mastic.

2.0 MATERIAL DESCRIPTIONS AND QUANTITIES

The scope of work is summarized as removal and disposal of the following ACM:

Material	Asbestos Content	Quantity ¹
Duct Insulation Mastic (black)	Assumed	380 square feet

¹ Quantities listed are estimates only. **CONTRACTOR** is responsible for verifying quantity estimates prior to submission of bid. The **CONTRACTOR** will perform work for materials and locations indicated, regardless of actual quantities, and no increase in Contract amount will be allowed for quantity adjustment.

3.0 WORK PRACTICES

3.1 Abatement Notes

CONTRACTOR shall maintain personnel on-site when any portion of the work area(s) are open or not properly secured. **CONTRACTOR** will ensure that at least one (1) **CONTRACTOR** representative is on-site during work hours, including during lunch break. **CONTRACTOR** will ensure that work areas are secure at the end of each workday. **CONTRACTOR** may elect to have a company representative stay on-site to maintain security during times other than normal working hours.

Prior to commencement of preparations, **CONTRACTOR** shall verify site conditions with the **OWNER** and **CONSULTANT**. All damage not noted during this pre-job survey will be assumed to be caused by the **CONTRACTOR** and the **CONTRACTOR** shall repair to the satisfaction of the **OWNER**.

Roger Beahm Jr.
TDSHS Individual Asbestos Consultant
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If a Texas Department of State Health Services (TDSHS) inspector conducts a regulatory inspection, the **CONTRACTOR'S** abatement project supervisor must immediately cease all abatement activities and give his complete and undivided attention to the inspector. Should the TDSHS inspector don personal protective equipment (PPE) and enter the containment, the abatement project supervisor will also don PPE and enter the containment to accompany the inspector. If the TDSHS inspector notes any deficiency/deficiencies, the abatement project supervisor will direct the workers to immediately correct the deficiency/deficiencies to the inspector's satisfaction.

The abatement project supervisor will accompany the TDSHS inspector throughout the duration of the inspection process, whether inside or outside the containment or regulated areas. Upon the TDSHS inspector's departure from the site, the supervisor will resume abatement activities.

3.2 Respiratory Protection

The **CONTRACTOR** shall provide respirators which are applicable and suitable for the purpose intended in accordance with OSHA 1910.134 – Respirator Standard throughout the project. The **CONTRACTOR** will ensure that the respirators are equipped with filter cartridges designed for asbestos-containing dusts and mists, vapors, and color-coded in accordance with ANSI Z228.2 (1980).

3.3 Protective Clothing

During removal in negative pressure enclosures or containments, each worker will wear at least one disposable protective suit and proper respiratory protection. The **CONTRACTOR** will make boots and gloves available to each worker as needed. All protective suits will be properly disposed at the conclusion of each work-shift. Prior to exiting the work area, the workers performing the abatement will decontaminate thoroughly in a three-chambered wet decontamination system attached to each containment.


3.4 Decontamination System – Negative-Pressure Enclosures or Containments

Disposable "pop-up" units displaying excessive use or wear are not permitted.

The **CONTRACTOR** shall provide a Personnel Decontamination Unit consisting of a serial arrangement of the following connected rooms or spaces:

Provide splash-proof entrances to the Work Area and the building/exterior with doors arranged as follows:

- Changing Room (aka Clean Room).
- Shower Room, and


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- Equipment Room.

The **CONTRACTOR** shall require all persons, without exception, to pass through this decontamination unit for entry into and exit from the work area for any purpose. The **CONTRACTOR** shall not allow parallel routes for entry or exit.

3.4.1 Changing Room (aka Clean Room)

The **CONTRACTOR** shall provide a Changing Room physically and visually separated from the rest of the building for workers to change into protective clothing. Construct this room using minimum 6-mil polyethylene sheeting to provide an airtight seal between the Changing Room and the rest of the building. Locate Changing Room so the Equipment Room and Work Area are accessible only through the Shower Room. Separate the Changing Room from the rest of the building by a doorway of overlapping minimum 6-mil polyethylene sheeting flaps; arrange these flaps so that any air movement out of the Clean Room will cause the flaps to seal against the door frame.

Always keep the Changing Room floor clean and dry. Do not allow overflow water from Shower Room to wet floor in Changing Room.

- Damp-wipe all Clean Room surfaces with a disinfectant solution twice after each shift change.
- Provide a continuously adequate supply of disposable bath towels.
- Provide posted information for all emergency phone numbers and procedures.

3.4.2 Shower Room

The **CONTRACTOR** shall provide a completely water-tight operational shower for showering by workers exiting the Work Area after undressing in the Equipment Room or for transit by cleanly-dressed workers entering the Work Area from the Changing Room.

Construct the Shower Room using a shower pan and two shower walls in a configuration that causes water running down walls to drip into shower pan. Install a freely draining floor in the shower pan at an elevation that is at the top of pan.

Separate the Shower Room from the Changing Room, Equipment Room, and the rest of the building with airtight walls fabricated of minimum 6-mil polyethylene sheeting.

Provide splash-proof entrances to Changing Room and Equipment Room with doors arranged as follows:

- At each entrance to the Shower Room construct a doorframe of lumber, PVC Pipe, or equivalent.
- Attach two overlapping minimum 6-mil polyethylene sheeting flaps fastened at the head (top) and jambs (sides) of this frame.

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- Overlap these flaps to present a shingle-like configuration to direct the shower water stream inward and downward to the shower pan and that that water from showering does not splash into the Changing Room or Equipment Room.
- Arrange these flaps so that any air movement out of the Work Area will cause the flaps to seal against the door frame.

Provide temporary extensions of existing hot and cold water, temperature and flow controls, a flexible hose shower head, and drainage, as necessary to present a complete and operable shower.

Provide a continuously adequate supply of soap.

Maintain sanitary conditions in the Shower Room. Damp wipe all Shower Room surfaces with a disinfectant solution after workers enter containment at the beginning of a work shift or after lunch break and after all workers exit the Shower Room at the end of a work shift.

Provide 20- and 5-micron wastewater filters in-line to sanitary sewer drain or wastewater storage for use in amended water. Change filters a minimum of once per workday; change filters more frequently, if necessary.

Provide Hose Bib.

3.4.3 Equipment Room (contaminated area)

The Equipment Room is an asbestos-contaminated area for temporary storage or staging of asbestos-contaminated work equipment, footwear, gloves, and work clothing. Workers will use the Equipment Room to remove asbestos-contaminated clothing and equipment prior to entering the Shower Room.

Separate the Equipment Room from the Shower Room, Work Area, and the rest of the building with airtight walls fabricated of minimum 6-mil polyethylene sheeting.

Locate Equipment Room so the Clean Room is accessible only through the Shower Room. Separate the Equipment Room from the Work Area by a doorway of overlapping minimum 6-mil polyethylene sheeting flaps; arrange these flaps so that any air movement out of the Clean Room will cause the flaps to seal against the door frame.

Do not allow equipment, clothing, etc. to accumulate in the Equipment Room. Keep the Equipment Room clear for safe, unimpeded transit from the Work Area or Shower Room.

Damp-wipe all Equipment Room surfaces and dispose of all soiled clothing at each shift change.

Where airborne asbestos fiber concentrations in the Work Area are expected to be high (e.g., dry removal, highly friable ACM, or friable ACM with asbestos concentrations above 50%), construct an

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intermediate space between the Equipment Room and the Work Area for workers to conduct additional personal decontamination. Do not allow equipment, clothing, etc. to accumulate in this area. Keep this area clear for safe, unimpeded transit from the Work Area or Equipment Room. Install a drop cloth of minimum 6-mil polyethylene sheeting in this area. Dispose of all soiled clothing, damp wipe all surfaces, and replace the drop cloth at each shift change.

3.5 Work Areas

The **CONTRACTOR** will remove movable objects from the work area; these items are to be pre-cleaned by wet-wiping and HEPA-vacuuming prior to their removal from the work area. Non-movable objects in the work area are to be pre-cleaned by wet-wiping and HEPA-vacuuming, then wrapped in a minimum one layer of 6-mil polyethylene sheeting secured in place with spray-glue and duct tape.

3.5.1 Negative Pressure Mini-Enclosure

CONTRACTOR may conduct removal of asbestos materials using this method with the following minimum requirements:

1. The mini-enclosure shall accommodate no more than two (2) persons, otherwise all requirements of a full negative pressure enclosure must be utilized as described in Section 3.6.1 Full Negative-Pressure Enclosure.
2. The mini-enclosure shall be inspected for leaks. Air movement shall be directed away from the employee's breathing zone within the mini-enclosure.
3. All work shall be performed in accordance with EPA, OSHA, TDSHS, and other applicable regulations.
4. Establish regulated work area so that unauthorized entry is prevented; Construct a two-chamber frame around work area; install two layers of 6-mil polyethylene sheeting to structural members and two layers 6-mil polyethylene sheeting to the floor. Seal all edges to wall, ceiling, and floor surfaces with duct tape. Install viewing inspection windows, where feasible.
5. Seal with duct tape all penetrations (typical) such as pipes, electrical conduit, or ducts.
6. Install triple 6-mil polyethylene flaps at both doorways. Place portable sprayer with clean water, disposable towels, and pre-labeled disposal bag in air lock.
7. Install danger signs on outside of Work Area.
8. Install HEPA vacuum; extend hose into mini-containment area for general vacuuming, negative air, and cleaning of disposable suit.
9. Achieve negative pressure.
10. Abatement worker must wear two disposable suits.
11. An impermeable drop cloth shall be placed on surfaces beneath all removal activities.
12. When leaving the Work Area, remove outer suit in Work Area and place in a plastic bag. Enter air lock.
13. In air lock, wet wipe respirator and wash hands with clean water. Remove respirator and place in a clean plastic bag.
14. Clearance Requirements

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- a. After abatement is completed, prepare area for final clearance.
 - b. Complete visual inspections.
 - c. Conduct final air-clearance monitoring.
 - d. Remove containment area after achieving air clearance levels.
15. Proceed to remote shower/decontamination unit where inner suit may be removed.
 16. Refer to Section 3.7 Disposal for containerization and disposal requirements.

3.6 Removal

The **CONTRACTOR** will perform the removal and disposal in accordance with current local, state, and federal regulations.

- Negative pressure mini-enclosures described in Section 3.5.1 in conjunction with

Spray ACM materials with amended water or removal encapsulant. Allow time for amended water or removal encapsulant to saturate the material. Do not oversaturate to cause excess dripping. Spray material repeatedly during the work process to maintain a continuously wet condition. If a removal encapsulant is used, apply in strict accordance with manufacturer's written instruction.

Promptly transfer ACM waste into disposal containers. Do not allow ACM waste to accumulate in the Work Area or impede transit from the Work Area to the Equipment Room.


3.7 Disposal

Prepare a closed-top transport trailer or disposal container by covering all internal surfaces with a minimum two layers of minimum 6-mil polyethylene sheeting secured in place with spray-glue and duct tape. Seams in polyethylene sheeting shall overlap a minimum of six inches (6"). No seams shall be located at wall-to-wall, wall-to-ceiling, or wall-to-floor corners.

6-mil polyethylene sheeting covering the floors shall extend a minimum twelve inches (12") up all walls and be sealed in place with spray adhesive and a continuous line of duct tape, creating a "bowl effect" to capture the maximum amount of debris and water possible in the event of a ruptured disposal bag(s).

Install asbestos warning tape on all exterior walls of the transport trailer or disposal container. Install asbestos warning signs on both interior and exterior sides of the transport trailer or disposal container door in accordance with 29 CFR 1910.1200(f), the OSHA Hazard Communication Standard.

Following removal, double-bag and label ACM waste in accordance with applicable TAHP and OSHA guidelines. Affix preprinted generator labels to each bag or wrapped component prior to placing in the prepared transport trailer or disposal container.


Roger Beahm Jr.
TDSHS Individual Asbestos Consultant
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The use of bladder bags, onion bags or any other disposal container deemed unconventional by the CONSULTANT is prohibited.

All waste bags or wrapped components will be labeled in accordance with 29 CFR 1910.1200(f), the OSHA Hazard Communication Standard, and will contain the following information at a minimum:

DANGER
CONTAINS ASBESTOS FIBERS
AVOID CREATING DUST
CANCER AND LUNG DISEASE HAZARD

During active waste load-out, the area between the Waste Load-Out and transport trailer or disposal container shall be covered with a drop cloth of minimum 6-mil polyethylene sheeting and cordoned off with asbestos warning tape.

A TDSHS licensed Asbestos Transporter will transport ACM waste to an approved landfill as identified on the Demolition/Renovation Notification Form.

CONTRACTOR will provide **OWNER** verification of disposal at the approved landfill via the Uniform Hazardous Waste Manifest signed by the landfill.

3.8 Clearance


3.8.1 Visual Inspection

The **CONSULTANT'S** delegated representative and the **CONTRACTOR'S** on-site supervisor shall conduct a visual inspection of the Work Area. All surfaces will be inspected for visual evidence of residual ACM or ACM debris. Based on the results of the inspection, the **CONTRACTOR** will perform additional removal/cleaning or proceed with encapsulation as authorized by the **CONSULTANT'S** delegated representative. The **CONTRACTOR** shall not apply encapsulant until noted deficiencies or discrepancies have been corrected to the **CONSULTANT'S** delegated representative's satisfaction.

3.8.2 Air Clearance Testing – Negative Pressure Containment

HEPA air filtration units shall remain operational until clearance air sampling and analysis are complete. A minimum of eight complete air changes will occur within any containment or negative pressure enclosure prior to collection of clearance air samples.

The **CONSULTANT** shall perform final clearance sampling in containments and negative pressure enclosures in accordance with the TAHPR 296.211(h)(1)(C). The **CONSULTANT** shall collect clearance samples using aggressive sampling techniques as described in TAHPR 296.211(h)(1)(C).


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Prior to air monitoring, floors, ceiling, and walls shall be swept with the exhaust of a leaf blower. Equipment used in aggressive sampling shall be properly cleaned and decontaminated before use.

The **CONSULTANT** shall collect a minimum of three (3) samples inside the containment or negative pressure enclosure; at the **CONSULTANT'S** discretion, one additional sample will be collected for each 10,000 cubic feet of containment volume (or fraction thereof) more than 30,000 cubic feet. The minimum sample volume is 1,250 liters (L) of air.

The **CONSULTANT** will perform PCM analysis of clearance air samples in accordance with the most current NIOSH 7400 Method and A Counting Rule. The release criterion for PCM analysis is complete when the fiber concentration for all PCM clearance air samples is determined below 0.01 fibers per cubic centimeter (f/cc) of air. If PCM analytical results fail to meet this release criteria, the decontamination is deemed incomplete; recleaning and retesting of the containment are required.

4.0 CONTRACTOR SUBMITTALS

Submittals required for proper execution include, but are not limited to, the following:

Pre-Construction Submittals (submitted to **CONSULTANT** at submission of bid):

Regulatory Notification Information
Plan of Action
Fire Action Plan
Emergency Phone List
Project Schedule
Copy of Written Respirator Program which conforms to 29 CFR 1910.134(b)
OSHA Safety and Data Sheets (Product Handling)
Negative Initial Exposure Assessment

Construction Submittals (submitted to **CONSULTANT** before start of work on-site)

TDSHS Licenses: Contractor, Contractor Supervisor, Waste Transporter(s)
Roster of Workers
TDSHS Certificates: Workers
Current Refresher Training: all personnel
Current Physical Examination: all personnel
Current Respiratory Fit Test Certificate: all personnel provided respirators
Personal Air Monitoring Lab Results

Project Closeout (submitted to **CONSULTANT**)

Contractor Supervisor's Daily Log
Certificate of Completion (if required)
Releases, Occupancy Permits (if applicable)
Personal Air Monitoring Lab Results

A handwritten signature in blue ink that reads "Roger Beahm Jr." The signature is written in a cursive style.

Roger Beahm Jr.
TDSHS Individual Asbestos Consultant
License No. 10-5675 / Expires: 6.4.24

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Copies of Waste Disposal Manifest(s)

RESUBMISSION

The **CONTRACTOR** shall revise and resubmit submittals as required by **CONSULTANT’S** review. Indicate any changes made other than those requested by **CONSULTANT**.

CONTRACTOR’S RESPONSIBILITIES

Illegible submittals will be rejected and returned for re-submittal.

Schedule submittals according to general flow of Work and to allow for adequate and timely review of submittals by **CONSULTANT**.

Review submittals prior to submission and submit to **CONSULTANT** in accordance with provisions herein.

Verify field measurements, construction criteria, catalog numbers and similar data.
Coordinate submittals with requirements of Work and Contract Documents.

CONTRACTOR’S responsibility for errors or omissions is not relieved by **CONSULTANT’S** review.

CONTRACTOR’S responsibility for deviations from requirements of Contract Documents is not relieved by **CONSULTANT’S** review unless **CONSULTANT** is notified of deviations in writing at time of submittal and gives written review of specific deviations.

Do not begin work which requires submittals until reviewed submittals have been reviewed and approved by **CONSULTANT**.

If required, reproduce and distribute copies after **CONSULTANT’S** review.

CONSULTANT’S RESPONSIBILITIES


The **CONSULTANT’S** inspections do not relieve the **CONTRACTOR** of Contract obligations and are not designed to locate all project discrepancies. The **CONTRACTOR** is responsible for project quality.

Review submittals within two working days or indicate in writing reasons for reviews which require additional time.

Review for conformance with design concept of project and information given in Contract Documents.

Indicate results of review and return submittals to **CONTRACTOR** for distribution.

CONSULTANT is not responsible for verification of field measurements, construction criteria, catalog numbers and other similar data.



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Review of separate items does not constitute review of an assembly in which items function

5.0 CONSTRUCTION NOTES

The **CONTRACTOR** is solely responsible for and shall file and manage the Demolition/Renovation Notification Form to TDSHS. The **CONTRACTOR** shall provide proper written notification (and revisions or amendments, as required) to the appropriate regulatory agencies on the agencies' designated form. The Notification form shall be complete and accurate and contain a statement indicating the Scope of Work and accurate quantities of ACM specified for removal. On Notification form, **OWNER** shall be listed as stated on front cover.

The **CONTRACTOR** is responsible for the accuracy and timelines of the notification. The execution of a Contract/Work Order for this project by the **OWNER** shall constitute written authorization for the **CONTRACTOR** to complete and sign the Notification on the **OWNER'S** behalf. Unless other written arrangements are made, the **OWNER** shall be responsible for payment of notification fees incurred with Demolition/Renovation Notification Form.

The **CONTRACTOR** will be responsible for routing water and electricity to the work areas. Water and electrical service are not present on the site.

The **CONTRACTOR** is to be current and in good standing on all asbestos abatement notification fees. The **OWNER** reserves the right to verify **CONTRACTOR'S** standing.


The **CONTRACTOR** shall maintain all records required by TDSHS Texas Asbestos Health Protection Rules Section 296.291 Recordkeeping

CONTRACTOR parking and disposal dumpster areas will be as designated by the **OWNER**. The **CONTRACTOR** will keep work and parking areas clean.

Prior to any asbestos abatement activities, the **CONTRACTOR** will provide a licensed electrician to provide power lock-out and tag-out of all circuits to be affected by the asbestos abatement activities. Lock-out/Tag-out must meet OSHA 1910.147 requirements. All electrical circuits in the regulated and/or contained area shall have ground-fault interrupter (GFCI) units installed.

Exhaust negative pressure ventilation system to the outside of the building.

The **CONTRACTOR** shall be responsible for installing hard barriers in any window openings utilized for exhaust of negative pressure and shall ensure that the building can be secured between work periods. If necessary, a hard barrier decontamination unit shall be constructed at the site to ensure building security.


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The **CONTRACTOR** shall arrange the use of on-site toilet facilities with the **OWNER** or provide temporary self-contained toilet units for use by **CONTRACTOR’S** and **CONSULTANT’S** personnel throughout the duration of abatement activities.

The **CONTRACTOR** shall install one fire extinguisher in the work area for each 1,000 square feet of work area or fraction thereof. Additional fire extinguishers shall be installed in the Equipment Room and Clean Room of the decontamination unit.

The **CONTRACTOR** shall conduct a safety meeting for **CONTRACTOR’S** employees with emphasis on operation of fire extinguishers and emergency exits in case of fire.

CONTRACTOR shall have posted emergency phone numbers for the fire department and police.

CONTRACTOR shall store a minimum of volatile substances on the job site and in fire resistant containers only.

6.0 PRODUCTS

Amended Water: Provide water to which a surfactant has been added. Use a mixture of surfactant and water which results in wetting of the ACM and retardation of fiber release during disturbance of the material.

Disposal Bags: Provide as a minimum, individual, 6-mil thick, leak-tight, manufactured polyethylene bags.

Disposal Bag Labels: Provide labels with **OWNER’S** name, **CONTRACTOR’S** name, project site address and the following warnings and labels, in accordance with regulatory requirements. Labels shall be lettered with indelible ink.

First Label:

CAUTION
CONTAINS ASBESTOS FIBERS
AVOID OPENING OR BREAKING CONTAINER
BREATHING ASBESTOS IS HAZARDOUS TO YOUR HEALTH

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Second Label: Provide in accordance with 29 CFR 1910.1200(f) of OSHA's Hazard Communication standard:

**DANGER
CONTAINS ASBESTOS FIBERS
AVOID CREATING DUST
CANCER AND LUNG DISEASE HAZARD
BREATHING AIRBORNE ASBESTOS, TREMOLITE, ANTHOPHYLLITE, OR
ACTINOLITE FIBERS IS HAZARDOUS TO YOUR HEALTH**

Third Label: Provide in accordance with U.S. Department of Transportation Regulation on hazardous waste marking. 49 CFR parts 171 and 172. Hazardous Substances Final Rule:

**RQ HAZARDOUS
SUBSTANCE,
CLASS 9,
NA 2212, PG III
(ASBESTOS)**

Polyethylene Wrap: Provide minimum 6-mil polyethylene sheeting as a wrapping for large sections of rigid waste material and for construction of floors and critical barriers in the containment areas. Provide minimum 4-mil polyethylene sheeting for construction of walls of the containment.


Removal Encapsulant: Provide a penetrating type encapsulant designed specifically for removal of ACM. Utilize an encapsulant that will meet or exceed the results produced by use of Amended Water, as described above.

7.0 AIR MONITORING SERVICES

The **CONSULTANT** shall verify that the Work performed complies with applicable regulations and that the building areas beyond the Work Area and the outside environment remain free of contamination. This section also sets forth airborne fiber levels both inside and outside the Work Area as permissible exposure limits (PELs), and describes the action required by the **CONTRACTOR** if a permissible exposure limit is met or exceeded.

7.1 Air Monitoring

The **CONSULTANT** will conduct air monitoring throughout the course of the project. The **CONSULTANT** will perform field analysis of the air samples. At the **CONSULTANT'S** option, a microscope and field


Roger Beahm Jr.
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Asbestos Abatement Specification

Texas Health and Human Services Commission
North Texas State Hospital – Wichita Falls Campus
Building 700 Mechanical Upgrades Project 22-147-WFH
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laboratory will be set up at the jobsite in order that verbal reports of air monitoring may be obtained promptly after collection and analysis.

The **CONSULTANT'S** reports to the **OWNER** will include air monitoring data and pertinent information on work being conducted such as: work hours, number of workers, procedures used, **CONTRACTOR** discrepancies and corrective measures, containment methods and construction, and amount of ACM removed.

7.1.1 Work Area Isolation

The **CONSULTANT** will monitor airborne fiber counts outside the Work Area. The purpose of this air monitoring will be to detect faults in the Work Area isolation including, but not limited to, contamination of the building outside of the Work Area with airborne asbestos fibers, failure of filtration or rupture in the ventilation system, or contamination of the exterior of the building with airborne asbestos fibers.

Should any of the above occur, the **CONTRACTOR** shall immediately cease asbestos abatement activities until the fault is corrected. Work shall not recommence until authorized by the **CONSULTANT**.

The **CONSULTANT** will monitor airborne fiber counts in the Work Area. The purpose of this air monitoring will be to detect airborne fiber counts which may significantly challenge the integrity of Work Area isolation procedures that protect the balance of the building or outside of the building from contamination by airborne fibers.


7.1.2 Inside Work Area

Maintain an average airborne count in the Work Area of less than 0.1 fibers per cubic centimeter (f/cc) of air. If the fiber counts rise above this figure for any sample taken, revise work procedures to lower fiber counts. If the Time Weighted Average (TWA) fiber count for any Work shift or 8-hour period exceeds 0.1 f/cc, stop work, and leave ventilation system in operation. Do not recommence work until authorized by the **CONSULTANT**.

7.2 Analytical Methods

The following methods will be utilized at the discretion of the **CONSULTANT** in collecting and analyzing air samples:

- Phase Contrast Microscopy (NIOSH 7400 Method, Issue 2, Revision 3, or OSHA Reference Method)


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7.3 Sample Protocols

The number and volume of air samples taken by the **CONSULTANT** will be in general accordance with the following schedule. Sample quantities, locations, volumes, and methodologies may vary depending upon the analytical method, project layout, procedures used and at the discretion of the **CONSULTANT**.

7.3.1 Schedule of Samples for Negative Pressure Containments

The **CONSULTANT** will generally take the following samples, as applicable. The number of samples may vary according to site plan and on authorization of **CONSULTANT**.

Location Sampled	Minimum # of Samples	Minimum Sample Volume	Analytical Method
Baseline Samples			
Each Work Area	3	1,250 Liters (L)	PCM
Daily Samples			
Each Interior Work Area	1	500 L	PCM
Outside Each Interior Work Area/Inside Building	1	500 L	PCM
Decontamination Unit Clean Room	1	500 L	PCM
Output of Negative Pressure Ventilation System	1	500 L	PCM
Clearance Samples			
Each Interior Work Area	3 (Section 3.10.2)	1,250 L	PCM


When airborne fiber counts exceed baseline limits, additional samples will be taken (and classified as retests) as necessary to monitor fiber levels and confirm sources.

8.0 CONSULTANT'S INSPECTIONS

The **CONSULTANT**, in addition to providing air monitoring services, will provide full-time, on-site inspection of work activities. Work shall not proceed without prior notice to the **CONSULTANT** and presence of the **CONSULTANT** on the work site (requires 48 hours advance notice of work).

The **CONSULTANT** will conduct the following key Project inspections and no work by the **CONTRACTOR** will proceed beyond these points until all discrepancies noted during the inspection have been corrected.

The **CONSULTANT'S** inspections do not relieve the **CONTRACTOR** of Contract obligations and are not designed to locate all project discrepancies. The **CONTRACTOR** is responsible for project quality.


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The following inspections are not necessarily single events. Failed inspections will be repeated, and time classified as retests and charged back to the **CONTRACTOR** in accordance with the project documents. Inspections will require 24 hours advance notice to the **CONSULTANT**.

8.1 Inspection of Work Area Prior to Start of Abatement

Removal operations shall not proceed until the **CONSULTANT** has completed inspection of the Work Area preparations and until all discrepancies noted have been corrected.

8.2 Second Key Inspection

Abatement or other regulated activities work shall not be conducted unless the **CONSULTANT** is on the project site. The **CONSULTANT** shall conduct daily inspection of the Work Area and work practices; upon discovery and report of a discrepancy the **CONTRACTOR** shall immediately stop work and correct the discrepancy.

8.3 Third Key Inspection

At the completion of abatement but prior to application of encapsulant, the **CONSULTANT** and the **CONTRACTOR'S** on-site supervisor shall conduct a visual inspection of the Work Area and removal surfaces. Neither encapsulation nor Work Area disassembly shall proceed until discrepancies noted have been corrected.

8.4 Fourth Key Inspection

After encapsulation and final clean-up of the Work Area, but prior to removal of Critical Barriers, the **CONSULTANT** will conduct a visual inspection. Neither clearance testing nor Work Area disassembly shall proceed until discrepancies noted have been corrected.

8.5 Final Key Inspection

After the **CONTRACTOR** has removed all barrier tape, drop-cloths, equipment, and supplies, the **CONSULTANT** and the **CONTRACTOR'S** on-site supervisor shall conduct a visual inspection of all areas impacted by the **CONTRACTOR'S** operations. The **CONSULTANT** will provide a project "Punch List" of any items requiring correction or completion to the **CONTRACTOR'S** on-site supervisor. Punch List items shall be completed prior to **CONTRACTOR** demobilization or final departure from the project site.

A handwritten signature in blue ink that reads "Roger Beahm Jr." with a stylized flourish at the end.

Roger Beahm Jr.
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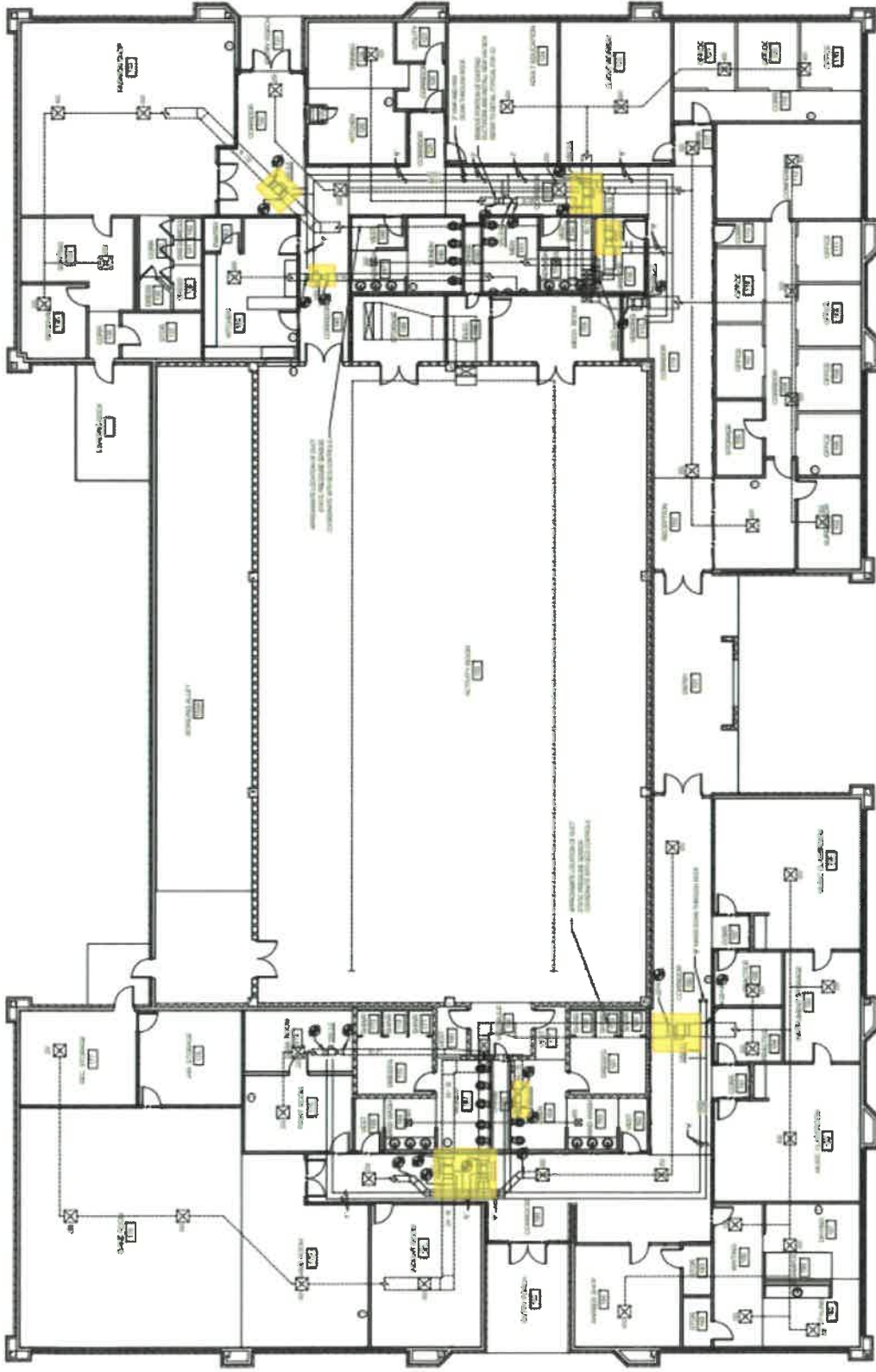


9.0 PERSONAL MONITORING

The **CONTRACTOR** shall perform air monitoring as required to meet OSHA requirements for maintenance of Time Weighted Average (TWA) and excursion limit fiber counts for types of respiratory protection provided. The **OWNER** will not be providing air monitoring services to meet these OSHA requirements. Note: Results of Personal Monitoring shall be submitted to the **CONSULTANT** within 72-hours of the time samples are obtained. A listing of all personal monitoring results obtained during the project shall be submitted to the **CONSULTANT** with the **CONTRACTOR** closeout submittals.

A handwritten signature in blue ink that reads 'Roger Beahm Jr.' The signature is written in a cursive style and is positioned above a horizontal line.

Roger Beahm Jr.
TDSHS Individual Asbestos Consultant
License No. 10-5675 / Expires: 6.4.24



Legend:

Asbestos-Containing Duct Insulation Mastic (Black)

Ryan Boehm

Royce Boehm

TDSHS Asbestos Consultant License No. 10-5675
Expires 06/04/24

Project Number:	95227431
Scale:	No Scale
File Name:	95227431
Date:	1/6/2023



Asbestos Abatement Drawing

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