

PROJECT MANUAL

FOR

ASBESTOS AND LEAD-BASED PAINT CONTAINING MATERIALS ABATEMENT

AIRCRAFT HANGER BUILDING 11-1
1401 AIRLINE DRIVE, TSTC CAMPUS
WACO, TEXAS 76705

BENAS PROJECT No. BA-13-1130

VOLUME 1 OF 1

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IN-DOOR AIR QUALITY CONSULTANTS

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DECEMBER 30, 2013

**ASBESTOS AND LEAD-BASED PAINT ABATEMENT
PROJECT DESIGN & TECHNICAL SPECIFICATIONS**

FOR:

**AIRCRAFT HANGER BUILDING 11-1
1401 AIRLINE DRIVE, TSTC CAMPUS
WACO, TEXAS 76705**

PREPARED FOR:

**TEXAS STATE TECHNICAL COLLEGE (TSTC)
PHYSICAL PLANT DEPARTMENT
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TABLE OF CONTENTS

EXECUTIVE SUMMARY.....	5
TECHNICAL SPECIFICATIONS.....	8
SPECIAL CONDITIONS.....	8
OSHA PERSONAL COMPLIANCE MONITORING REQUIREMENTS.....	9
WASTE HANDLING AND DISPOSAL.....	9
1.0 SCOPE OF WORK.....	12
<u>COMPUTER AIDED DESIGN DRAWINGS WITH HATCHING FOR ABATEMENT WORK AREAS</u>	
GENERAL OVERVIEW.....	27
OBJECTIVES.....	28
2.0 CONTRACTOR'S RESPONSIBILITIES.....	30
2.1 Coordination with Independent Laboratory.....	30
2.2 Notification.....	31
2.3 Materials and Equipment.....	31
2.4 Contractor's Effort.....	31
2.5 Personnel.....	32
2.5.1 Supervisor.....	32
2.5.2 Employee Conduct.....	32
2.6 Temporary Facilities and Controls.....	33
2.6.1 Water for Construction.....	33
2.6.2 Electricity for Construction.....	33
2.6.3 Handling Materials.....	34
2.6.4 Cleaning.....	34
2.6.5 Barricades, Walkways and Work Barriers.....	34
2.6.6 Signs.....	35
2.6.7 Security.....	35
2.6.8 Lead Paint Contaminated Waste Storage.....	35
2.6.9 Restrooms.....	36
2.6.10 Notifications/Permits/Signs/Labels/Posters	36
2.6.11 Emergency Precaution.....	37
2.6.12 Respiratory Protection.....	37

2.6.13	Disposal Activities.....	39
2.7	Encapsulation.....	40
2.8	Tools and Equipment.....	41

TABLE OF CONTENTS (Continue)

2.9	Execution.....	41
2.9.1	Pre-Lead-Based Paint Abatement Preparations	41
2.9.2	Utilities.....	42
2.9.3	Asbestos and Lead-Based Paint Complete removal .	42
2.9.4	Final Abatement Decontamination and Testing	43
2.9.5	Post-Abatement Submittals.....	44
3.0	LABORATORY RESPONSIBILITIES.....	44
3.1	Laboratory Duties.....	45
3.2	Authority of the Laboratory.....	46
3.3	Notification.....	47
4.0	OWNERS REPRESENTATIVE (CONSULTANT).....	47
4.1	Pre Abatement Preparations.....	47
4.2	Authority to Stop Work.....	47
5.0	PROJECT COODINATION PROCEDURES.....	48
5.1	Project Coordination.....	48
5.2	Special Reports.....	48
5.3	Reporting Unusual Events.....	48
5.4	Reporting Accidents.....	49
5.5	Contingency Plans.....	49
5.6	Emergency Numbers.....	49
5.7	Submittals.....	49
6.0	OTHER.....	50
	General Applicability of Codes, Regulations and Standards LBP..	50
	Applicable Publications.....	50
	General Applicability of Codes, Regulations and Standards ACM..	52
	Applicable Publications.....	52

ATTACHMENTS:

- A** - Asbestos Inspection Reports Conducted by BENAS Environmental
- B** - Lead Inspection Reports Conducted by BENAS Environmental
- C** - Asbestos Inspection Reports Performed by Bureau Veritas, Inc.
- D** - Lead Inspection Reports Performed by Bureau Veritas, Inc.

EXECUTIVE SUMMARY

The Texas State Technical College (**TSTC**) is seeking to remove Asbestos (**ACM**) and Lead-Based Paint (**LBP**) containing building materials as specified. The project involves the complete removal of leaded paint on Corrugated Sheet Metal on the interior decking (**Grayish Paint on Ceiling**) inside the aircraft hanger building; complete removal of leaded paint on interior Structural Load-Bearing vertical and horizontal cross members (**Reddish-Coated Paint on Steel**); complete removal of ACM Thermal Systems Insulation (**TSI**) on abandoned piping network; and complete removal of ACM Black Flooring Mastic located underneath Carpet Tiles in Cube 1 on the second floor inside the hanger building.

Also, this project involves Reduction and Stabilization (**Feathering**) of all exterior painted surfaces throughout the Hanger 11-1 Building which includes: Moving Steel Doors and Door-Frames; Corrugated Sheet Metal Panels; Canopy Support Columns; Metal (**Steel**) Railings; and Transite Cement Fiber Siding Panels. Furthermore, ACM TSI utilized as Caulking at the transition corners throughout the exterior of this building shall be completely removed during this abatement project. In addition, ACM Caulking and Glazing on window panes, frames and glass shall be completely removed during this project.

Finally, lead-based paint on windows, suffixes and other fixtures on the interior and exterior surfaces of the Aircraft Hanger Building 11-1 shall be completely removed prior to the scheduled repainting activities. The Aircraft Hanger Building 11-1 facility is located at 1401 Airline Drive, on the Campus of the TSTC in the City of Waco, McLennan County, Texas.

The areas for specific asbestos and lead-based paint abatement are described in the scope of work and the drawings contained in these

technical specifications. The schedule for the execution of the removal project is contained in the notifications filed with the Texas Department of State Health Services **(TDSHS)**.

The project shall be completed as per the above referenced notifications and these specifications. The abatement project shall be conducted according to start and stop dates contained in the notifications to the TDSHS. It should be stated that this building is currently scheduled for renovation.

This project is considered to be asbestos and lead-based paint abatement prior to building renovation to meet TDSHS notification requirements. Proper interpretation of the current Housing and Urban Development **(HUD)** regulations as well as current Texas Environmental Lead Reduction Rules **(TELRR)** must be observed for this distinction.

BENAS Environmental Services, Inc. from Coppell, Texas, will be the Owner's representative on this project. The testing laboratory **(industrial hygiene services)** selected by the Owner is also BENAS Environmental Services, Inc.

The following regulations, guidelines and activities should be observed to the extent applicable:

- 1) **Occupational Safety and Health Administration (OSHA)**, 29 Codes of Federal Regulations **(CFR)** 1926.62, Lead, Sub Part D.
- 2) **Public Law 102-550, of October 28, 1992**, 'Housing and Community Development Act of 1992, Title X, Residential Lead-Based Paint Hazard Reduction Act of 1992.
- 3) **Housing and Urban Development (HUD) Guidelines** For the Evaluation and Control of Lead-Based Paint Hazards in Housing, June 1995, Chapters III and VII, pursuant to Title X, replacing the 1990 publication of Lead-Based Paint: Interim Guidelines for Hazard Identification and Abatement in Public and Indian Housing.
- 4) **EPA Lead:** Requirements for Lead-Based Paint Activities in Target Housing and Child-Occupied Facilities, Final Rule, August 29, 1996.
- 5) **Texas Environmental Lead Reduction Rules** for Accreditation, Certification, and Standards for Activities in target housing, effective February 19, 1996.
- 6) **The National Lead Information Center:** Learn how to Protect Children from lead poisoning and for other Information on Lead Hazards. (Internet Contact: www.epa.gov/lead and www.hud.gov/lea).
- 7) **EPA Safe Drinking Water Hotline:** Information about Lead in Drinking Water - Contact the USEPA at **800-426-4791**.
- 8) **Consumer Product Safety Commission Hotline:** Request Information on

Lead in Consumer Products, or Report an Unsafe Consumer Product or a Product-Related Injury. Contact: 800-638-2772, www.cpsc.gov.

TECHNICAL SPECIFICATIONS

SPECIAL CONDITIONS

The General Contractor (**Construction**) shall notify BENAS Environmental Services, Inc. (**BENAS**) if any areas in the interior and exterior surfaces of this building not already included in the drawings and specifications are to be impacted in any form or manner prior to any activities that might disturb any asbestos and/or lead painted surfaces in and at the building during the entire renovation work. **No Exceptions.**

The chosen asbestos and/or lead-based paint abatement contractor shall comply with all federal, state and local regulations and rules which guide asbestos and lead-based paint abatement in the State of Texas including but not limited to OSHA; USEPA; Texas Asbestos Health Protection Rules (**TAHPR**); Texas Environmental Lead Reduction Rules (**TELRR**); these technical specifications; as well as the Housing and Urban Development (**HUD**) guidelines and recommendations. The following is required of the chosen asbestos and/or lead-based paint abatement contractor for this project:

The asbestos and/or lead-paint abatement contractor shall protect all surfaces near or adjacent to all abatement work areas from any damages, water run-off in lower ground elevations, surfaces, storm-water drains, culverts, as well as all other areas at or near the Aircraft Hanger Building 11-1. Water run-off to any surfaces, ditches, storm water drains, culverts and other lower elevations shall be recovered,

remediated and disposed of properly by the abatement contractor at his/her own cost. **No Exceptions.**

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Mandatory OSHA Personal Compliance Monitoring Requirements:

The selected abatement contractor shall conduct Occupational Safety and Health Administration (**OSHA**) mandatory Personal Compliance on at least 20% of his workers every day, or a minimum of two samples per shift. If more than one crew or shift is performed simultaneously, a minimum of 20% of the workers in each crew or shift shall be monitored per OSHA regulations. Historical data shall not be permitted for the documentation of worker exposure throughout the duration of this abatement project in compliance with contract documents and these specifications. **No Exceptions.**

BENAS Environmental Services, Inc. may choose to conduct OSHA monitoring for the abatement contractor(s) if requested. Refer to the summary section of the 'Scope of Work' for details on the specifics for OSHA mandatory personal compliance monitoring for this project.

Mandatory Waste Handling and Disposal:

1. The chosen abatement contractor(s) shall provide a "Closed Disposal Container (**Dumpster**)" on site everyday throughout the duration of the abatement project. This container must be secured at the end of each work day such that there is no public access to asbestos and/or lead-based paint waste stored in the container.
2. Each container shall be full prior to pick up for disposal by the abatement contractor or a subcontractor retained by the abatement contractor.
3. Prior to disposal, the lead-based paint containing waste in each container shall be characterized by a licensed and certified

laboratory via "Toxicity Characteristic Leaching Procedures" (TCLP) to determine waste profile and toxic content for appropriate landfill disposal site.

4. All waste generated during this project shall be properly manifested prior to disposal. All waste manifests shall be type-written such that all entries are legible through all copies of the waste disposal manifest document.

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5. The manifest for each load of waste shall be signed by the Consultant or the On-Site Project Manager retained by the Consultant in behalf of the Owner, prior to leaving the job site.
6. One copy of the document (equivalent of the Green Copy) shall remain with the Consultant or Project Manager prior to departure of the truck dumpster from the site.
7. Each load of waste that leaves the job site shall be taken straight to the approved disposal landfill selected by the abatement contractor as documented in the Notifications.
8. A copy of the receipt from the disposal landfill shall be returned to the Consultant or Project Manager no later than the next day immediately following disposal. No subsequent load of waste shall leave the job site (University) premises without the receipt of the previous load which documented proper disposal.
9. All original copies of the waste shall be sent to the Owner during submittal of the 'Close-Out Documents' by the abatement contractor(s).
10. Failure to follow the above stipulated procedures shall be grounds for work stoppage and possible contract termination. **No Exceptions.**

The security of the section of the building(s) and/or areas where abatement operations are in progress shall be the responsibility of the abatement contractor throughout the duration of the abatement project. The contractor shall secure the building(s) and/or areas at the end of each work shift or day. Missing or stolen of on-site equipment, including those of the Owner, general contractor, the abatement contractor, the consultant, sub-contractors or anyone else authorized to be on site, is not the responsibility of the building owner/manager, or

the consultant.

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Personnel and visitors safety during this abatement project shall be the responsibility of the abatement contractor. The contractor shall ensure that all persons, including all workers, the personnel of the Owner, program management firm, consultant and/or air monitoring firm and other authorized visitors entering or leaving the work areas during this project are safe. The contractor shall provide on-site security throughout the duration of this project in compliance with these specifications and the contract documents.

All vehicles including those of the contractor's personnel operated within the premises of the TSTC property shall be insured in accordance with the State of Texas Department of Public Safety regulations. Proof of liability insurance and driver license shall be produced at the request of any authorized staff, especially those overseeing this project. **No Exceptions.**

The use of foul language(s) of any type, in any setting is forbidden of all persons within the premises of the TSTC facility. Those affected include the abatement contractor, his/her personnel, and/or subcontractor(s) retained by the abatement contractor, any visitors of the contractor and/or subcontractor(s). **No Exceptions.**

It is absolutely the responsibility of the abatement contractor to verify both quantities and/or assumed quantities of the ACM and/or LBP in designated locations in the interior and exterior of this building; as well as site conditions prior to bidding. The consultant does not

guarantee the drawings to be fully accurate, and/or to scale. Failure to verify all quantities and site conditions SHALL NOT relieve the abatement contractor(s) the obligation to complete this project as, and in the manner specified.

END OF SECTION

BENAS Environmental Services, Inc. _____

1.0 SCOPE OF WORK

The following "*Scope of Work*" shall be performed for this project:

AIRCRAFT HANGER BUILDING 11-1

COMPLETE INTERIOR LEAD-BASED PAINT ABATEMENT WORK:

1. Complete removal and proper disposal of **approximately 652,474 square feet of Red Paint Containing Lead on Vertical and Horizontal Cross Load-Bearing Steel Members located throughout the Interior of the Aircraft Hanger Building 11-1.** The removal operations shall be conducted inside a full containment work area enclosure under full negative pressure ventilation system; with full three-staged wet decontamination facilities **(See Drawings)**.
2. Complete removal and proper disposal of **approximately 92,240 square feet of Grayish Paint Containing Lead on Corrugated Sheet Metal Roof Deck located throughout the Interior of the Aircraft Hanger Building 11-1.** The removal operations shall be conducted inside the same full

containment work area enclosure under full negative pressure ventilation system; with full three-staged wet decontamination facilities described above **(See Drawings)**.

3. Complete removal and proper disposal of **approximately 88,034 square feet of various colors of paint containing lead on the surfaces of the Steel Sliding Doors, Corrugated Sheet Metals and others located throughout the interior of the Aircraft Hanger Building 11-1**. The removal operations shall be conducted inside the same full containment work area enclosure under full negative pressure ventilation system; with full three-staged wet decontamination facilities described above **(See Drawings)**.

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AIRCRAFT HANGER BUILDING 11-1

COMPLETE INTERIOR ACM ABATEMENT WORK:

1. Complete removal and proper disposal of **approximately 400 linear feet of Abandoned Asbestos-Containing Thermal Systems Insulation (TSI) on Pipe-Runs, Elbows and T-Fittings located throughout the Interior of the Aircraft Hanger Building 11-1**. The removal operations can be conducted by Glove-Bag Procedures or inside the same full containment work area enclosure under full negative pressure ventilation system; with full three-staged wet decontamination facilities described previously **(See Drawings)**.
2. Complete removal and proper disposal of **approximately 4,900 square feet of Asbestos-Containing Black Flooring Mastic under 2' X 2' Carpet Tiles located throughout the Interior Second Floor of Cube 1 on the inside the Aircraft Hanger Building 11-1**. The removal

operations shall be conducted in a full containment work area enclosure under full negative pressure ventilation system; with full three-staged wet decontamination facilities **(See Drawings)**.

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AIRCRAFT HANGER BUILDING 11-1

EXTERIOR LEAD-BASED PAINT REDUCTION AND STABILIZATION (FEATHERING) :

1. Reduction, Stabilization **(Feathering)** and proper disposal of approximately 26,017 square feet of Lead-Based Paint on exterior surfaces of Steel Sliding Doors and Corrugated Sheet Metal Panels on the North Section of the Aircraft Hanger Building 11-1. The removal operations shall be conducted by 'Wet Methods' with a 10' Wide Polyethylene Sheeting **(Drop-Cloth)** surrounded by booms underneath to contain any flaking or peeling paint waste from contact with the ground. Waste water and paint generated from the removal work shall not be permitted to flow into storm water and/or any other underground drainage systems. **No Exceptions.** Also, no visible emissions shall be permitted for this portion of the work in

compliance with NESHAPS rules and regulations. No containment structures shall be constructed for this effort **(See Drawings)**.

2. Reduction, Stabilization **(Feathering)** and proper disposal of **approximately 26,017 square feet of Lead-Based Paint on exterior surfaces of Steel Sliding Doors and Corrugated Sheet Metal Panels on the South Section of the Aircraft Hanger Building 11-1.** The removal operations shall be conducted by 'Wet Methods' with a 10' Wide Polyethylene Sheeting **(Drop-Cloth)** surrounded by booms underneath to contain any flaking or peeling paint waste from contact with the ground. Waste water and paint generated from the removal work shall not be permitted to flow into storm water and/or any other underground drainage systems. **No Exceptions.** Also, no visible emissions shall be permitted for this portion of the work in compliance with NESHAPS rules and regulations. No containment structures shall be constructed for this effort **(See Drawings)**.

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3. Reduction, Stabilization **(Feathering)** and proper disposal of **approximately 920 square feet of Lead-Based Paint on Metal (Steel) Railings from the interior and exterior surfaces at Aircraft Hanger Building 11-1.** The removal operations shall be conducted by 'Wet Methods' with a 10' Wide Polyethylene Sheeting **(Drop-Cloth)** surrounded by booms underneath to contain any flaking or peeling paint waste from contact with the ground. Waste water and paint generated from the removal work shall not be permitted to flow into storm water and/or any other underground drainage systems. **No Exceptions.** Also, no visible emissions shall be permitted for this portion of the work in compliance with NESHAPS rules and regulations. No containment structures shall be constructed for

this effort **(See Drawings)**.

4. Reduction, Stabilization **(Feathering)** and proper disposal of **approximately 2,880 square feet of Lead-Based Paint exterior surfaces of the Canopy Support Columns throughout the Aircraft Hanger Building 11-1**. The removal operations shall be conducted by 'Wet Methods' with a 10' Wide Polyethylene Sheeting **(Drop-Cloth)** surrounded by booms underneath to contain any flaking or peeling paint waste from contact with the ground. Waste water and paint generated from the removal work shall not be permitted to flow into storm water and/or any other underground drainage systems. **No Exceptions**. Also, no visible emissions shall be permitted for this portion of the work in compliance with NESHAPS rules and regulations. No containment structures shall be constructed for this effort **(See Drawings)**.

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5. Reduction, Stabilization **(Feathering)** and proper disposal of **approximately 210 square feet Lead-Based Paint on exterior surfaces of Miscellaneous Building Materials including Steel Bollards, Flag Poles and Wall Footings located throughout the Aircraft Hanger Building 11-1**. The removal operations shall be conducted by 'Wet Methods' with a 10' Wide Polyethylene Sheeting **(Drop-Cloth)** surrounded by booms underneath to contain any flaking or peeling paint waste from contact with the ground. Waste water and paint generated from the removal work shall not be permitted to flow into storm water and/or any other underground drainage systems. **No**

Exceptions. Also, no visible emissions shall be permitted for this portion of the work in compliance with NESHAPS rules and regulations. No containment structures shall be constructed for this effort **(See Drawings)**.

6. Reduction, Stabilization **(Feathering)** and proper disposal of approximately 62,522 square feet of Asbestos and Lead-Based Paint Containing Material on the exterior surfaces of Corrugated Transite Cement Fiber Boards located throughout the Aircraft Hanger Building 11-1. The removal operations shall be conducted by 'Wet Methods' with a 10' Wide Polyethylene Sheeting **(Drop-Cloth)** surrounded by booms underneath to contain any flaking or peeling paint waste from contact with the ground. Waste water and paint generated from the removal work shall not be permitted to flow into storm water and/or any other underground drainage systems. **No Exceptions.** Also, no visible emissions shall be permitted for this portion of the work in compliance with NESHAPS rules and regulations. No containment structures shall be constructed for this effort **(See Drawings)**.

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AIRCRAFT HANGER BUILDING 11-1

COMPLETE EXTERIOR ACM ABATEMENT WORK:

1. Complete removal and proper disposal of approximately 2,588 linear feet of Asbestos-Containing Thermal Systems Insulation (TSI) utilized as Caulking on the Edges of Transitions and Corners located throughout the Exterior Surfaces of the Aircraft Hanger Building 11-

1. The removal operations shall be conducted by 'Wet Methods' with a 10' Wide Polyethylene Sheeting **(Drop-Cloth)** surrounded by booms underneath to contain any flaking or peeling paint waste from contact with the ground. Waste water and paint generated from the removal work shall not be permitted to flow into storm water and/or any other underground drainage systems. **No Exceptions.** Also, no visible emissions shall be permitted for this portion of the work in compliance with NESHAPS rules and regulations. No containment structures shall be constructed for this effort **(See Drawings)**.

2. Complete removal and proper disposal of **approximately 22,920 linear feet of Asbestos-Containing Caulking and Glazing on Windows, Doors and Others located throughout the Aircraft Hanger Building 11-1.** The removal operations shall be conducted by 'Wet Methods' with a 10' Wide Polyethylene Sheeting **(Drop-Cloth)** surrounded by booms underneath to contain any flaking or peeling paint waste from contact with the ground. Waste water and paint generated from the removal work shall not be permitted to flow into storm water and/or any other underground drainage systems. **No Exceptions.** Also, no visible emissions shall be permitted for this portion of the work in compliance with NESHAPS rules and regulations. No containment structures shall be constructed for this effort **(See Drawings)**.

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Two full-containment work area enclosures shall be constructed in the interior of this building for the complete removal of all designated asbestos and lead-based paint containing **(ACM and LBP)** materials **(See Drawings)**. The three **(3)** Cubicles **(Cubes 1, 2 and 3)** Building located on the interior first floor of the Aircraft Hanger shall be properly and

completely covered with a minimum of One-Layer of Ten-Mil Fire-Retardant Polyethylene Sheeting **(Critical Barrier)** prior to the beginning of gross removal of any painted surfaces inside the hanger building. Ambient and personal air monitoring shall be conducted throughout the duration of the removal work. **No Exceptions.**

Each Full-Containment Work Area Enclosure Shall Consist of:

Two-layers of 6-mil fire retardant polyethylene sheeting covering all walls when and where necessary

Two-layers of 6-mil fire retardant polyethylene sheeting covering the ceiling when and where necessary

Two-layers of 6-mil fire retardant polyethylene sheeting covering the floor where lead paint and/or asbestos dust, residue or waste may settle

Note: For the preparation of the floor; 'the first layer of the polyethylene sheeting covering the floor shall be applied to cover the entire floor and go up the wall for a minimum of twenty-four inches (24"); followed by a wall polyethylene sheeting on top of the first layer of floor polyethylene sheeting which must go down the floor for a minimum of twenty-four inches (24"). The second layer of the polyethylene sheeting covering the floor shall go on top of the first layer of the wall polyethylene sheeting going up the wall for a minimum of twenty-four inches (24"); followed by the second layer of wall polyethylene sheeting which must go down the floor for a minimum of twenty-four inches (24").

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No cutting at the seams of any of the above-described polyethylene sheeting is permitted, per NESHAP and AHERA, as well as TDSHS rules and

regulations and these technical specifications'. **No Exceptions.**

One layer of 10-mil fire retardant polyethylene sheeting shall be utilized as critical barriers for all immovable objects and fixtures, holes, air conditioning ventilation units, etc.

A full 3-staged wet decontamination unit shall be constructed for each full containment work area inside this building **(See Drawings)**. The decontamination facility shall consist of an equipment room **(dirty room)**, a shower room and a clean room. Each compartment shall be separated by air locks. Each decontamination unit shall be equipped with hot water, shampoo, soap and other necessary amenities for proper workers decontamination. **No Exceptions.**

All work areas shall be completely and adequately wetted down with amended water prior to the start of preparation and construction of each containment work area enclosure.

As many Air Filtration Devices **(AFDs)** as necessary **(adequate number to be determined by the consultant)** shall be utilized in each full-containment work area enclosure during this abatement project **(See Drawings)**. The manometer reading for each full-containment work area shall be a minimum of **-0.020** inch of water pressure differential. **No Exceptions.** Each AFD shall be capable of exhausting air at 2,000 cubic feet per minute **(CFM)**. A minimum of four **(4)** air changes per hour from each operational AFD is required for this project. The contractor shall stop all abatement activities whenever the manometer reading is below **-0.020** inch of water pressure differential. **No Exceptions.**

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Each manometer equipment shall be calibrated each day prior to the start of abatement operations. Should the contractor work more than one shift per day or at a time, all manometers shall be calibrated before the start of work for each shift. The electronic manometer equipment shall be equipped with a printer and programmed to print out the pressure readings every two minutes at a minimum.

Three functional AFD Units shall be on stand-by in the hanger containment work area enclosure at all times throughout the duration of the abatement project as emergency backup units. **No Exceptions.** Also, three functional AFD units shall be stationed inside the Hanger Containment to scrub the interior of this containment work area enclosure in order to avoid any dead spaces.

For the interior lead-based paint abatement work, the contractor may use any methods he/she has most comparative (Competitive) advantage which may include but no limited to Sand Blasting, Chemical Peel-Off, Chemical Etching, Mechanical Tools, Pneumatic Tools, Hand Scrapping; or any other method as long as the method is proven to be effective in lead-based paint removal work. Any methods selected by the abatement shall be demonstrated to ensure the waste generated from the paint removal operations including contaminated water do not flow into storm water and/or other underground drainage systems.

Any methods selected by the lead-abatement contractor shall be with the approval of the building owner, building manager and the consultant. All abatement workers scheduled to perform work during this project shall have proof of initial blood-lead test as required by Occupational Safety and Health Administration (**OSHA**) .

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No worker with blood-lead test results of equal to or greater than 10 micro-grams per deciliter of blood shall be permitted to perform abatement work in accordance with OSHA regulations, HUD recommendations and these specifications.

Per OSHA regulations, no worker shall be exposed to asbestos and/or lead-based paint levels above the Permissible Exposure Limits **(PEL)** of 0.01 f/cc and 50 mcg/m³ of air, respectively. All abatement activities shall stop immediately if personal monitoring sample results show elevated asbestos and/or lead levels above 0.01 f/cc and/or 50 mcg/m³ of sampled air, respectively. A cease work order shall continue until particulate concentration **(level)** is brought down by engineering controls, wet methods and negative pressure ventilation system.

Clearance testing shall be performed at the end of abatement work in each designated work area. Clearance wipe samples shall be collected from several surfaces and sent to a laboratory licensed and accredited to analyze wipe samples for lead-based paint. The most stringent clearance level established by HUD, USEPA and TELRR shall be used to determine if all surfaces are clean. For Floors and Carpets, Dust Wipe Samples shall be <40 mcg/Ft²; for Window Sills Dust Wipes Samples shall be <250 mcg/Ft²; and for Window Troughs, Dust Wipes Samples shall be <400 mcg/Ft². No clearance sample shall contain lead-based paint particulates in excess of the levels enumerated above.

Re-testing costs including the consultant's time and material expenses shall be at the expense of the abatement contractor, if any one clearance

sample contains lead paint particulate in excess of the limits described above. The consultant's time and material expenses shall not exceed \$100/Hour or \$800 for eight-hour shift, per these specifications.

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When the area is certified acceptable by the consultant in writing, the contractor may dismantle the work area enclosure in a manner to ensure no re-contamination occurs. The dismantled enclosure shall be disposed of as lead contaminated paint waste.

The consultant shall perform initial exposure assessment by background ambient air monitoring in each work area to determine initial respiratory requirements. However, Half-Face Negative Pressure Demand Respirator (**Half-Face**) equipped with two HEPA filter cartridges may be utilized throughout the duration of the exterior abatement work.

Disposal of Lead-Paint Contaminated Waste

LBP waste generated during this abatement project shall be disposed of in an approved landfill. Each load of waste taken out of this facility during this project shall have a separate waste disposal manifest. All double-bagged waste shall be labeled with the generator's name, address, telephone number and the contact person. **No Exceptions.**

The consultant or owner shall sign every waste manifest. The final original copy from the landfill shall be delivered to the owner during the submittal of the close-out documents following the project completion. **No Exceptions.**

Prior to the disposal of any waste from this project, hazardous waste determination shall be performed by **Toxicity Characteristics Leaching Procedure (TCLP)**. The following criteria shall apply:

- i. **Perform Hazardous Waste Determination:** If TCLP result is less than or equal to 5 mg/l, the waste shall be classified as Class II or Class IV non-hazardous. Waste can be dispose of as Special Waste in a Type I/LAE Landfill. No prior Texas Commission on Environmental Quality **(TCEQ)** approval is required.

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- ii. **Perform Hazardous Waste Determination:** If TCLP result is greater than 5 mg/l, the waste shall be classified as Class I industrial hazardous waste. Waste shall be dispose of in a Type I Landfill with a dedicated special waste trench or in an authorized landfill, in accordance with these specifications. Prior TCEQ approval is required.

Failure to perform Hazardous Waste Determination **(TCLP)** by the abatement contractor shall be sufficient grounds to require disposal of the waste generated during this project as lead-containing waste materials. Prior TCEQ approval is required. Waste shall be dispose of in a Type I Landfill with a dedicated special waste trench or in an authorized landfill.

It is the responsibility of the abatement contractor to characterize the waste, obtain necessary permits and dispose of the waste properly. It is also the responsibility of the abatement contractor to document proper waste disposal for this project.

Hazardous waste disposal manifests document proper disposal of hazardous waste in the State of Texas, and is issued by the TCEQ. The final copy of this document shall be delivered to the Owner during the submission of

the final close-out document following the completion of this project.

*** It is the responsibility of the abatement contractor to verify site conditions and quantities. Failure to verify site conditions and quantities shall not relieve the contractor of the obligation to complete the work as specified.

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The abatement contractor, his supervisors and workers must be licensed and certified by the TDSHS to perform lead-based paint abatement operations in the State of Texas, in accordance with all applicable federal, state and local regulations and these specifications which guide the handling of lead-based paint abatement in the State of Texas.

General Notes:

The schedule for this abatement work shall be Monday through Friday. Also, this schedule shall be a maximum of 8 hours per day, beginning at 8.00 A.M. till 5.00 P.M. The chosen abatement contractor(s) shall provide enough workers each day for the performance of the abatement work, in order to complete the project within the notification schedules to the TDSHS and these specifications. Hours outside those mentioned above should be with the approval of the building Owner and the consultant.

Contractor shall provide his own OSHA personal compliance monitoring for his workers, in accordance with federal **(OSHA)** and TDSHS regulations, as well as these specifications. **No Exceptions.**

BENAS may elect to perform OSHA personal compliance monitoring for the abatement contractor's personnel, if requested.

For Contractor to Provide Own OSHA Monitoring, the following shall Apply:

Contractor's air monitor technician to be utilized for the collection of personal air samples must be currently licensed and certified by the State of Texas **(TDSHS)**.

The contractor shall monitor a minimum of 25% of his workers every day throughout the duration of this project per these specifications.

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All previous day's air sample results shall be ready and posted at the entrance(s) into the decontamination chamber prior to the start of abatement activities each day throughout the duration of this project. No abatement activities shall commence without the previous day's results.

No Exceptions.

A copy of the previous day air sample results shall be made available to the consultant each day before the start of abatement operations.

Calibration of the personal sampling pumps shall be performed each day in the presence of the consultant.

Quality control protocol including blind recount, coefficient of variation from the analytical laboratory shall be made available to the

consultant each day prior to the start of abatement activities for that day. **No Exceptions.**

Historical data will not be permitted for the documentation of worker exposure throughout the duration of this abatement project, in accordance with these specifications and the contract documents.

Contractor may use existing water and electricity from the site. Licensed electrician must supervise any and all electrical work that is required during the normal operation of the project. The work includes but not limited to, insulating or removing new or existing light fixtures and/or transformers; establishing temporary electrical service; or insulation of temporary lights.

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Also, contractor shall provide all water hoses in OSHA approved connectors and accessories in order to provide water at the needed locations throughout the abatement project.

NOTE: If the owner is unable to provide electric power or water supply for this project, the contractor shall provide his own electric power by generators, etc. and adequate water supply for the abatement work.

** A mandatory pre-construction meeting shall be held at the project site location prior to the start of abatement activities. The chosen abatement contractor's competent person, On-Site Supervisor(s) shall be

in attendance at this meeting. This meeting can be scheduled on the same day as the start date for this abatement work in accordance with the notification schedules with the TDSHS and these technical specifications.

NOTE: American Institute of Architecture **(AIA)** Document A201 '*GENERAL CONDITIONS OF THE CONTRACT FOR CONSTRUCTION*' is hereby adopted by reference, as if it is copied into the specifications and contract documents. All contractors and/or bidders are required to be familiar with the articles and provisions of this document.

DRAWINGS:

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GENERAL OVERVIEW

This project entails the complete removal of lead-painted surfaces on Steel Moving Doors and Corrugated Sheet Metals; Structural Load-Bearing Members; Corrugated Sheet Metals on the Roof Deck; and Railings and all others located throughout the interior of the Aircraft Hanger Building 11-1. Also, reduction and stabilization **(Feathering)** of lead-painted surfaces on Steel Moving Doors and Corrugated Sheet Metals; Canopy

Support Columns; Corrugated Transite Cement Fiber Boards; Miscellaneous Steel Substrates including Bollards, Flag Poles, etc. located throughout the exterior of the Aircraft Hanger Building 11-1 shall be performed during this project.

Furthermore, asbestos-containing Thermal Systems Insulation **(TSI)** on abandoned pipe network inside the floor of the Aircraft Hanger Building 11-1; and Black Mastic located underneath 2' X 2' Carpet Tiles on the second floor in Cube I shall be removed during this project. In addition, asbestos-containing Window Caulking and Glazing located throughout this building, as well as asbestos-containing Caulking **(TSI)** located at the transitions/corners of the exterior Transite Cement Siding Fiber Boards shall be abated during this project.

Alternatively, the owner may decide to completely remove all the exterior Transite Cement Siding Fiber Boards during the course of this project.

All work shall be performed in compliance with these specifications; the Housing and Urban Development **(HUD)** guidelines and recommendations; the United States Environmental Protection Agency **(USEPA)** regulations; and the National Emissions Standards for Hazardous Air Pollutants **(NESHAP)** requirements. Also, Occupational Safety and Health Administration **(OSHA)** rules and regulations; the Texas Environmental Lead Reduction Rules **(TELLR)**; Texas Asbestos Health Protection Rules **(TAHPR)** and the Texas Commission on Environmental Quality **(TCEQ)** rules and regulations; as well as any other applicable federal, state and local governmental regulatory agencies' requirements must be complied with.

Furthermore, the recommendations of the National Institute for Occupational Safety and Health **(NIOSH)** with respect to respiratory protection program, the collection and analysis of air samples before, during and after the abatement work shall be strictly adhered to.

Finally, this project shall be completed strictly according to detailed requirements of these specifications and the contract documents. In any event where the requirements of these specifications and contract documents are in conflict with applicable federal, state or local regulations guiding the handling and abatement of ACM and LBP in the State of Texas, the most stringent requirements shall apply.

OBJECTIVES

The objective of this project is to safely and completely remove lead-painted surfaces on Steel Moving Doors and Corrugated Sheet Metals; Structural Load-Bearing Members; Corrugated Sheet Metals on the Roof Deck; and Railings located throughout the interior of the Aircraft Hanger Building 11-1. Also, reduction and stabilization **(Feathering)** of lead-painted surfaces on Steel Moving Doors and Corrugated Sheet Metals; Canopy Support Columns; Corrugated Transite Cement Fiber Boards; Miscellaneous Steel Substrates including Bollards, Flag Poles, etc. located throughout the exterior of the Aircraft Hanger Building 11-1 shall be performed during this project.

Furthermore, asbestos-containing Thermal Systems Insulation **(TSI)** on abandoned pipe network inside the floor of the Aircraft Hanger Building 11-1; and Black Mastic located underneath 2' X 2' Carpet Tiles on the second floor in Cube I shall be removed during this project. In addition, asbestos-containing Window Caulking and Glazing located throughout this building, as well as asbestos-containing Caulking **(TSI)** located at the transitions/corners of the exterior Transite Cement Siding Fiber Boards shall be abated during this project.

Alternatively, the owner may decide to completely remove all the exterior Transite Cement Siding Fiber Boards during the course of this project.

Effort shall be made to:

1. Completely remove and/or feather all specified lead paint contaminated exit doors, sheet metal panels, door frames, canopy support columns, railings, windows, flag poles, steel bollards, metal footers and Transite Cement Siding Panels from all areas in the interior and exterior surfaces at the Aircraft Hanger Building 11-1. Also, asbestos-containing thermal systems insulation on abandoned piping network, black flooring mastic, caulking and glazing on window frames and doors, as well as caulking on the transition corners of exterior Transite Cement Siding Panels shall be completely removed during this project.
2. Prevent any person or persons from inhaling asbestos and/or lead-based paint particulates.
3. Prevent any asbestos and/or lead-based paint contamination of adjacent work areas, and the general environment throughout the project duration.
4. Ensure all asbestos and/or lead-based paint wastes are disposed of completely and properly and to provide the Owner with documentation indicating proper disposal.
5. Maintain a safe working environment throughout the duration of the project.
6. Accurately document all project activities.

2.0 CONTRACTOR'S RESPONSIBILITIES

Abatement contractors are directed to carefully examine these specifications prior to bidding and before the start of abatement operations, as well as during the course of asbestos and lead-based paint abatement activities to ensure that adequate resources are devoted to meet the approved schedules, contract documents, notifications and these technical specifications.

The chosen abatement contractor(s) is responsible for carefully examining site conditions and all quantities prior to the start of abatement work. Failure to verify all quantities and site conditions shall not relieve the contractor the obligation and responsibility to complete this abatement project as specified in the contract documents and these specifications.

2.1 Coordination with Independent Testing Laboratory

- A. The abatement contractor(s) shall fully cooperate with the independent testing laboratory (**Consultant**) personnel in providing access to all work locations.
- B. The contractor shall furnish incidental labor facilities to:
 - i) Provide access to all work locations to be tested and
 - ii) Facilitate inspections and testings.
- C. The contractor shall notify the testing laboratory sufficiently in advance of operations to allow for laboratory assignment of personnel and scheduling of tests.

D. Payment for laboratory's time if the work area is not ready for testing when scheduled shall be at the contractor's expense. Laboratory's time and materials expenses shall not exceed \$100.00 per hour, or \$800 for an eight-hour work shift.

2.2 Notification

The contractor is responsible for ensuring that proper notifications have been filed with all regulatory agencies having authority over proposed abatement work, including but not limited to the city, county, state and/or federal agencies, especially the TDSHS.

The building Owner, abatement contractor or the consultant can file the notification schedules to the TDSHS; however, the Owner is responsible for the payment of notification fees to the TDSHS.

2.3 Materials and Equipment

The contractor shall provide all items, articles, materials, operations or methods listed or mentioned, including all labor, materials, equipment, applicable permits and notifications, and all incidentals necessary and required for their use to complete the abatement work specified in the manner and time specified.

The contractor shall supply all protective equipment (**protective clothing, respirators, cover glasses, steel toe boots, etc.**) for all personnel entering any areas exposed to Lead-Based Paint dusts, including the Owner, personnel of the testing laboratory and authorized visitors.

2.4 Contractor's Effort

The contractor shall provide all personnel; equipment, supplies and

facilities necessary to complete this project as specified in the detailed Scope of Work for this project **(See Scope of Work)**.

2.5 Personnel

2.5.1 Supervisor

- A. The on-site supervisor(s) must be currently licensed with the State of Texas Department of State Health Services **(TDSHS)** to manage any asbestos and/or lead-based paint abatement operations for this project.
- B. The supervisor(s) must be present at the project site 100% of the time during active removal phase of this project. Also, the supervisor **SHALL** enter into the contained work area at least 25% of the time during active removal operations, in accordance with TDSHS regulations and these specifications.

2.5.2 Employee Conduct

- A. Any employee whose conduct is offensive to the Owner or the consultant, or any employee apprehended on Owner-owned or controlled property with alcoholic beverage, or any form of controlled substance on his person, or is suspected of having consumed the same, will be brought to the attention of the contractor's on-site supervisor. The supervisor shall take action(s) appropriate to the circumstance. Such action shall include but not limited to dismissal from the premises.

- B. Any person found to be deliberately disposing of asbestos and/or lead-based paint waste in any manner other than those outlined in these specifications, or who is recklessly exposing himself, fellow employees, or the general public to asbestos and/or lead-based paint materials, or engaging in activities that are unnecessarily hazardous to himself, fellow employees, or the general public, will be brought to the attention of the contractor's supervisor. The supervisor shall take appropriate action(s) to include but not limited to dismissal from the premises.
- C. Smoking, eating, drinking or the application of cosmetics within the restricted work areas during active abatement operations is prohibited and will not be tolerated.

2.6 Temporary Facilities and Controls

2.6.1 Water for Construction

The Owner shall provide water to be used during the abatement project. The contractor shall provide temporary facilities or other items required to properly transport the water to the locations where it is needed, including water hoses and airless sprayers where necessary.

If the Owner is unable to provide water for construction or abatement operations, the contractor shall provide own water for all construction activities during this project in accordance with the contract documents and these specifications.

2.6.2 Electricity for Construction

The Owner shall provide electric energy as required for all branches of

the work, to operate equipment and to provide artificial lighting. The contractor shall provide temporary wiring and outlets as required. All electrical sources must be equipped with ground fault interrupter system **(GFI)**.

If the Owner is unable to provide electric energy **(power)** for construction or abatement operations, the contractor shall provide own electrical energy **(power)** for all construction activities during this project, in accordance with the contract documents and these specifications.

Any electrical work that is required during the normal operation of this project must be supervised by licensed electricians. The work includes, but not limited to insulating or removing new or existing light fixtures and/or transformers; establishing temporary electrical services; or insulation of temporary electrical fixtures.

2.6.3 Handling Materials

The contractor shall properly care for and protect materials and equipment at the job site. Placement of building materials and equipment at the site shall be subject to the approval by the Owner.

2.6.4 Cleaning

The contractor shall keep the premises clean at all times during the abatement operations. Upon completion of all abatement activities, the contractor shall ensure that the areas surrounding the project are in a neat and clean condition as approved by the Owner.

2.6.5 Barricades, Walkways and Work Area Barriers

The Contractor Shall:

- 1) Maintain at all times adequate barricades and enclosed walkways to protect the workmen and the general public from injury.
- 2) Erect and maintain restricted work areas with full three-stage wet decontamination facilities, which shall include an equipment room (dirty room), a shower room and a clean room.

The decontamination chambers shall be constructed with two layers of 6-mil fire-retardant resilient polyethylene sheeting barriers to prevent access to any asbestos and/or lead-based paint dusts and/or materials at the work areas.

- 3) Upon completion of the abatement work at any and all location(s), the contractor shall remove all polyethylene sheeting barriers and all other items from the project site.

2.6.6 Signs

- A. No signs or advertisements shall be displayed without the approval of the Owner.
- B. The location of the signs if any must meet the approval of the Owner.

2.6.7 Security

The Contractor shall Provide Adequate Security to ensure that:

1. Restricted asbestos and/or lead-based paint abatement areas are not entered by unauthorized personnel.
2. Unauthorized personnel are prevented access to any asbestos and lead-based paint-containing waste materials.
- 3) Every person who enters any restricted asbestos and lead paint contaminated work areas is logged in and out.

2.6.8 Contaminated Waste Storage

Contaminated waste must be removed daily from the abatement areas. Temporary on-site storage of waste outside the immediate abatement areas will be permitted in containers secured from the general public (**truck, dumpster, etc.**). Asbestos and/or lead contaminated paint wastes (**bags, drums, etc.**) shall not be stored in direct contact with the ground.

2.6.9 Restrooms

The Owner shall individually specify restrooms for use by contractor's personnel. If the Owner is unable to provide rest room(s), the contractor shall provide own rest room.

2.6.10 Notifications, Permits, Warning Signs, Labels and Posters

The Contractor shall perform the following tasks:

- 1) Ensure proper notifications to the TDSHS and any other federal, regional, state, and local authorities having jurisdiction over the

project within the time frames specified by the individual authority.

- 2) The Owner is responsible for the payment of necessary notification fees to the TDSHS.
- 3) Secure all the permits and exemptions required for the work, including disposal of asbestos and lead contaminated waste in an approved landfill.
- 4) Provide the names, addresses and telephone numbers of approved waste disposal site(s). Provide signed copies of hazardous waste disposal manifests issued by the TCEQ which document proper waste disposal in the State of Texas and deliver to the Owner during the submission of the close-out documents following the completion of the abatement project.
- 5) Erect warning signs around the work areas and also at every potential point of entry into the restricted work areas from the outside. The warning signs shall be a bright color so that they will be easily noticed. The size of the sign and the lettering shall be no less than OSHA requirements.
- 6) Label all specially marked plastic bags and drums utilized to transport contaminated material to the landfill as required by regulations. Provide any signs, labels, warnings, and posted instructions that are necessary to protect, inform and warn the general public (people) of the hazards from asbestos and/or lead-based paint exposure.

All signs shall be in English and Spanish Languages.

2.6.11 Emergency Precautions

- A. The contractor shall establish emergency exits from all restricted work area(s).
- B. The contractor shall be prepared to administer first aid to injured personnel after decontamination from the exclusion zone. Seriously injured personnel shall be treated immediately or evacuated without decontamination. When an injury occurs, the contractor shall stop all work and implement fiber reduction techniques (**e.g. amended water spraying and hosing down**) until the injured person has been removed from the immediate work area(s).

2.6.12 Respiratory Protection

The minimum respiratory protection requirements for this project are summarized as follows:

1. Air purifying respirators may be used (negative pressure demand half-face or full-face masks only) with a protection factor of 10. The concentration of asbestos and/or lead contaminated dust/particulate in the work area may reasonably be expected **NOT** to exceed 0.01 f/cc and **10 X (50 mcg/m3)** or 500 micrograms per cubic meter of air, respectively.
2. Powered Air Purifying Respirators (PAPRs) with a protection factor of 1,000, may be used where the concentration of asbestos and lead contaminated dust/particulate in the work area is reasonably expected **NOT** to exceed 10 f/cc and **1,000 X (50 mcg/m3)** or 50,000 micrograms per cubic meter of air, respectively.

3. Type "C" Positive Supplied Air or Self Contained Breathing Apparatus (SCBA) air with continuous flow or pressure demand clasp shall be used where particulate concentration in the work area can be reasonably expected **NOT** to exceed 30 f/cc and 3,000 X (50 mcg/m3) or 150,000 micrograms per cubic meter of air, respectively.

NOTE: The above-described respiratory protection is based on an eight-hour time-weighted average (**TWA**) or a ceiling concentration.

4. If any air samples collected during the abatement process have elevated fiber levels in excess of the limits permissible for the type of respirator being used, respiratory protection must be upgraded. All abatement activities shall be stopped until fiber concentration in that work area is brought down to acceptable levels. It is the responsibility of the contractor to secure enough and approved respiratory protective devices available to complete the abatement project on schedule for any foreseeable contingency.
5. If Type "C" Supplied Air or SCBA type Respirators are used, at least two spare units provided by the contractor shall be available at all times for use in case of emergency, and/or by the Owner, Owner's Representative, or any other authorized personnel.

The Type "C" Respirator shall be worn with a belt to minimize the possibility of dislocating the facemask when the hose is snagged in the work area.

2.6.13 Disposal Activities

- A. It is the responsibility of the contractor to determine current

waste handling, transportation, and disposal regulations for the work site and for each waste disposal landfill. The contractor must comply fully with these regulations and all United States Department of Transportation **(USDOT)**, State, Local and USEPA requirements, especially waste handling requirements stipulated by the TCEQ.

Asbestos and lead contaminated/containing waste disposal is under the USEPA Resources Conservation and Recovery Act **(RCRA)**, which regulates the generation, treatment, and storage, transportation, and disposal facilities. The authority and responsibility of hazardous waste disposal classified as TCRA is administered by the TCEQ in the State of Texas.

- B. All containers of asbestos and/or lead contaminated paint wastes shall be decontaminated prior to loading onto the vehicle transporting the material to the landfill. Waste shall be bagged inside the contained or restricted work area and placed in a second bag or drum, which must be decontaminated in the contamination-reduction zone **(the decontamination unit)** before transfer into the dumpster. Alternative methods shall be considered if shown as effective as this method.
- C. The contractor shall dispose of asbestos and/or lead contaminated paint waste from this project in landfills approved by the TCEQ as authorized disposal facilities for asbestos and lead contaminated paint. All double-bagged ACM and LBP waste must be marked with the "Originator's **(Owner)** name, address and telephone number. The contractor shall employ only a licensed asbestos and lead contaminated waste transporter for this effort.

Disposing or attempting to dispose of asbestos and/or lead contaminated paint waste via sanitary sewers, city waste systems or by placing in unoccupied area is prohibited and will be grounds for immediate cessation of work under this contract until the material is recovered and disposed of correctly and disciplinary actions are taken.

- D. The contractor shall document actual disposal of the waste at the designated landfill by completing all asbestos and lead contaminated paint waste disposal manifests and appropriate chains-of-custody, and forwarding the final originals to the Owner during the submission of the close-out documents following the completion of this project.

2.7 Encapsulation

A sealant coat shall be applied after removal of all asbestos and/or lead contaminated paint materials. This coat is designed to encapsulate any trace amounts of asbestos and/or lead contaminated paint dust/particulates that may be present in the air even after the best removal effort. It should remove moisture from the base material to help ensure proper bonding where applicable.

1. **Encapsulating Agent:** The contractor shall use penetrating type encapsulant designed for asbestos and/or lead contaminated paint control and suitable for painting or spray-on materials, specified elsewhere.

Class "A": Interior finishes, flame spread 0 to 25, smoke developed 0 to 450. The encapsulant should be tinted a contrasting color. Application rate shall be as recommended by the manufacturer. These

or equivalent shall be used:

"SK-13'1C" as manufactured by National Cellulose Corporation, 12315 Robin Boulevard, Houston, Texas 77045. Telephone number: (713) 433-6761.

1. Any proposed substitute must be requested in writing to the owner and/or consultant, and must be approved prior to use.

2.8 Tools and Equipment

- A. **Airless Sprayer:** An airless sprayer, suitable for application of encapsulating materials shall be used wherever possible.
- B. **Contaminated Dust Filtration Devices (AFDs):** All contaminated dust filtration devices utilized for this project must be equipped with high efficiency particulate air (HEPA) filter. Negative Air Pressure Machines capable of exchanging the air inside the containment are required. A minimum of four air exchanges per hour is required inside the containment for this project.
- C. **Scaffolding:** Scaffolding, as required to accomplish the specified work, shall meet all applicable safety regulations, especially the OSHA standards.

2.9 Execution

2.9.1 Pre Abatement Preparations

- A. Prior to any abatement work in any area, the contractor shall seal off the entire area to anybody other than trained personnel and

authorized visitor(s); install and maintain two layers of six-mil resilient polyethylene sheeting barrier of the containment work area enclosures; erect signs around the perimeter in accordance with HUD, USEPA, NESHAP, OSHA, TDSHS and this specifications; provide 24-hour security against unauthorized entry during abatement process; and maintain a log of all people entering and exiting the work place.

- B. Thoroughly decontaminate through wet cleaning and/or HEPA vacuuming all walls, carpets, lighting fixtures and other items that were not removed by the Owner.

2.9.2 Utilities

The contractor shall provide all necessary connections for temporary utilities in the work place during the abatement work. Temporary electrical power shall be utilized in accordance with OSHA and Electrical Code for Wet Environment.

2.9.3 Asbestos and Lead-Based Paint Complete Removal

- A. All asbestos and/or lead painted surfaces shall be completely removed or feathered according to the stipulations of these technical specifications.
- B. Immediately following complete removal, the wetted asbestos and lead contaminated paint waste shall be packed into specially labeled six-mil plastic bags to prevent the material from drying. The excess air in the bags should be exhausted in the work area prior to sealing the bags. Pack and seal all bagged materials in drums and/or containers, which are also labeled or alternatively sealed in double bags of six-mil plastic. Thoroughly clean the exterior of the bags or sealed drums prior to loading onto the truck for transportation to the landfill. Alternative procedures must be approved in writing

by the consultant before work starts.

- C. Disposal shall be in a landfill meeting HUD, USEPA, TDSHS and TCEQ requirements. The contractor shall not throw bags into the landfill in a manner that may cause the bags to burst open. If the bags cannot be taken out of the drums undamaged, then include the disposal of the drums with the bags. Ensure that the bags are not opened in the process.
- D. All used plastic, tapes; cleaning materials; clothing and filters shall be treated and disposed of as asbestos and/or lead contaminated paint waste materials.

2.9.4 Final Abatement Project Decontamination and Testing

After the complete removal of asbestos and/or lead contaminated paint materials have been completed and before removal of any barriers, the entire work area shall be thoroughly wet-cleaned and/or vacuumed with HEPA filtered vacuum cleaners. Following the successful inspection and final testing as specified herein, remove all HVAC filters and dispose as asbestos or lead contaminated paint waste. All equipment used in the work area, such as negative air units, scaffold, ladders, vacuum cleaners, masks, hard hats, etc., shall be thoroughly decontaminated through wet cleaning, HEPA vacuumed prior to removal from the work area.

After detailed cleaning has been completed, the consultant shall perform a visual inspection to ensure that all ACM and LBP and contaminated debris have been properly and completely removed and the entire containment area enclosure is clean and dust free.

Clearance testing shall be performed at the end of the abatement project

in each work area enclosure. Clearance wipe samples shall be collected from several locations inside each work area. A laboratory accredited to analyze asbestos and/or lead-in paint samples shall analyze these samples. This laboratory shall be certified by the TDSHS to analyze both asbestos and lead-paint samples. Also, this laboratory must participate in laboratory accreditation programs for asbestos and lead-based paint analysis.

The stringent clearance level established by housing and urban development **(HUD)** shall be used to determine if all surfaces are clean. Results of all clearance samples for this project shall not exceed 100 mcg/f2 of sampled air.

The abatement contractor shall re-clean the enclosed work area(s) if the result of any clearance wipe sample collected test above the level indicated in these specifications. Re-testing costs shall be at the expense of the abatement contractor.

When the Owner's representative **(Consultant)** certifies the area acceptable in writing, the contractor may dismantle the remainder of the containment(s) in a manner to ensure no re-contamination occurs. The dismantled containment(s) shall be disposed of as asbestos and lead contaminated paint waste.

2.9.5 Post-Abatement Submittals

The contractor shall provide a final report which contains signed copies of the hazardous waste disposal manifests, OSHA personnel compliance air monitoring records, copies of required insurance certificates, and copies of the daily project logs.

A copy of the contractor's final report shall be made available to the

consultant and the building Owner.

3.0 LABORATORY RESPONSIBILITIES (CONSULTANT)

Except as otherwise specified, the Owner shall separately employ the services of an Independent Testing Laboratory **(Consultant)** to perform sufficient ambient air monitoring to determine if the contractor is complying with the requirements of these specifications, as well as federal, state and local regulations guiding asbestos and lead contaminated paint handling and abatement. Teaming arrangements between the abatement contractor and the testing laboratory are permitted in this circumstance, but separate employment by the Owner is required.

The consultant shall perform ambient air monitoring; wipe sampling and testing during abatement work and cleaning operations. Also, the consultant shall collect clearance wipe samples from various surfaces upon completion of the abatement work. These samples shall be analyzed by a Texas licensed and accredited asbestos and lead paint analytical and testing laboratory.

- 1 The consultant shall conduct air monitoring in accordance with the method prescribed by Section 1926.62 of the OSHA regulations.
2. If the level of clearance wipe samples is greater than 100 micrograms per cubic meter of sampled air for any one sample, additional clearance testing shall be performed at the contractor's expense. The consultant's time and material expenses shall not exceed \$100.00 per hour or \$800.00 for an eight-hour shift or a day. Re-testing costs shall be the responsibility of the abatement

contractor.

3.1 Laboratory Duties (Consultant)

- A. The laboratory shall cooperate with the Contractor; provide qualified personnel after due notice.
- B. The laboratory shall perform specified ambient air sampling and testing; comply with specified standards **(See Section 7.0)**; and ascertain compliance of materials and work procedures with requirements of the contract documents and technical specifications.
- C. The laboratory shall promptly notify the contractor and the Owner of observed irregularities or deficiencies of work or products.
- D. The laboratory shall stop all abatement operations if gross negligence and irregularities are observed, or for non-compliance with regulated, recommended and/or applicable work practices and procedures, as well as these technical specifications.
- E. The laboratory shall promptly submit written report of each test and inspection; one copy to the Owner and the contractor each. Each report shall include:
 - 1. Date Issued.
 - 2. Project title, number and building identification.
 - 3. Laboratory name, address and telephone number(s).
 - 4. Name and signature of a laboratory inspector and/or microscopist.

5. Date and time of sampling or inspection.
6. Location of sample or test during the project.
7. Type of inspection or test.
8. Results of tests and compliance with Contract Documents.

F. The laboratory shall perform additional tests as required by the Owner or his representative.

G. The laboratory shall perform additional clearance wipe sampling and testing at the contractor's expense when initial clearance and tests indicate a level of asbestos and/or lead paint concentration over the limits set forth in these specifications.

3.2 Authority of the Laboratory (Consultant)

The Laboratory is Authorized to:

1. Release, revoke, alter or enlarge on the requirements of the scope of work and applicable specifications.
2. Approve or accept any portion of the work.

3.3 Notification

The consultant shall notify the Owner and the contractor of the results of any clearance tests within two hours of completion of such testing and analysis. Initial notification of test results shall be either by telephone, facsimile, or in writing within the times specified above. If initial notification is by telephone, written notification shall be

submitted three days after initial notification to the Owner and the contractor.

4.0 OWNER'S RESPONSIBILITIES (CONSULTANT)

4.1 Pre Abatement Preparations

The consultant shall inspect the work site prior to the commencement of abatement activities to document conditions which might adversely impact the contractor's ability to meet his obligations.

4.2 Authority to Stop Work

The Owner or Owner's representative **(Consultant)** has the authority to stop the abatement work at any time he determines that conditions are not within the specifications and applicable regulations. The cessation of work shall continue until conditions have been corrected; and corrective steps have been taken to the satisfaction of the consultant. Standby time required to resolve violations shall be at the contractor's expense.

5.0 PROJECT COORDINATION AND PROCEDURES

5.1 Project Coordination

Contractor shall provide a full-time Superintendent who is experienced in administration and supervision of asbestos and lead-based paint abatement

projects including work practices, protective measures for building and personnel, and disposal procedures. This person is the Competent Person as set forth in OSHA 29CFR 1926.62, and is the contractor's representative responsible for compliance with all applicable federal, state and local regulations and must meet the criteria for the TDSHS licensing requirements.

This person must have had a minimum of five (5) years of on-the-job experience and meet any additional requirements set forth in OSHA 29CFR 1926.62 as amended June 29, 1998, or thereafter.

5.2 Special Reports

Except as otherwise indicated, submit special reports directly to the consultant within one-hour of any occurrence requiring special attention with a copy to the building Owner and all others affected by the special occurrence.

5.3 Reporting Unusual Events

When an event of unusual nature occurs at the site, the contractor shall prepare and submit a special report listing the chain of events, persons participating, and response by contractor's personnel, evaluation of results or effects, and similar pertinent information. If such an event(s) is known or predictable in advance, the contractor shall advise the consultant at the earliest possible time.

5.4 Reporting Accidents

Prepare and submit reports to the consultant of accidents on site. Record

and document data and action; and comply with industry standards. 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.

5.5 Contingency Plans

Prepare a contingency plan for emergencies including fire, accidents, power failure, negative air pressure systems failure, supplied air system failure, or any other event that may require modification or abridgement of decontamination or work area isolation procedures. Include in plan specific procedures for decontamination or work area isolation.

Note that nothing in these specifications shall impede existing safety or the pursuit of adequate medical attention in the event of an emergency.

5.6 Emergency Numbers

Provide emergency numbers to the consultant during pre-construction meeting and post in room of contractor's staging area, on heavy equipment and other approved locations as applicable. Telephone numbers and locations of emergency services including but not limited to fire, ambulance, doctor, hospital, police, power-generating company, telephone company, and poison control center.

5.7 Submittals

Prior to the start of work, submit the following to the consultant for review. No work shall begin until these submittals are reviewed and returned by Owner.

1. Contingency Plans for emergency actions

2. Telephone numbers and locations of emergency services
3. Notifications to be sent to entities at the work site
4. Copy of notifications filed with all appropriate authorities
5. Construction schedule and plan of action
6. Other abatement submittals

6.0 OTHER

General Applicability of Codes, Regulations and Standards for Lead

Except to the extent that more explicit or stringent requirements are directly specified in the contract documents, all applicable codes, regulations and standards have the same force and effect. They are also made a part of the contract documents by reference as if they are copied into it, or as if published copies are bounded here with.

Applicable Publications

The publications listed below form a part of these specifications by reference and are as if copied into the contract documents. The publications are referenced in text by basic designation only.

- 1) **Occupational Safety and Health Administration (OSHA)**, 29 Codes of Federal Regulations (CFR) 1926.62, Lead, Sub Part D.
- 2) **Public Law 102-550, of October 28, 1992**, 'Housing and Community Development Act of 1992, Title X, Residential Lead-Based Paint Hazard Reduction Act of 1992.
- 3) **Housing and Urban Development (HUD) Guidelines** For the Evaluation and Control of Lead-Based Paint Hazards in Housing, June 1995, Chapters III and VII, pursuant to Title X, replacing the 1990

publication of Lead-Based Paint: Interim Guidelines for Hazard Identification and Abatement in Public and Indian Housing.

- 4) **EPA Lead:** Requirements for Lead-Based Paint Activities in Target Housing and Child-Occupied Facilities, Final Rule, August 29, 1996.
- 5) **Texas Environmental Lead Reduction Rules** for Accreditation, Certification, and Standards for Activities in target housing, effective February 19, 1996.
- 6) **The National Lead Information Center:** Learn how to Protect Children from lead poisoning and for other Information on Lead Hazards. (Internet Contact: www.epa.gov/lead and www.hud.gov/lea).
- 7) **EPA Safe Drinking Water Hotline:** Information about Lead in Drinking Water - Contact the USEPA at **800-426-4791**.
- 8) **Consumer Product Safety Commission Hotline:** Request Information on Lead in Consumer Products, or Report an Unsafe Consumer Product or a Product-Related Injury. Contact: 800-638-2772, www.cpsc.gov.

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Applicable Publications

The publications listed below form a part of these specifications by reference and are as if copied into the contract documents. The publications are referenced in text by basic designation only.

1. **Environmental Protection Agency (EPA):** Regulations for Asbestos (Code of Federal Regulations Title 40, Part 61).
2. **Occupational Safety and Health Administration (OSHA):** Asbestos Regulations (Code of Federal Regulations Title: 29CFR, Part 1926.1101).
3. **National Institute for Occupational Safety and Health (NIOSH):** "Respiratory Protection....A Guide for the Employee"....
4. **American National Standards Institute (ANSI):** Z86.1-1973...Commodity Specification for Air...
5. **Code of Federal Regulations (CFR):**
 - a. **29 CFR 1926.1101**, Occupational Safety and Health Act (OSHA).
 - b. **20 CFR 1910.20, Subpart C**, General Safety and Health Provisions.

- c. **40 CFR 61, A and B;** U.S. Environmental protection Agency Regulations for Asbestos.
 - d. **40 CFR 61, Part III;** National Emission Standards for Hazardous Air Pollutants; Asbestos **NESHAP** Revision; Final Rule, November 20, 1990.
 - e. 34 CFR 61, Parts 230 and 231, Appendix B, Procedures for Containing and Removing Building Materials Containing Asbestos: Federal Register, Volume 45, NO. 182, Page 61961, September 17, 1980.
- 6. **Texas Department of State Health Services,** Division of Occupational Health, Texas Asbestos Health Protection Rules, May 29, 1998, Texas Civil Statutes, Article 4477-3a, Section 12.
 - 7. Resilient Floor Covering Institute Recommended Work Practices for the Removal of Resilient Floor Coverings and Addenda, July 1990.
 - 8. **Texas Commission on Environmental Quality** Municipal Solid Waste Division; 30 TAC 330.136(b) (3) pertaining to friable Asbestos-Containing materials 'Must go to an approved Landfill'.

ATTACHMENT A

**ASBESTOS-CONTAINING BUILDING MATERIALS
INVESTIGATION CONDUCTED BY
BENAS ENVIRONMENTAL SERVICES, INC.**

ATTACHMENT B

**LEAD-BASED PAINT CONTAINING BUILDING
MATERIALS INVESTIGATION CONDUCTED BY
BENAS ENVIRONMENTAL SERVICES, INC.**

ATTACHMENT C

**ASBESTOS-CONTAINING BUILDING MATERIALS
INVESTIGATION CONDUCTED BY
BUREAU VERITAS NORTH AMERICA, INC.**

ATTACHMENT D

**LEAD-BASED PAINT CONTAINING BUILDING
MATERIALS INVESTIGATION CONDUCTED BY
BENAS ENVIRONMENTAL SERVICES, INC.**