To: All Plan Holders of Record

From: CT Consultants, Inc.
For the Owner

Re: ***Addendum No. 1***
Service Garage Re-Roof - REBID
Boardman Township

Date: March 1, 2022

This Addendum forms a part of the contract documents and modifies the original bidding documents dated February 2022 and all previous addenda, if any. Acknowledge receipt of this addendum in the space provided in the bid forms. Failure to do so may subject the bidder to disqualification.

BID FORMS

Replace Bid Form, Pages BF.8 to BF.9, with the enclosed Bid Form, Pages BF.8A to BF.9A.

SPECIFICATIONS

1. **DELETE**: Specification 075323 FL – Ethylene-Propolene-Diene Membrane.
   ADD: Revised Specification 075323 FL – Ethylene-Propolene-Diene Membrane.

SPECIFIC PROJECT REQUIREMENTS

Add the following item to page SR.1:

7- ASBESTOS SURVEY REPORT

7.1 An asbestos survey report dated June 28, 2021 by HZW Environmental Consultants was relied upon by the Engineer in the preparation of drawings and specifications. Copies of the report are provided along with each bid set but are not considered to be part of the bid documents.

MATERIAL COST ADJUSTMENT

Due to the ongoing global supply challenges, the following payment adjustment clause shall apply to the four main materials for this project (EPDM Membrane, Polyiso Insulation, Fasteners, and Adhesives) but will not apply to any other materials, labor, equipment. transportation/delivery or other items.

If the invoiced cost of EPDM Membrane, Polyiso Insulation, Fasteners, and/or Adhesives increases by more than 20% above the cost quoted by the Supplier of each material the day of or within 5 days prior to the bid opening, the Owner will pay the amount over 20%. All bidders will include with their bid the quote sheet(s) from the Supplier to be utilized for the listed materials.

ADT/BR:br/mep

Enclosures

H:\2021\210442\SPEC\Addenda - REBID\Addendum 01.Doc

PROPOSAL TO BOARDMAN TOWNSHIP
FOR SERVICE GARAGE RE-ROOF - REBID
PROJECT NO. 210442

REF NO.	DESCRIPTION – BASE BID	QTY	MEASURE UNIT	LABOR	MATERIAL	TOTAL
1.	General Trades	1.00	LUMP	$_____	$_____	$_____
2.	Contingency / Discretionary Allowance	1.00	LUMP	$ ----------	$ ----------	$ 10,000.00

Informal Total Base Bid $_____

REF NO.	DESCRIPTION – DEDUCT ALTERNATE	QTY	MEASURE UNIT	LABOR	MATERIAL	TOTAL
A1	Fully Mechanically Fastened Roof Insulation System	1	LUMP	($_____)	($_____)	$(_____)

Informal Total Base Bid and Deduct Alternate $_____

The Bidder hereby acknowledges that they have reviewed the following addenda:

Addendum No.						
Date:						

The undersigned, having full knowledge of the plans and specifications for the improvements and the conditions of the Proposal hereby agree to furnish all the services, labor, materials, and equipment necessary to complete the work according to the plans and specifications and to accept as full compensation the lump sum or the unit prices specified serving as deduct or extra compensation rates.

And We (or I) do hereby agree that in the event of failure on OUR part to contract as aforesaid (provided this Proposal is accepted) the Bid Bond, Check or Letter of Credit accompanying this Proposal shall be forfeited to the Owner as liquidated damages for the difference between this bid and the awarded Contract price, not to exceed the amount of bond. We further agree that the Owner may reject any or all bids.

By signature below, I hereby certify that **I AND MY Insurance Agent have examined the insurance requirements** in the specifications and that the types and amounts of same are currently in effect or will be obtained and kept in effect for the project duration and that my Insurance Agent has assured that notification of non-renewal, policy modification, and/or cancellation to all certificate holders will occur per the contract requirements. Verification will be provided to the Owner subsequent to the issuance of a Notice of Award.

BF.9A

Submitted by,

Firm, Corporation, or Individual	Officer's Name and Title (typed)	Telephone Number
Street Address	Officer's Signature	Fax Number
City, State, Zip Code	Date	E-Mail Address
	Ohio Secretary of State ID Number	Federal Tax ID Number

Note: Evidence of authority to sign must be affixed and attested by the Secretary.

COMPLETION DATE: OCTOBER 28, 2022

LIQUIDATED DAMAGES: $1,000.00 PER DAY

SECTION 075323 - ETHYLENE-PROPYLENE-DIENE-MONOMER (EPDM) ROOFING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section Includes:
   1. Adhered ethylene-propylene-diene-terpolymer (EPDM) roofing system.
   2. Roof insulation
   3. Tapered roof insulation

B. Related Requirements:
   1. Section 076200 "Sheet Metal Flashing and Trim" for metal roof flashings and counterflashings.
   2. Section 079200 "Joint Sealants" for joint sealants, joint fillers, and joint preparation.

1.3 DEFINITIONS

A. Roofing Terminology: Definitions in ASTM D1079 and glossary of NRCA's "The NRCA Roofing Manual: Membrane Roof Systems" apply to work of this Section.

1.4 ACTION SUBMITTALS

A. Shop Drawings: Include roof plans, sections, details, and attachments to other work, including the following:
   1. Base flashings and membrane terminations.
   2. Flashing details at penetrations.
   3. Tapered saddles, thickness, and slopes.

B. Samples for Verification: For the following products:
   1. Roof membrane and flashings of color required.

C. Wind Uplift Resistance Submittal: For roofing system, indicating compliance with wind uplift performance requirements.

1.5 INFORMATIONAL SUBMITTALS

A. Qualification Data: For installer and manufacturer.

B. Manufacturer Certificates:

1. Performance Requirement Certificate: Signed by roof membrane manufacturer, certifying that roofing system complies with requirements specified in "Performance Requirements" Article.
    a. Submit evidence of complying with performance requirements.

C. Sample Warranties: For manufacturer's special warranties.

1.6 CLOSEOUT SUBMITTALS

A. Maintenance Data: For roofing system to include in maintenance manuals.

1.7 QUALITY ASSURANCE

A. Manufacturer Qualifications: A qualified manufacturer that is RoofNav listed for roofing system identical to that used for this Project.

1.8 DELIVERY, STORAGE, AND HANDLING

A. Deliver roofing materials to Project site in original containers with seals unbroken and labeled with manufacturer's name, product brand name and type, date of manufacture, approval or listing agency markings, and directions for storing and mixing with other components.

B. Store liquid materials in their original undamaged containers in a clean, dry, protected location and within the temperature range required by roofing system manufacturer. Protect stored liquid material from direct sunlight.

C. Handle and store roofing materials, and place equipment in a manner to avoid permanent deflection of deck.

1.9 FIELD CONDITIONS

A. Weather Limitations: Proceed with installation only when existing and forecasted weather conditions permit roofing system to be installed according to manufacturer's written instructions and warranty requirements.

1.10 WARRANTY

A. Warranty: Manufacturer agrees to repair or replace components of roofing system that fail in materials or workmanship within specified warranty period.
    1. Warranty Period: 20 years NDL (No Dollar Limit) from Date of Substantial Completion.

B. Special Project Warranty: Submit roofing Installer's warranty, covering the Work of this Section, including all components of roofing system such as roof membrane, base flashing, fasteners, etc., for the following warranty period:
    1. Warranty Period: Two years from Date of Substantial Completion.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

A. General Performance: Installed roofing system and base flashings shall withstand specified uplift pressures, thermally induced movement, and exposure to weather without failure due to defective manufacture, fabrication, installation, or other defects in construction. Roofing and flashings shall remain watertight.
   1. Accelerated Weathering: Roof membrane shall withstand 2000 hours of exposure when tested according to ASTM G152, ASTM G154, or ASTM G155.
   2. Impact Resistance: Roof membrane shall resist impact damage when tested according to ASTM D3746, ASTM D4272, or the Resistance to Foot Traffic Test in FM Approvals 4470.

B. Material Compatibility: Roofing materials shall be compatible with one another and adjacent materials under conditions of service and application required, as demonstrated by roof membrane manufacturer based on testing and field experience.

C. FM Approvals' RoofNav Listing: Roof membrane, base flashings, and component materials shall comply with requirements in FM Approvals 4450 or FM Approvals 4470 as part of a roofing system, and shall be listed in FM Approvals' RoofNav for Class 1 or noncombustible construction, as applicable. Identify materials with FM Approvals Certification markings.
   1. Fire/Windstorm Classification: Class 1A-90.
   2. Hail-Resistance Rating: SH.

2.2 ETHYLENE-PROPYLENE-DIENE-TERPOLYMER (EPDM) ROOFING

A. EPDM Sheet: ASTM D4637/D4637M, Type I, nonreinforced, EPDM sheet with factory-applied seam tape.

B. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
   1. EPDM Membrane Roofing:
      a. Firestone Building Products Company.
      b. Johns Manville International, Inc.
      c. Carlisle Syntec System
   2. Thickness: 60 mils (1.5 mm), nominal.
   3. Exposed Face Color: Black.
   4. Width: Ten (10) feet minimum.
   5. Source Limitations: Obtain components for roofing system from roof membrane manufacturer.

2.3 AUXILIARY ROOFING MATERIALS

A. General: Auxiliary materials recommended by roofing system manufacturer for intended use and compatible with other roofing components.
   1. Adhesive and Sealants: Comply with VOC limits of authorities having jurisdiction.

B. Sheet Flashing: 60-mil- (1.5-mm-) thick EPDM, partially cured or cured, according to application.

C. Protection Sheet: Epichlorohydrin or neoprene nonreinforced flexible sheet, 55 to 60 mils (1.4 to 1.5 mm) thick, recommended by EPDM manufacturer for resistance to hydrocarbons, non-aromatic solvents, grease, and oil.

D. Slip Sheet: ASTM D2178/D2178M, Type IV; glass fiber; asphalt-impregnated felt.

E. Prefabricated Pipe Flashings: As recommended by roof membrane manufacturer.

F. Low-Rise, Urethane, Membrane Adhesive: Roof system manufacturer's standard spray-applied, low-rise, two-component urethane adhesive formulated for compatibility and use with fabric-backed membrane roofing.

G. Seaming Material: Manufacturer's standard, synthetic-rubber polymer primer and 3-inch- (75-mm-) wide minimum, butyl splice tape with release film.

H. Lap Sealant: Manufacturer's standard, single-component sealant.

I. Water Cutoff Mastic: Manufacturer's standard butyl mastic sealant.

J. Metal Termination Bars: Manufacturer's standard, predrilled stainless steel or aluminum bars, approximately 1 by 1/8 inch (25 by 3 mm) thick; with anchors.

K. Fasteners: Factory-coated steel fasteners and metal or plastic plates complying with corrosion-resistance provisions in FM Approvals 4470, designed for fastening components to substrate, and acceptable to roofing system manufacturer.

L. Miscellaneous Accessories: Provide pourable sealers, preformed cone and vent sheet flashings, molded pipe boot flashings, preformed inside and outside corner sheet flashings, reinforced EPDM securement strips, T-joint covers, in-seam sealants, termination reglets, cover strips, and other accessories.

2.4 ROOF INSULATION

A. General: Provide preformed roof insulation boards that comply with requirements and referenced standards, selected from manufacturer's standard sizes and of thicknesses indicated.

B. Polyisocyanurate Board Insulation: ASTM C 1289, Type II, felt or glass-fiber mat facer on both major surfaces.

C. Insulation Value: R-25 (two layers).
   1. Upper Layer: 2.2 inches.
   2. Base Layer: 2.2 inches.

2.5 TAPERED INSULATION

A. General: Preformed roof insulation boards manufactured or approved by EPDM roof membrane manufacturer.

B. Tapered Insulation: Provide factory-tapered insulation boards.
   1. Material: Polyisocyanurate Board Insulation: ASTM C1289, Type II, Class 1, Grade 2, felt or glass-fiber mat facer on both major surfaces.
   2. Minimum Thickness: Saddles and Crickets: 1/2 inch per foot (1:24).

C. Insulation Cant Strips: ASTM C 728, perlite insulation board.

2.6 TAPERED INSULATION ACCESSORIES

A. Insulation Adhesive: Insulation manufacturer's recommended adhesive formulated to attach roof insulation to substrate or to another insulation layer as follows:
   1. Full-spread, spray-applied, low-rise, two-component urethane adhesive.

2.9 WALKWAYS

A. Flexible Walkways: Factory-formed, nonporous, heavy-duty, slip-resisting, surface-textured walkway rolls, approximately 3/16 inch (5 mm) thick and acceptable to roofing system manufacturer.
   1. Size: Approximately 36 by 60 inches (914 by 1524 mm).
   2. Color: Contrasting with roof membrane.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine substrates, areas, and conditions, with Installer present, for compliance with requirements and other conditions affecting performance of the Work.

   1. Verify that roof openings and penetrations are in place, curbs are set and braced, and roof-drain bodies are securely clamped in place.
   2. Verify that wood blocking, curbs, and nailers are securely anchored to roof deck at penetrations and terminations and that nailers match thicknesses of insulation.

B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 REMOVAL OF EXISTING ROOFS

A. Remove existing roofing, roof insulation and base flashing from existing deck.

B. Clean roof deck and other surfaces to which new roofing and insulation are to be applied. Surfaces must be clean, dry and free from all defects that might affect the application.

C. Except as otherwise noted, all material removed as a result of the Contract becomes the property of the Contractor, who is responsible for disposal of the property of the premises.

D. Schedule demolition and removal work with the Owner in advance in order to permit normal operations to continue within the unaffected areas of the building.

E. Take all responsible precautions to protect the premises from damage during demolition operations.

F. Remove rubble and debris from the sites promptly and in an orderly manner.

G. Repair or replace any damage occurring to the buildings, equipment or grounds during demolition and removal work and as a result of such work, at no additional cost to the Owner.

H. Provide effective means to protect the buildings from weather damage and unauthorized entry until new roof is installed.

3.3 PREPARATION

A. Clean substrate of dust, debris, moisture, and other substances detrimental to roofing system installation according to roofing system manufacturer's written instructions. Remove sharp projections.

B. Prevent materials from entering and clogging roof drains and conductors and from spilling or migrating onto surfaces of other construction. Remove roof-drain plugs when no work is taking place or when rain is forecast.

C. Perform fastener-pullout tests according to roof system manufacturer's written instructions.

1. Submit test result within 24 hours of performing tests.
    a. Include manufacturer's requirements for any revision to previously submitted fastener patterns required to achieve specified wind uplift requirements.

3.4 ROOFING INSTALLATION, GENERAL

A. Install roofing system according to roofing system manufacturer's written instructions, FM Approvals' RoofNav assembly requirements, and FM Global Property Loss Prevention Data Sheet 1-29.

B. Complete terminations and base flashings and provide temporary seals to prevent water from entering completed sections of roofing system at end of workday or when rain is forecast. Remove and discard temporary seals before beginning work on adjoining roofing.

C. Install roof membrane and auxiliary materials to tie in to existing roofing to maintain weathertightness of transition.

3.6 INSULATION INSTALLATION

A. Coordinate installing roofing system components so insulation is not exposed to precipitation or left exposed at end of workday.

B. Comply with roofing system and insulation manufacturer's written instructions for installing roof insulation.

C. Installation Over Metal Decking:

1. Install base layer of insulation with joints staggered not less than 24 inches adjacent rows and with long joints continuous at right angle to flutes of decking].

    a. Locate end joints over crests of decking.
    b. Where installing composite and noncomposite insulation in two or more layers, install noncomposite board insulation for bottom layer and intermediate layers, if applicable, and install composite board insulation for top layer.
    c. Trim insulation neatly to fit around penetrations and projections, and to fit tight to intersecting sloping roof decks.
    d. Make joints between adjacent insulation boards not more than 1/4 inch in width.
    e. At internal roof drains, slope insulation to create a square drain sump with each side equal to the diameter of the drain bowl plus 24 inches.

        1) Trim insulation so that water flow is unrestricted.

    f. Fill gaps exceeding 1/4 inch with insulation.
    g. Cut and fit insulation within 1/4 inch of nailers, projections, and penetrations.
    h. Loosely lay base layer of insulation units over substrate.
    i. Mechanically attach base layer of insulation and substrate board using mechanical fasteners specifically designed and sized for fastening specified board-type roof insulation to metal decks.

        1) Fasten insulation according to requirements in FM Approvals' RoofNav for specified Windstorm Resistance Classification.
        2) Fasten insulation to resist specified uplift pressure at corners, perimeter, and field of roof.

2. Install upper layers of insulation and tapered insulation with joints of each layer offset not less than 12 inches from previous layer of insulation.

    a. Staggered end joints within each layer not less than 24 inches in adjacent rows.
    b. Install with long joints continuous and with end joints staggered not less than 12 inches in adjacent rows.
    c. Trim insulation neatly to fit around penetrations and projections, and to fit tight to intersecting sloping roof decks.

d. Make joints between adjacent insulation boards not more than 1/4 inch in width.
e. At internal roof drains, slope insulation to create a square drain sump with each side equal to the diameter of the drain bowl plus 24 inches.
f. Trim insulation so that water flow is unrestricted.
g. Fill gaps exceeding 1/4 inch with insulation.
h. Cut and fit insulation within 1/4 inch of nailers, projections, and penetrations.
i. Loosely lay each layer of insulation units over substrate.
j. Adhere each layer of insulation to substrate using adhesive according to FM Approvals' RoofNav assembly requirements and FM Global Property Loss Prevention Data Sheet 1-29 for specified Windstorm Resistance Classification, as follows:

    1) Set each layer of insulation in a solid mopping of hot roofing asphalt, applied within plus or minus 25 deg F of equiviscous temperature.
    2) Set each layer of insulation in ribbons of bead-applied insulation adhesive, firmly pressing and maintaining insulation in place.

3.7 TAPERED INSULATION INSTALLATION

A. Coordinate installing roofing system components so insulation is not exposed to precipitation or left exposed at end of workday.

B. Comply with roofing system and insulation manufacturer's written instructions for installing roof insulation.

C. Installation over Substrate Board:
1. Install tapered insulation as follows:
2. Install with long joints continuous.
3. Trim insulation neatly to fit around penetrations and projections, and to fit tight to intersecting sloping roof decks.
4. Make joints between adjacent insulation boards not more than 1/4 inch (6 mm) in width.
5. At internal roof drains, slope insulation to create a square drain sump with each side equal to the diameter of the drain bowl plus 24 inches (610 mm).
6. Trim insulation so that water flow is unrestricted.
7. Fill gaps exceeding 1/4 inch (6 mm) with insulation. Cut and fit insulation within 1/4 inch (6 mm) of nailers, projections, and penetrations.

3.8 ADHERED ROOFING INSTALLATION

A. Adhere roof membrane over area to receive roofing according to roofing system manufacturer's written instructions.

B. Unroll membrane roof membrane and allow to relax before installing.

C. Start installation of roofing in presence of roofing system manufacturer's technical personnel and Owner's Representative.

D. Accurately align roof membrane, and maintain uniform side and end laps of minimum dimensions required by manufacturer. Stagger end laps.

E. Bonding Adhesive: Apply to substrate and underside of roof membrane at rate required by manufacturer, and allow to partially dry before installing roof membrane. Do not apply to splice area of roof membrane.

F. In addition to adhering, mechanically fasten roof membrane securely at terminations, penetrations, and perimeters.

G. Adhesive Seam Installation: Clean both faces of splice areas, apply splicing cement.
1. Firmly roll side and end laps of overlapping roof membrane to ensure a watertight seam installation.
2. Apply lap sealant and seal exposed edges of roofing terminations.
3. Apply a continuous bead of in-seam sealant before closing splice if required by roofing system manufacturer.

H. Repair tears, voids, and lapped seams in roof membrane that do not comply with requirements.

I. Spread sealant or mastic bed over deck-drain flange at roof drains, and securely seal roof membrane in place with clamping ring.

3.5 BASE FLASHING INSTALLATION

A. Install sheet flashings and preformed flashing accessories, and adhere to substrates according to roofing system manufacturer's written instructions.

B. Apply bonding adhesive to substrate and underside of sheet flashing at required rate, and allow to partially dry. Do not apply to seam area of flashing.

C. Flash penetrations and field-formed inside and outside corners with cured or uncured sheet flashing.

D. Clean splice areas, apply splicing cement, and firmly roll side and end laps of overlapping sheets to ensure a watertight seam installation. Apply lap sealant and seal exposed edges of sheet flashing terminations.

E. Terminate and seal top of sheet flashings and mechanically anchor to substrate through termination bars.

3.5 WALKWAY INSTALLATION

A. Flexible Walkways: Install walkway products according to manufacturer's written instructions.
1. Install flexible walkways at the following locations:
   a. Perimeter of each rooftop unit.
   b. Between each rooftop unit location, creating a continuous path connecting rooftop unit locations.

c. Between each roof hatch and each rooftop unit location or path connecting rooftop unit locations.
d. Top and bottom of each roof access ladder.
e. Between each roof access ladder and each rooftop unit location or path connecting rooftop unit locations.
f. Locations indicated on Drawings.
g. As required by roof membrane manufacturer's warranty requirements.

2. Provide 6-inch (76-mm) clearance between adjoining pads.
3. Adhere walkway products to substrate with compatible adhesive according to roofing system manufacturer's written instructions.

3.6 FIELD QUALITY CONTROL

A. Final Roof Inspection: Arrange for roofing system manufacturer's technical personnel to inspect roofing installation on completion, in presence of Owner’s Representative, and to prepare inspection report.

B. Repair or remove and replace components of roofing system where inspections indicate that they do not comply with specified requirements.

3.7 PROTECTING AND CLEANING

A. Protect roofing system from damage and wear during remainder of construction period. When remaining construction does not affect or endanger roofing system, inspect roofing system for deterioration and damage, describing its nature and extent in a written report, with copies to Architect and Owner.

B. Correct deficiencies in or remove roofing system that does not comply with requirements, repair substrates, and repair or reinstall roofing system to a condition free of damage and deterioration at time of Substantial Completion and according to warranty requirements.

END OF SECTION 075323

HZW Environmental Consultants

June 28, 2021

Mr. Jason Loree
Boardman Township
8299 Market Street
Boardman, Ohio 44512

Subject: ***Report of Findings from the Asbestos Bulk Sampling of Roofing Materials Conducted at the Boardman Township Service Garage Building Located at 8299 Market Street, Boardman, Mahoning County, Ohio (HZW Project No. H21230)***

Dear Mr. Loree:

HZW Environmental Consultants, LLC (HZW) is pleased to submit this letter report that presents the findings from the asbestos bulk sampling of roofing materials conducted at the Boardman Township Service Garage building located at 8299 Market Street, Boardman, Mahoning County, Ohio, herein referred to as the "subject building". The purpose of conducting the bulk sampling activities was to determine the asbestos content, if any, of the roofing materials associated with the subject building's roof prior to renovation activities being performed. A Google™ aerial showing the roof of the subject building is provided below.

Photograph 01
Aerial View of the Boardman Township Service Garage Building's Roof,
8299 Market Street, Boardman, Mahoning County, Ohio

METHODS OF INVESTIGATION

During May 2021, a representative of HZW, certified as an Asbestos Hazard Evaluation Specialist (AHES), visited the subject building to sample building materials suspect for containing asbestos located on the roof. This AHES certification is required to be maintained by the inspector in accordance with the Asbestos School Hazard Abatement Reauthorization Act (ASHARA) and the Ohio Environmental Protection Agency (Ohio EPA) asbestos regulations.

The asbestos bulk sampling activities were conducted in accordance with the Environmental Protection Agency's (EPA) National Emissions Standard for Hazardous Air Pollutants (NESHAP) sampling protocol. NESHAP regulations require no specific sampling protocol be followed; however, the Asbestos Hazard Emergency Response Act (AHERA) protocol is recommended. Therefore, the bulk sampling activities conducted at the subject building were conducted in accordance with AHERA protocol.

Three (3) building materials suspect for containing asbestos were identified on the roof of the subject building. A total of thirteen (13) bulk samples were collected from these suspect materials and submitted to CA Labs, LLC of Baton Rouge, Louisiana, for analysis of asbestos content by polarized light microscopy (PLM) using the Environmental Protection Agency (EPA) Method 600/R-93/116.

In determining the condition of a material, HZW used the following guidelines:

General Damage Category	Criteria
Good	No Damage
Fair	Up to 10% overall damage Up to 25% localized damage
Poor	Over 10% overall damage Over 25% localized damage

ASBESTOS REGULATIONS

Federal Regulations

The Occupational Safety and Health Administration's (OSHA's) Asbestos Standard for the Construction Industry (29 CFR 1926.1101) regulates all renovation and demolition work involving buildings materials which contain <u>any</u> amount of asbestos. Buildings owners and/or contractors who perform renovation and/or demolition activities which disturb buildings materials identified as containing asbestos are required to conduct these activities in accordance with OSHA's Asbestos Standard. An asbestos-containing material (ACM), as defined by OSHA and the EPA, is any material containing more than one percent (1%) asbestos as determined by Polarized Light Microscopy (PLM).

The Asbestos NESHAP (40 C.F.R. Part 61, Subpart M) regulates which ACMs must be removed prior to renovation and demolition activities being performed. If the quantity of regulated ACMs (RACMs) to be disturbed as part of a renovation or demolition activity meets or exceeds 160 square feet on facility components, 260 linear feet on pipes or 35 cubic feet off facility components, then the activity would be regulated under the Asbestos NESHAP. RACMs are defined as 1) friable ACMs, 2) Category I Nonfriable ACMs that has become friable, 3) Category I Nonfriable ACMs that will be or have been subjected to sanding, grinding, cutting or abrading, or 4) Category II Nonfriable ACMs that have a high probability of becoming or have become crumbled, pulverized, or reduced to powder by the forces expected to act on the materials in the course of the demolition or renovation activities. A friable ACM is a material that when dry, can be crumbled, pulverized, or reduced to powder by hand pressure. Examples of friable ACMs consist of asbestos-containing pipe insulation, fireproofing, and ceiling tile. Examples of Category I Nonfriable ACMs consist of asbestos-containing packings, gaskets, resilient floor covering, and asphalt roofing products. Examples of Category II Nonfriable ACMs consist of any material, excluding Category I Nonfriable ACMs.

State Regulations

The Ohio EPA Asbestos regulations are under Chapter 3745-20 and 3745-22 of the Ohio Administrative Code (OAC) also referred to as the "Emission Control Rules". Chapter 3745-20 is nearly identical to the Asbestos NESHAP, 40 CFR, Part 61, Subpart M, cited above. Chapter 3745-22 is the former Ohio Department of Health asbestos "Licensing Rules", which on January 1, 2018, were adopted by the Ohio EPA. Chapter 3745-22 encompasses the rules governing asbestos hazard abatement contractors, specialists, project designers, workers, and training courses.

Under the Asbestos NESHAP and Ohio EPA Asbestos regulations the "Notification of Demolition and Renovation" form is required to be submitted ten (10) days prior to any of the following activities being performed:

- Demolition of a facility, regardless of whether asbestos is involved. This includes all structures that will be intentionally burned for fire training purposes.
- Renovation of a facility when the amount of RACM stripped, removed, dislodged, cut, drilled, or similarly disturbed exceeds 260 linear feet on pipes or 160 square feet on other facility components or 35 cubic feet off facility components.
- Abatement at a facility when the activity involves the removal, renovation, enclosure, repair or encapsulation of *friable* ACMs in an amount greater than 50 linear feet on pipes or 50 square feet on other facility components.

FINDINGS

The table below documents the findings from the bulk sampling activities conducted on the roof of the subject building:

Suspect Material	Sample No.	Asbestos (%)	Condition	Quantity
Built-up Roofing	01	ND	Good	Not Applicable
	02	ND		
	03	ND		
	04	ND		
	05	ND		
Roof Flashing	06	ND	Good	Not Applicable
	07	ND		
	08	ND		
	09	ND		
	10	ND		
Caulking	11	ND	Good	Not Applicable
	12	ND		
	13	ND		

ND = No Asbestos Detected

A site sketch of the roof of the subject building that documents the bulk sampling locations is included as **Attachment 1**. The laboratory analytical report for the bulk samples collected at the subject building is included as **Attachment 2**.

RECOMMENDATIONS

Based on the findings from the asbestos bulk sampling activities conducted on the roof of the subject building, no recommendations are being presented for consideration at this time.

QUALIFICATIONS

The professional environmental consulting services were provided by HZW's licensed AHES, Mr. Matthew P. Fergus. Ms. Joan A. Sablar, HZW's Group Leader, was responsible for ensuring that the project was conducted in accordance with all applicable federal, state and local regulations as well as for generation of this report.

HZW appreciates the opportunity you have given us to provide professional consulting services to Boardman Township. Should you have any questions regarding the information presented above, please do not hesitate to contact us.

Sincerely,

HZW ENVIRONMENTAL CONSULTANTS, LLC

Matthew P. Fergus

Matthew P. Fergus
Asbestos Hazard Evaluation Specialist
(OEPA License No. ES 33228)

Joan A. Sablar

Joan A. Sablar
Asbestos Hazard Evaluation Specialist
(OEPA License No. ES 31652)

MPF:mpf\jas\H21230
Attachments
I:\2021\H21230\RoofingBulkSamplingReport1.doc

ATTACHMENT 1

- SITE SKETCH OF BUILDING ROOF DOCUMENTING BULK SAMPLING LOCATIONS

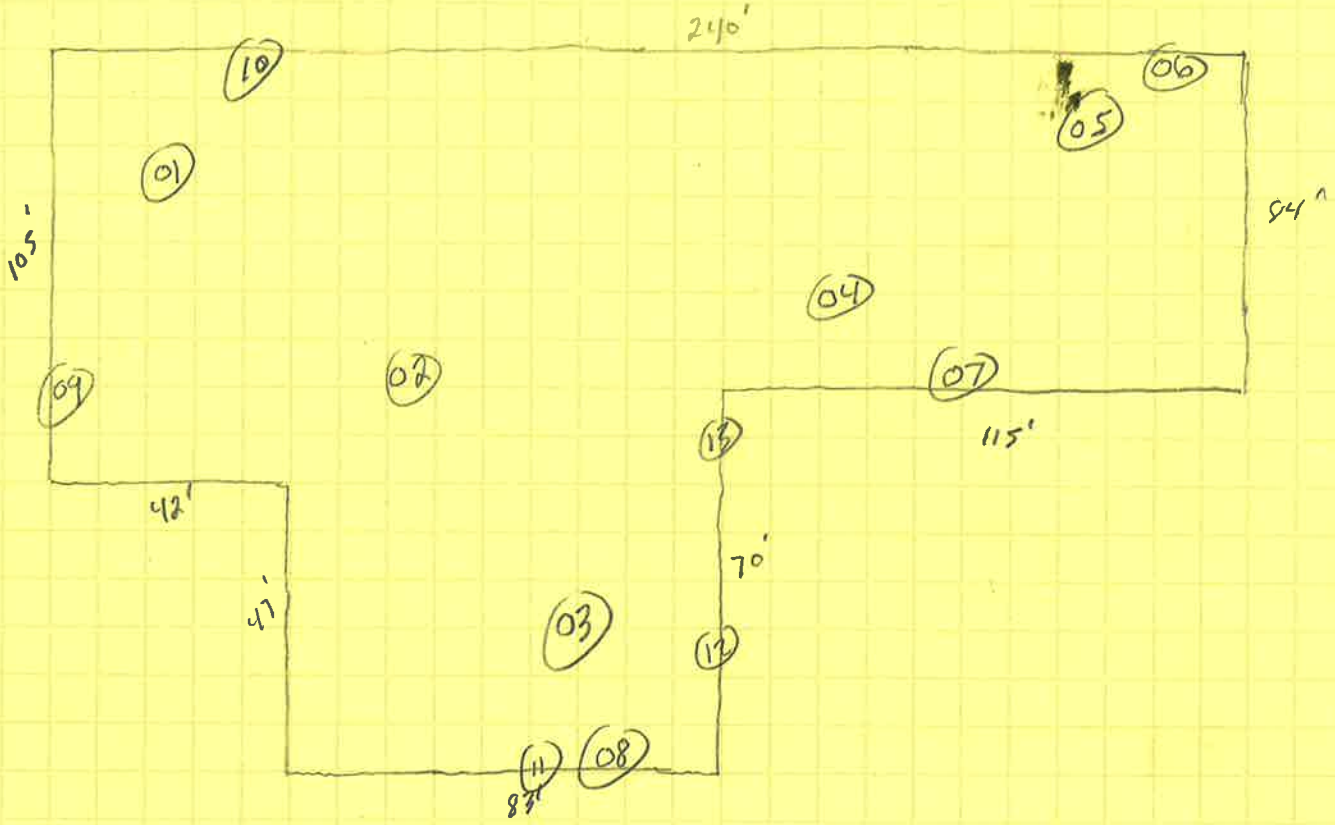
HZW ENVIRONMENTAL
CONSULTANTS, LLC

6105 Heisley Road • Mentor, Ohio 44060
Phone 440-357-1260 • 800-804-8484
Fax 440-357-1510
A Woman-Owned Business Enterprise

PROJECT Boardman Twp.
PROJECT NO. 1721230
PAGE NO. 1 OF 1
FIELD REPRESENTATIVE MPR DATE 5/10/21
SCALE

8299 Market Street, Boardman, OH
Service Garage

INDICATE DIRECTION OF NORTH

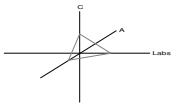


ATTACHMENT 2

- ASBESTOS LABORATORY ANALYTICAL REPORT

CA Labs
Dedicated to Quality

CA Labs, L.L.C.
12232 Industriplex, Suite 32
Baton Rouge, LA 70809
Phone 225-751-5632
Fax 225-751-5634



NVLAP #200772-0
TDSHS #300370
CDPHE #AL-18111
LELAP #03069

Materials Characterization - Bulk Asbestos Analysis

Laboratory Analysis Report - Polarized Light

HzW Environmental Consultants
6105 Heisley Rd.
Mentor, OH 44060

Attn: Joan Sablar
Customer Project: Boardman Twp.
Reference #: CBR21052660 Date: 5/19/2021

Analysis and Method

Summary of polarizing light microscopy (PLM / Stereomicroscopy bulk asbestos analysis) using the methods described in 40CFR Part 763 Appendix E to Subpart E (Interim and EPA 600 / R-93 / 116 (Improved). The sample is first viewed with the aid of stereomicroscopy. Numerous liquid slide preparations are created for analysis under the polarized microscope where identifications and quantifications are preformed. Calibrated liquid refractive oils are used as liquid mouting medium. These oils are used for identification (dispersion staining). A calibrated visual estimation is reported, should any asbestiform mineral be present. Other techniques such as acid washing are used in conjugation with refractive oils for detection of smaller quantities of asbestos. All asbestos percentages are based on calibrated visual estimation traceable to NIST standards for regulated of asbestos. Traceability to measurement and calibration is achieved by using known amounts and types of asbestos from standards where analyst and laboratory accuracy are measured. As little as 0.001% asbestos can be detected in favorable samples, while detection in unfavorable samples may approach the detection limit of 0.50% (well above the laboratory definition of trace).

Discussion

Vermiculite containing samples may have trace amounts of actinolite-tremolite, where not found be PLM should be analyzed using TEM methods and / or water separation techniques. Suspected actinolite/vermiculite presence will be indicated through the sample comment section of this report.

Fibrous talc containing samples may even contain a related asbestos fiber known as anthophyllite. Under certain conditions the same fiber may actually contain both talc and anthophyllite (a phenomenon called intergrowth). Again, TEM detection methods are recommended. CA Labs PLM report comments will denote suspected amounts of asbestiform anthophyllite with talc, where further analysis is recommended.

Some samples (floor tiles, surfacings, etc.) may contain fibers too small to be detectable by PLM analysis and should be analyzed by TEM bulk protocols.

A "trace asbestos" will be reported if the analyst observes far less than 1% asbestos. CA Labs defines "trace asbestos" as a few fibers detected by the analyst in several preparations and will indicate as such under these circumstances.

Quantification of <1% will actually be reported as <=1% (allowable variance close to 1% is high). Such results are ideal for point counting, and the technique is mandatory for friable samples (NESHAP, Nov. 1990 and clarification letter 8 May 1991) under 1% percent asbestos and the "trace asbestos". **In order to make all initial PLM reports issued from CA Labs NESHAP compliant, all <1% asbestos results (except floor tiles) will be point counted at no additional charge.**

Qualifications

CA Labs is accredited by the National Voluntary Accreditation Program (NVLAP) for selected test methods for airborne fiber analysis (TEM), and for bulk asbestos fiber analysis (PLM). All analysts have a college degree in a natural science (geology, biology, or environmental science) or are recognized by a state professional board in one these disciplines .Extensive in-house training programs are used to augment education background of the analyst. The group leader of polarized light has received supplemental McCrone Research training for asbestos identification. This report is not covered by the scope of AIHA accreditation. Analysis performed at CA Labs, LLC 12232 Industriplex, Suite 32 Baton Rouge, LA 70809.

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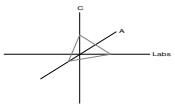

NVLAP #200772-0
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CDPHE #AL-18111
LELAP #03069

Overview of Project Sample Material Containing Asbestos

Customer Project: Boardman Twp. **CA Labs Project #:** CBR21052660

Sample #	Layer #	Analysts Physical Description of Subsample	Asbestos type / calibrated visual estimate percent	List of Affected Building Material Types

No Asbestos Detected.

Glossary of abbreviations (non-asbestos fibers and non-fibrous minerals):

ca - carbonate	pe - perlite	fg - fiberglass	pa - palygorskite (clay)
gypsum - gypsum	qu - quartz	mw - mineral wool	
bi - binder		wo - wollastinite	
or - organic		ta - talc	
ma - matrix		sy - synthetic	
mi - mica		ce - cellulose	
ve - vermiculite		br - brucite	
ot - other		ka - kaolin (clay)	

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Polarized Light Asbestiform Materials Characterization

Customer Info: **Attn:** Joan Sablar
HzW Environmental Consultants
6105 Heisley Rd.
Mentor, OH 44060

Phone # 440-357-1260
Fax # 440-357-1510

Customer Project:
Boardman Twp.

Turnaround Time: 5 Day

CA Labs Project #:
CBR21052660

Date: 5/19/2021
Samples Received: 5/12/2021
Date Of Sampling:
Purchase Order #: H21230

Sample #	Comment	Layer #	Analysts Physical Description of Subsample	Homogeneous (Y/N)	Asbestos type / calibrated visual estimate percent	Non-asbestos fiber type / percent	Non-fibrous type / percent
01		*1-1*	*Black Felt and Tar*	*N*	***None Detected***	60% fg	40% qu, ma, bi
02		*2-1*	*Black Felt and Tar*	*N*	***None Detected***	60% fg	40% qu, ma, bi
03		*3-1*	*Black Felt and Tar*	*N*	***None Detected***	60% fg	40% qu, ma, bi
04		*4-1*	*Black Felt and Tar*	*N*	***None Detected***	60% fg	40% qu, ma, bi
05		*5-1*	*Black Felt and Tar*	*N*	***None Detected***	60% fg	40% qu, ma, bi
06		*6-1*	*Black Felt and Tar*	*N*	***None Detected***	60% fg	40% qu, ma, bi
07		*7-1*	*Black Felt and Tar*	*N*	***None Detected***	60% fg	40% qu, ma, bi

Analysis Method: Interim (40CFR Part 763 Appendix E to Subpart E) / Improved (EPA-600 / R-93/116)
Preparation Method: HCL acid washing for carbonate based samples, chemical reduction for organically bound components, oil immersion for identification of asbestos types by dispersion attaining / becke line method.

ca - carbonate	mi - mica	fg - fiberglass	ce - cellulose
gypsum - gypsum	ve - vermiculite	mw - mineral wool	br - brucite
bi - binder	ot -other	wo - wollastinite	ka - kaolin (clay)
or - organic	pe - perlite	ta - talc	pa - palygorskite (clay)
ma - matrix	qu - quartz	sy - synthetic	

Approved Signatories:

David Darby
Analyst

Senior Analyst
Alicia Stretz

Laboratory Director
Chris Williams

1. Fire Damage significant fiber damage - reported percentages reflect unaltered fibers
2. Fire Damage no significant fiber damages effecting fibrous percentages
3. Actinolite in association with Vermiculite
4. Layer not analyzed - attached to previous positive layer and contamination is suspected
5. Not enough sample to analyze
6. Anthophyllite in association with Fibrous Talc
7. Contamination suspected from other building materials
8. Favorable scenario for water separation on vermiculite for possible analysis by another method
9. < 1% Result point counted positive
10. TEM analysis suggested

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6105 Heisley Rd.
Mentor, OH 44060

Phone # 440-357-1260
Fax # 440-357-1510

Customer Project:
Boardman Twp.

Turnaround Time: 5 Day

CA Labs Project #:
CBR21052660

Date: 5/19/2021
Samples Received: 5/12/2021
Date Of Sampling:
Purchase Order #: H21230

Sample #	Comment	Layer #	Analysts Physical Description of Subsample	Homogeneous (Y/N)	Asbestos type / calibrated visual estimate percent	Non-asbestos fiber type / percent	Non-fibrous type / percent
08		*8-1*	*Black Felt and Tar*	*N*	***None Detected***	60% fg	40% qu, ma, bi
09		*9-1*	*Black Felt and Tar*	*N*	***None Detected***	60% fg	40% qu, ma, bi
10		*10-1*	*Black Felt and Tar*	*N*	***None Detected***	60% fg	40% qu, ma, bi
11		*11-1*	*White Sealant*	*Y*	***None Detected***		100% qu, ma, bi
12		*12-1*	*White Sealant*	*Y*	***None Detected***		100% qu, ma, bi
13		*13-1*	*White Sealant*	*Y*	***None Detected***		100% qu, ma, bi

Analysis Method: Interim (40CFR Part 763 Appendix E to Subpart E) / Improved (EPA-600 / R-93/116)
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9. < 1% Result point counted positive
10. TEM analysis suggested

CA Labs

C.A. Labs, LLC.
12232 Industriplex
Suite 32
Baton Rouge, LA 70809

Phone: 225-751-5632
Fax: 225-751-5634
Mobile: 225-993-3471

Chain of Custody

Client Name:	HZW Environmental	**CA Labs job #**	**CBR**
Client Address:	6105 Heisley Road Mentor, OH 44060	Billing Address: (if different)	
phone number:	(440) 357-1260		
fax number:	(440) 357-1510	Send Reports to:	
Project Number:	H21230	Project Name:	Boardman Twp.
Contact:	Matt Francis	**Reports Results VIA:**	EMAIL ✓ FAX___ VERBAL___

Total # Samples Submitted:	**Total # Samples to be Analyzed:**	**Material Matrix:**
13	—	Air / (Bulk) / Water

Asbestos: *please call ahead for availability of all rush and/or after hours samples.*

TEM	TA Time	PLM	TA Time	Optical / IAQ	TA Time
Circle analysis and TA time		*Circle analysis and TA time*	*2 hour*	**Allergen Particle:**	*2 hour*
AHERA	*4 hour*	Improved	4 hour	tape/bulk/swab	4 hour
EPA Level II	8 hour	Interim	8 hour	Cyclex-d cassettes	8 hour
Drinking Water	16 hour		16 hour	Air-o-cell cassettes	16 hour
Wipe	24 hour	AHERA	24 hour	Anderson cultures	24 hour
Micro-vac	2 days		2 days	Bulk/swab cultures	2 days
NIOSH 7402	3 days	Point Count -	3 days	Bacteria cultures	3 days
Chatfield Bulk	5 days	(NESHAPS)	(5 days)	**PCM**: NIOSH 7400	5-10 days

Lead: *Circle analysis and TA time*

Matrix:	Paint Chips	Soil	Air	Wipes	Wastewater	TCLP
TA Time:	*8 hour*	1 day	2 days	3 days	5 days	6-10 days

Sample Information:

Sample Number:	Sample Location:	Sample Date/Time:	Sample Volume (L)
01	Built up Asphalt Roofing		
02	"		
03	"		
04	"		
05	"		

Custody Information:

Samples relinquished: Matthew Francis 5/11/21 — Signature / Date / Time

Samples received: _____ — Signature / Date / Time

Samples relinquished: _____ — Signature / Date / Time

Samples received: _____ — Signature / Date / Time

★ Stop at First Positive per group
Point Count at 3% or less

CA Labs

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Suite 32
Baton Rouge, LA 70809

Phone: 225-751-5632
Fax: 225-751-5634
After hours Mobile: 225-993-3471

Client Name: H2M Environmental

Client Address:

phone number:

fax number:

Project Number: 121230

Contact:

CA Labs job # CBR

Billing Address:

(if different)

Send Reports to:

Project Name: Boardman Twp.

Reports Results

VIA: EMAIL____ FAX____ VERBAL___

Sample Number:	Sample Location:	Sample Date/Time:	Sample Volume (L)
06	Roof Flushing		
07	"		
08	"		
09	"		
10	"		
11	Caulking		
12	"		
13	"		

For internal use:
Any initial changes regarding project (indicate yes by checking line)_____

Custody Information:

Samples relinquished: _____ Signature / Date / Time

Samples received: _____ Signature / Date / Time

Samples relinquished: _____ Signature / Date / Time

Samples received: _____ Signature / Date / Time