

**West Virginia Community and Technical College System
West Virginia Northern Community College – Renovations at Weirton
and New Martinsville Campuses
M&G Project No. 18-053.1 and 18-053.2
Request for Bids No. 19019**

ADDENDUM NO. 2
August 23, 2018

The following items shall be incorporated as part of the Project Manual and Construction Drawings for this Project and as such, shall be honored in your proposal.

General:

- A. Refer to Specification Section 011300 – PRELIMINARY SCHEDULE, Page 1, "Notes:", add the following:

"If Alternate No. 3 is accepted, coordinate lintel replacement and associated work on a room-by-room basis with Tricia Marker, Director of Facilities.
E-mail: pmarker@wvnc.edu ; Phone: (304) 830-2812."

Specifications:

- A. Add Final Report for the Asbestos Roof and Exterior Windows Survey, WVNC Weirton Campus by Professional Service Industries Inc. as attached to this Addendum.
- B. Add Final Report for the Asbestos Roof Survey, WVNC New Martinsville Campus by Professional Service Industries Inc. as attached to this Addendum.
- C. Add SECTION 028200 – ASBESTOS ABATEMENT as attached to this Addendum.

Questions:

- A. Question: What is the thickness of roof insulation required? Drawings say 3.5" and specs say 4".
Answer: Minimum thickness is 3-1/2". Revise Specification accordingly.
- B. Insulation specified is listed as grade 3, which is 25 PSI. Is this correct or can we use standard 20 PSI?
Answer: Provide Grade 3 as specified.

- C. It is our understanding that we are to install tapered insulation in those areas of the building where the structure is flat, where tapered insulation already exists, and between roof drains as shown on roof plans. Is this correct?

Answer: That is correct.

Respectfully submitted,

M&G ARCHITECTS & ENGINEERS



Dana L. Brooks, AIA
Project Architect

Attachments: Final Report for the Asbestos Roof and Exterior Windows Survey, WVNCC Weirton
Campus by PSI
Final Report for the Asbestos Roof Survey, WVNCC New Martinsville Campus by PSI
SECTION 028200 – ASBESTOS ABATEMENT

cc: All Plan Holders
ls

ACKNOWLEDGEMENT OF RECEIPT
OF ADDENDUM NO. 2
FOR
WEST VIRGINIA NORTHERN COMMUNITY COLLEGE
RENOVATIONS AT WEIRTON & NEW MARTINSVILLE CAMPUSES
REQUEST FOR BIDS NO. 19019

I, _____ of _____ hereby
(name) *(company)*

acknowledge that I have received a copy of Addendum No. 2 with all its attachments and understand that my bid will not be honored unless this acknowledgement is returned to the Architect and I have noted receipt on the Proposal Form.

(company name)

(name)

(date)

Upon receipt, fax or email this page to 304/242-8249 or mg1@mgarc.com



Intertek-PSI
850 Poplar Street
Pittsburgh, PA 15220

Tel +1 412.922.4001
Fax +1 412.922.4014
intertek.com/building

19August 16, 2018

West Virginia Higher Education Policy Commission
1018 Kanawha Boulevard, East, Suite 700
Charleston, WV 25301

Attn: Mr. Richard Donovan
Rich.Donovan@wvhepc.edu

Re: Asbestos Roof and Exterior Windows Survey Report
West Virginia Northern Community College
Weirton Campus
150 Park Avenue
Weirton, West Virginia, 26062
PSI Project No. 08163527

Dear Mr. Donovan

Enclosed please find the Final Report for the Asbestos Roof and Exterior Windows Survey, sampling and analysis services conducted by Professional Service Industries Inc. (PSI), at the above referenced location.

Introduction

The survey was conducted on August 14, 2018 by Matthew Madeya, an EPA/AHERA accredited and West Virginia licensed asbestos inspector (AI 009450). Copies of the inspector's License is included with this report.

Authorization to conduct the investigation and sampling was given on August 13, 2018 by Richard Donovan of WV Council for Community & Technical College Education, via Work Order #19025. The project was conducted in accordance with the scope, terms and conditions of PSI Proposal #816-252800, dated August 9, 2018.

Scope of Services

The inspection and sampling was limited to suspected roofing and exterior window materials that will be impacted by the planned replacement of the roof and window lintels.

A total of fourteen (14) bulk samples from seven (7) suspect homogeneous materials were collected and analyzed for asbestos content.



Inspection, Sampling & Analytical Methodology

The inspection included only the client-defined materials associated with the roof and exterior window lintels. Materials which were similar in color, texture, general appearance and which appear to have been installed at the same time were grouped in Homogeneous Sampling Areas.

EPA guidelines were used to determine the sampling protocol. Sampling locations were chosen to be representative of the homogeneous sampling area. While an effort was made to collect samples randomly, samples were taken preferentially from areas already damaged or areas which were the least visible to minimize disturbance of the material.

In accordance with the agreement between PSI and the client, roofing materials were sampled by coring through the roof system to the base deck material. PSI applied a temporary patch to the roof sample location. Due to the destructive nature of roof sampling, PSI does not warrant a water tight condition following sample extraction, nor can PSI guarantee the continuance of any roof system warranties by other entities.

The samples were analyzed for asbestos concentration at Professional Service Industries, Inc., located at 850 Poplar Street, Pittsburgh, Pennsylvania 15220. The PSI Pittsburgh Asbestos Laboratory is accredited by the National Voluntary Laboratory Accreditation Program (NVLAP), #101350-0.

The samples were analyzed for asbestos by polarized light microscopy (PLM) in accordance with the “U.S. EPA Method for the Determination of Asbestos in Bulk Building Materials” (EPA/600/R-93/116 July, 1993). Analysis was performed by using the bulk sample for visual observation and slide preparation(s) for microscopic examination and identification. The samples were mounted on slides and then analyzed for asbestos (chrysotile, amosite, crocidolite, anthophyllite, actinolite/tremolite), and fibrous non-asbestos constituents (mineral wool, fiberglass, cellulose, etc.). Asbestos was identified by refractive indices, morphology, color, pleochroism, birefringence, extinction characteristics, and signs of elongation. The same characteristics were used to identify the non-asbestos constituents.

The microscopist visually estimated relative amounts of each constituent by determining the volume of each constituent in proportion to the total volume of the sample, using a stereoscope.

The EPA method allows samples which are visually determined to have 10% or less asbestos to be quantified using a Point Count procedure. An ocular reticule (cross hair or point array) is used to visually superimpose a point or points on the microscope field of view. A total of 400 points superimposed on either asbestos fibers or non-asbestos matrix material must be counted over at least eight different preparations of representative subsamples. If an asbestos fiber and matrix particle overlap so that a point is superimposed on their visual intersection, a point is scored for both categories. Point



counting provides a quantification of the area percent asbestos. No samples were point counted during this limited survey.

Copies of the laboratory reports and certifications are attached.

Findings

Asbestos:

Following is a listing of the suspect asbestos-containing materials sampled at the site, and the results of the laboratory analysis:

| Homog. Area # & Sample # | Material Description | Cond. | Friable Y/N | Material Location | Est Qty. | EPA NESHAP CAT ¹ | Lab Results ² |
|--------------------------|---|-------------|-------------|--|--------------|-----------------------------|--------------------------|
| 01 (2) | Roofing | Good | N | Phase 1 Roof | NA | NA | NAD |
| 02 (2) | Flashing | Good | N | Phase 1 Roof | NA | NA | NAD |
| 03 (2) | Roofing | Good | N | Phase 2 Roof | NA | NA | NAD |
| 04 (2) | Flashing | Good | N | Phase 2 Roof | NA | NA | NAD |
| 05 (2) | Exterior Window Caulking | Dam. | N | Utility Room 1 st Floor, Computer Room 1 st Floor | NA | NA | NAD |
| 06 (2) | Window Glazing On Alum Frame Windows | Good | N | Utility Room 1st Floor, Computer Room 1st Floor (Interior & Exterior) Phase 1 section | 19 ea | CAT I | 5% Ch |
| 07 (2) | Interior Window Caulking | Dam. | N | Computer Room 1 st Floor | NA | NA | NAD |

¹NESHAP Category – Category I NF = Cat I

²NAD – No asbestos Detected

²Ch – Chrysotile Asbestos

A material is considered to be asbestos-containing if at least one sample from the homogeneous area shows asbestos in an amount greater than 1% as determined using the EPA's Interim Method of the Determination of Asbestos in Bulk Samples. If a material is found to contain 10% or less asbestos, it can be treated as non asbestos-containing per EPA Regulations, if verified to contain 1% or less asbestos by the Point Count Quantification Procedure. No samples were quantified by the Point Count Procedure for this Limited Asbestos Survey.



Conclusion & Recommendation

Asbestos-containing materials were identified with materials associated with the exterior windows. No asbestos-containing materials were identified with the roofing materials.

Category I & II Non-Friable asbestos containing material may often be left in place during demolition if not made friable by cutting, grinding or sanding. If left in place, these materials cannot be recycled, burned or used as clean fill.

ACMs should be maintained in a good non-damaged condition and periodically inspected through use of an Operations and Maintenance (O&M) program. Damaged or significantly damaged ACMs should be repaired, encapsulated, enclosed or removed.

In addition; during the demolition activities of the roofing materials and lintels, if any additional suspect ACM materials are discovered; it will require testing or can be treated as assumed ACM unless tested and found to be non-ACM.

Please refer to the laboratory analyses for a more detailed description of the microscopic analysis of individual samples. A copy of the “Report of Bulk Sample Analysis for Asbestos” and the “Bulk Sample Log”/Chain of Custody field sheet are attached.

Warranty

Asbestos Roof Assessment and Exterior Window Sampling

The field and laboratory results reported herein are considered sufficient in detail and scope to determine the presence of asbestos in defined suspect asbestos-containing building materials (ACBM) in the specified areas of the facility. This was a limited sampling of only certain defined areas and materials identified by the client. Professional Service Industries (PSI), Inc., warrants that the findings contained herein have been prepared in general accordance with accepted professional practices at the time of its preparation as applied by professionals in the community. Changes in the state of the art or in applicable regulations cannot be anticipated and have not been addressed in this report.

The survey and analytical methods have been used to provide the client with information regarding the presence of accessible and/or exposed suspect ACM existing in the defined surveyed area at the time of the inspection. Test results are valid only for the material tested. There is a distinct possibility that conditions may exist which could not be identified within the scope of the study or which were not apparent during the site visit. This inspection covered only those areas which were exposed and/or physically accessible to the Inspector. The study is also limited to the information available from the client at the time it was conducted.

No other warranties are implied or expressed.



WVNCC – Weirton Campus
PSI Project No. 08163527
August 16, 2018

We appreciate the opportunity to provide our services on this project and would be pleased to continue our role as your consultant for future projects. If we can be of any assistance, or if you have any questions regarding this report, please feel free to contact us at (412) 922-4000.

Sincerely Yours,
PROFESSIONAL SERVICE INDUSTRIES, INC.



William L. Nicastro
Department Manager



Eric Oldroyd
Principal Consultant

Attachments:

Report of Bulk Sample Analysis for Asbestos
Asbestos Bulk Sample Log/Chain of Custody
Sample Location Map
Inspector & Laboratory Accreditations



REPORT OF BULK SAMPLE ANALYSIS FOR ASBESTOS

TESTED FOR: PSI, Inc.
 850 Poplar Street
 Pittsburgh, PA 15220
 Attn: Matthew Madeya

Project ID: 08163527
 WVNCC
 Weirton

Date Received: 8/14/2018

Date Completed: 8/14/2018

Date Reported: 8/14/2018

Analyst: Alexander Edmonds

Work Order: 1808308

Page: 1 of 2

| Client ID | Lab ID (Layer) | Sample Description (Color, Texture, Etc.) <i>Analyst's Comment</i> | Asbestos Content (Percent and Type) | Non-asbestos Fibers (Percent and Type) |
|-----------|----------------|---|-------------------------------------|--|
| 01-01 | 001A | (1) Black, Roofing, Homogeneous | NO ASBESTOS DETECTED | 10% Fibrous Glass 80% Cellulose Fiber |
| | | (2) Yellow, Foam, Homogeneous | NO ASBESTOS DETECTED | None Reported |
| 01-02 | 002A | (1) Black, Roofing, Homogeneous | NO ASBESTOS DETECTED | 10% Fibrous Glass 80% Cellulose Fiber |
| | | (2) Yellow, Foam, Homogeneous | NO ASBESTOS DETECTED | None Reported |
| 02-01 | 003A | (1) Black, Flashing, Homogeneous | NO ASBESTOS DETECTED | None Reported |
| | | (2) Yellow, Mastic, Homogeneous | NO ASBESTOS DETECTED | None Reported |
| 02-02 | 004A | (1) Black, Flashing, Homogeneous | NO ASBESTOS DETECTED | None Reported |
| | | (2) Yellow, Mastic, Homogeneous | NO ASBESTOS DETECTED | None Reported |
| 03-01 | 005A | (1) Black, Roofing, Homogeneous | NO ASBESTOS DETECTED | 10% Fibrous Glass 80% Cellulose Fiber |
| | | (2) Yellow, Foam, Homogeneous | NO ASBESTOS DETECTED | None Reported |
| 03-02 | 006A | (1) Black, Roofing, Homogeneous | NO ASBESTOS DETECTED | 10% Fibrous Glass 80% Cellulose Fiber |
| | | (2) Yellow, Foam, Homogeneous | NO ASBESTOS DETECTED | None Reported |
| 04-01 | 007A | (1) Black, Flashing, Homogeneous | NO ASBESTOS DETECTED | None Reported |
| | | (2) Yellow, Mastic, Homogeneous | NO ASBESTOS DETECTED | None Reported |

Quantitation is based on a visual estimation of the relative area of bulk sample components, unless otherwise noted in the "Comments" section of this report. The results are valid only for the item tested. This report may not be used to claim product endorsement by NVLAP or any agency of the U.S. Government. Method used: E.P.A. Interim Method for the Determination of Asbestos in Bulk Insulation Samples (EPA 600/M4-82-020). Polarized Light Microscopy is not consistently reliable in detecting asbestos in floor coverings and similar non-friable organically bound materials. Quantitative Transmission Electron Microscopy is currently the only method that can be used to determine if the material can be considered or treated as non-asbestos containing. Samples will be disposed of within 30 days unless notified in writing by the client. No part of this report may be reproduced, except in full, without written permission of the laboratory. The reporting limit is 1% by weight. NVLAP Lab Code 101350-0.

Respectfully submitted,
 PSI, Inc.


 Approved Signatory
 George Skarupa

| Client ID | Lab ID (Layer) | Sample Description (Color, Texture, Etc.) <i>Analyst's Comment</i> | Asbestos Content (Percent and Type) | Non-asbestos Fibers (Percent and Type) |
|-----------|----------------|---|-------------------------------------|--|
| 04-02 | 008A | (1) Black, Flashing, Homogeneous <i>No mastic</i> | NO ASBESTOS DETECTED | None Reported |
| 05-01 | 009A | (1) Brown, Caulking, Homogeneous | NO ASBESTOS DETECTED | None Reported |
| 05-02 | 010A | (1) Brown, Caulking, Homogeneous | NO ASBESTOS DETECTED | None Reported |
| 06-01 | 011A | (1) Brown, Glazing, Homogeneous | 5% Chrysotile | None Reported |
| 06-02 | 012A | Sample Not Tested | | |
| 07-01 | 013A | (1) White, Caulking, Homogeneous | NO ASBESTOS DETECTED | None Reported |
| 07-02 | 014A | (1) White, Caulking, Homogeneous | NO ASBESTOS DETECTED | None Reported |

Report Notes: (PT) Point Count Results

Quantitation is based on a visual estimation of the relative area of bulk sample components, unless otherwise noted in the "Comments" section of this report. The results are valid only for the item tested. This report may not be used to claim product endorsement by NVLAP or any agency of the U.S. Government. Method used: E.P.A. Interim Method for the Determination of Asbestos in Bulk Insulation Samples (EPA 600/M4-82-020). Polarized Light Microscopy is not consistently reliable in detecting asbestos in floor coverings and similar non-friable organically bound materials. Quantitative Transmission Electron Microscopy is currently the only method that can be used to determine if the material can be considered or treated as non-asbestos containing. Samples will be disposed of within 30 days unless notified in writing by the client. No part of this report may be reproduced, except in full, without written permission of the laboratory. The reporting limit is 1% by weight. NVLAP Lab Code 101350-0.

Respectfully submitted,
PSI, Inc.


Approved Signatory
George Skarupa

CHAIN OF CUSTODY - ASB/LEAD/IH

1808308(2)



IH Laboratory
850 Poplar Street
Pittsburgh, PA 15220
412-922-4001 ext. 228/425

| Project Information | |
|---------------------|---------------|
| Project Name: | WVNCC Weirton |
| Project No.: | 08163527 |
| PO Number: | |
| Sample Date: | 8/13/18 |

| Send Results To: | |
|------------------|---|
| Company: | PSI |
| Attn: | Matthew Madeya |
| Address: | 850 Poplar Street, Pittsburgh, PA 15220 |
| Telephone: | 412-922-4001 x310 |
| Email: | matthew.madeya@psiusa.com |

| Send Invoice To: | |
|------------------|------|
| Company: | Same |
| Attn: | |
| Address: | |
| Telephone: | |
| Email: | |

| Requested Turnaround Time: | | |
|-------------------------------------|--------------------------|--------------------------|
| Same Day | 1-2 Day | 3-5 Day |
| <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Requested Date: | | 8/14/18 |

| Stop at First Positive | |
|-------------------------------------|--------------------------|
| Y | N |
| <input checked="" type="checkbox"/> | <input type="checkbox"/> |

| Laboratory Use Only | |
|--------------------------------------|--|
| All Samples in Acceptable Condition: | <input checked="" type="checkbox"/> Y <input type="checkbox"/> N |
| Comments: | |
| Shipping Charges Apply: | <input type="checkbox"/> |

| Sample ID: | Number of Samples | PLM Bulk | Point Count (400) | Point Count (1000) | Lead Wipe | Lead Air | Lead Soil | Lead Paint Chip | Lead TCLP | PCM | PCM "B Rules" | TEM AHERA | TEM 7402 | TEM Chatfield | TEM Vacuum | TEM Wipe | NY PLM Friable/NOB | NY TEM NOB | NY SOF-V | Total Nuisance Dust | Respirable Dust | Cadmium | Zinc | Total Chromium | Other: |
|------------|-------------------|----------|-------------------|--------------------|-----------|----------|-----------|-----------------|-----------|-----|---------------|-----------|----------|---------------|------------|----------|--------------------|------------|----------|---------------------|-----------------|---------|------|----------------|--------|
| WVNCC WT | 14 | X | | | | | | | | | | | | | | | | | | | | | | | |

| | | | |
|-----------------------|-----------|-----------------------|-----------|
| Relinquished by | Date/Time | Received by | Date/Time |
| Matthew Madeya | 4:15 | <i>Matthew Madeya</i> | 8/13/18 |
| <i>Matthew Madeya</i> | | <i>Matthew Madeya</i> | |

| | |
|---------------|-----------------------|
| Analyst Name: | Analyst Signature: |
| | <i>Matthew Madeya</i> |

| |
|----------------------------------|
| Special Instructions / Comments: |
| |

ASBESTOS BULK SAMPLE LOG

1808308

08163527
 Project Number
 WVNCC
 Project Name
 Matthew Madeya
 Inspector

8/13/18
 Date
 Weirton
 Building Name
 057497
 Inspector License #

| Sample # | Material:Description | Sample Location | Analytical Results |
|----------|----------------------|-----------------|--------------------|
| 01-01 | Roofing | Phase 1 Roof | |
| 01-02 | " " | | |
| 02-01 | Flashing | ↓ | |
| 02-02 | " " | | |
| 03-01 | Roofing | Phase 2 Roof | |
| 03-02 | " " | ↓ | |
| 04-01 | Flashing | | |
| 04-02 | " " | | |
| 05-01 | Exterior Window | Utility Room | |
| 05-02 | Caulking | Computer Room | |
| 06-01 | Window Glazing | Utility Room | |
| 06-02 | " " | Computer Room | |
| 07-01 | Interior Window | Computer Room | |
| 07-02 | Caulking | " " | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |

Sampled By: Matthew Madeya

Date: 8/13/18

CHAIN OF CUSTODY

Relinquish Signature: Matthew Madeya

Date: 8/13/18

Signature of Recipient: [Signature]

Date: 8/14/18 9:00am

Signature of Recipient: _____

Date: _____

Disposition of Samples: Return Dispose

Client: WVNCC

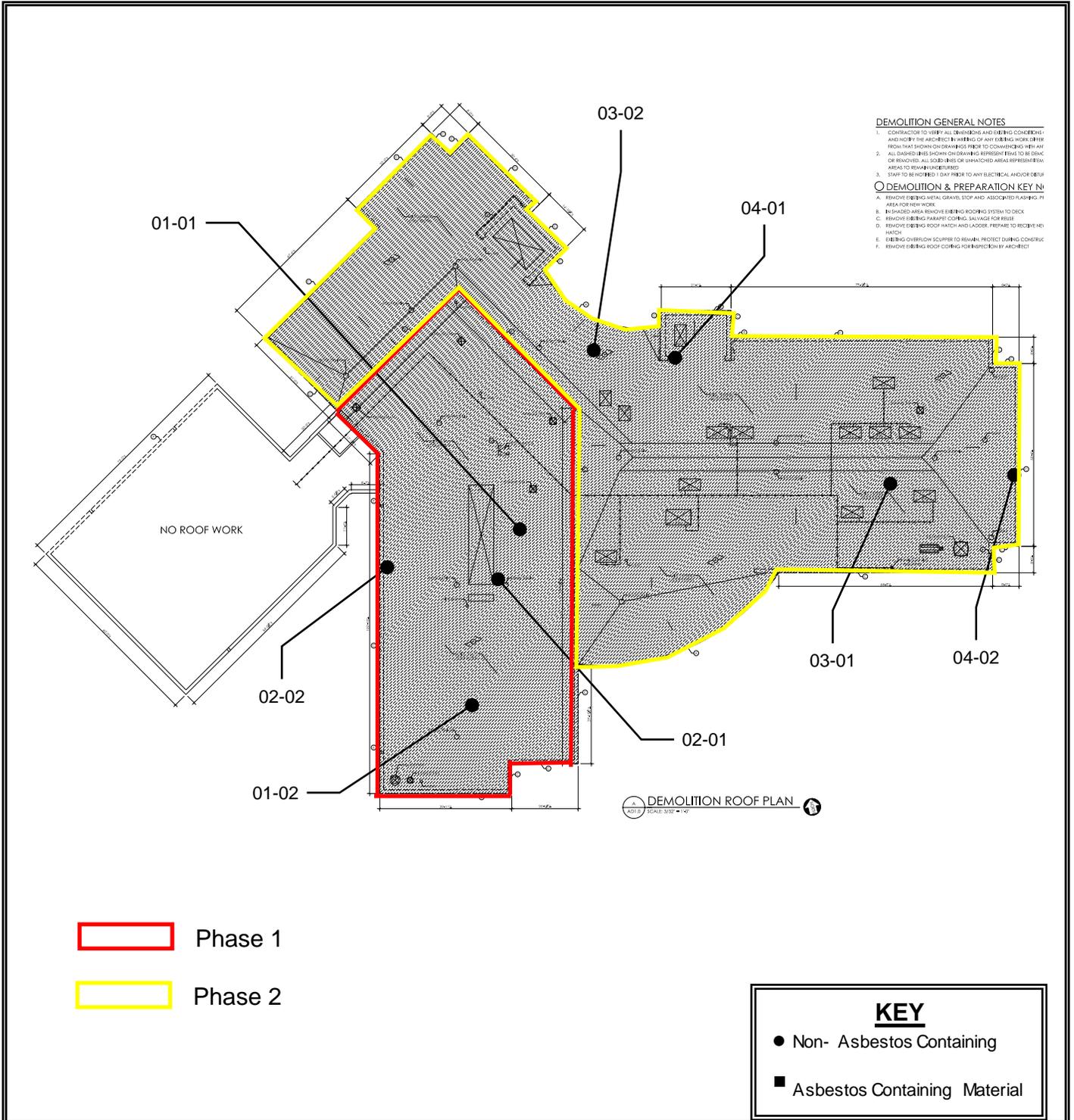
Date: 8/14/18

Project Name: WVNCC Roof/Window Survey Weirton

Project No.: 08163527

Work Area Location: Roof

Inspector: Matthew Madeya



Client: WVNCC

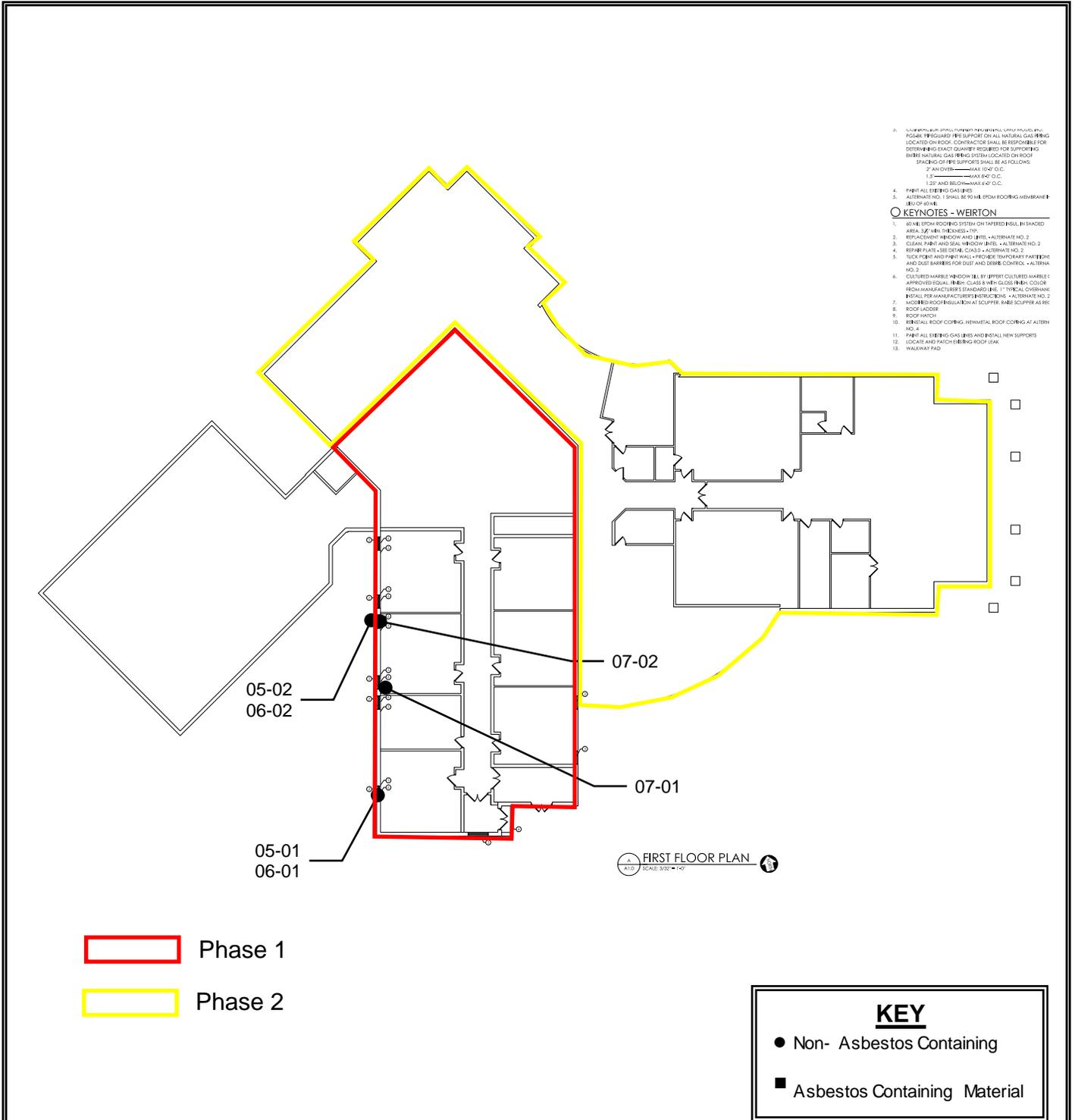
Date: 8/14/18

Project Name: WVNCC Roof/Window Survey Weirton

Project No.: 08163527

Work Area Location: Exterior Windows

Inspector: Matthew Madeya





WEST VIRGINIA

Asbestos Program

Matthew Madeya

**IS LICENSED AS AN
ASBESTOS INSPECTOR**

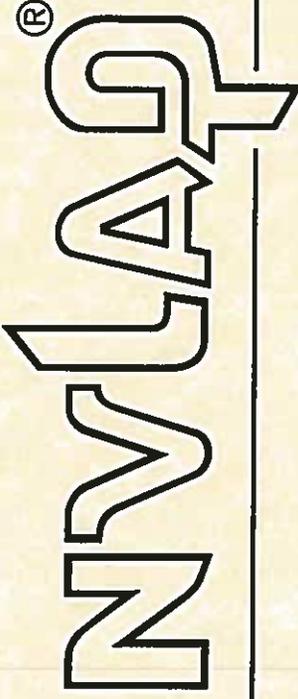
License #: AI009454
Issued: 10/26/2017
Expires: 10/31/2018

Matthew Madeya

**Director
WV OEHS**



United States Department of Commerce
National Institute of Standards and Technology



Certificate of Accreditation to ISO/IEC 17025:2005

NVLAP LAB CODE: 101350-0

PSI
Pittsburgh, PA

*is accredited by the National Voluntary Laboratory Accreditation Program for specific services,
listed on the Scope of Accreditation, for:*

Asbestos Fiber Analysis

*This laboratory is accredited in accordance with the recognized International Standard ISO/IEC 17025:2005.
This accreditation demonstrates technical competence for a defined scope and the operation of a laboratory quality
management system (refer to joint ISO-ILAC-IAF Communiqué dated January 2009).*

2018-07-01 through 2019-06-30
Effective Dates



Arthur S. Lamm
For the National Voluntary Laboratory Accreditation Program



SCOPE OF ACCREDITATION TO ISO/IEC 17025:2005

PSI
PSI, Inc.
850 Poplar Street
Pittsburgh, PA 15220
Ms. Catherine McNamee
Phone: 412-922-4010 x286 Fax: 412-922-4014
Email: cathy.mcnamee@psiusa.com
<http://www.psiusa.com>

ASBESTOS FIBER ANALYSIS

NVLAP LAB CODE 101350-0

Bulk Asbestos Analysis

| <u>Code</u> | <u>Description</u> |
|-------------|---|
| 18/A01 | EPA -- 40 CFR Appendix E to Subpart E of Part 763, Interim Method of the Determination of Asbestos in Bulk Insulation Samples |
| 18/A03 | EPA 600/R-93/116: Method for the Determination of Asbestos in Bulk Building Materials |

Airborne Asbestos Analysis

| <u>Code</u> | <u>Description</u> |
|-------------|--|
| 18/A02 | U.S. EPA's "Interim Transmission Electron Microscopy Analytical Methods-Mandatory and Nonmandatory-and Mandatory Section to Determine Completion of Response Actions" as found in 40 CFR, Part 763, Subpart E, Appendix A. |

A handwritten signature in black ink, appearing to read "Dana S. Leman".

For the National Voluntary Laboratory Accreditation Program



Intertek-PSI
850 Poplar Street
Pittsburgh, PA 15220

Tel +1 412.922.4001
Fax +1 412.922.4014
intertek.com/building

August 16, 2018

West Virginia Higher Education Policy Commission
1018 Kanawha Boulevard, East, Suite 700
Charleston, WV 25301

Attn: Mr. Richard Donovan
Rich.Donovan@wvhepc.edu

Re: Asbestos Roof Survey Report
West Virginia Northern Community College
New Martinsville Campus
141 Main Street, New Martinsville
West Virginia, 26155
PSI Project No. 08163527

Dear Mr. Donovan

Enclosed please find the Final Report for the Asbestos Roof Survey, sampling and analysis services conducted by Professional Service Industries Inc. (PSI), at the above referenced location.

Introduction

The survey was conducted on August 14, 2018 by Matthew Madeya, an EPA/AHERA accredited and West Virginia licensed asbestos inspector (AI 009450). Copies of the inspector's License is included with this report.

Authorization to conduct the investigation and sampling was given on August 13, 2018 by Richard Donovan of WV Council for Community & Technical College Education, via Work Order #19025. The project was conducted in accordance with the scope, terms and conditions of PSI Proposal #816-252800, dated August 9, 2018.

Scope of Services

The inspection and sampling was limited to suspected roofing materials that will be impacted by the planned replacement of the roof.

In addition; during PSI's on-site survey, a request was made by the maintenance staff to sample the exposed insulation from the damaged man door to the roof.



A total of 6 (six) bulk samples from 3 (three) suspect homogeneous materials were collected and analyzed for asbestos content.

Inspection, Sampling & Analytical Methodology

The inspection included only the client-defined materials associated with the roof and the roof man door insulation. Materials which were similar in color, texture, general appearance and which appear to have been installed at the same time were grouped in Homogeneous Sampling Areas.

EPA guidelines were used to determine the sampling protocol. Sampling locations were chosen to be representative of the homogeneous sampling area. While an effort was made to collect samples randomly, samples were taken preferentially from areas already damaged or areas which were the least visible to minimize disturbance of the material.

In accordance with the agreement between PSI and the client, roofing materials were sampled by coring through the roof system to the base deck material. PSI applied a temporary patch to the roof sample location. Due to the destructive nature of roof sampling, PSI does not warrant a water tight condition following sample extraction, nor can PSI guarantee the continuance of any roof system warranties by other entities.

The samples were analyzed for asbestos concentration at Professional Service Industries, Inc., located at 850 Poplar Street, Pittsburgh, Pennsylvania 15220. The PSI Pittsburgh Asbestos Laboratory is accredited by the National Voluntary Laboratory Accreditation Program (NVLAP), #101350-0.

The samples were analyzed for asbestos by polarized light microscopy (PLM) in accordance with the “U.S. EPA Method for the Determination of Asbestos in Bulk Building Materials” (EPA/600/R-93/116 July, 1993). Analysis was performed by using the bulk sample for visual observation and slide preparation(s) for microscopic examination and identification. The samples were mounted on slides and then analyzed for asbestos (chrysotile, amosite, crocidolite, anthophyllite, actinolite/tremolite), and fibrous non-asbestos constituents (mineral wool, fiberglass, cellulose, etc.). Asbestos was identified by refractive indices, morphology, color, pleochroism, birefringence, extinction characteristics, and signs of elongation. The same characteristics were used to identify the non-asbestos constituents.

The microscopist visually estimated relative amounts of each constituent by determining the volume of each constituent in proportion to the total volume of the sample, using a stereoscope.

The EPA method allows samples which are visually determined to have 10% or less asbestos to be quantified using a Point Count procedure. An ocular reticule (cross hair or point array) is used to visually superimpose a point or points on the microscope field of view. A total of 400 points superimposed on either asbestos fibers or non-asbestos matrix material must be counted over at least eight different preparations of



representative subsamples. If an asbestos fiber and matrix particle overlap so that a point is superimposed on their visual intersection, a point is scored for both categories. Point counting provides a quantification of the area percent asbestos. No samples were point counted during this limited survey.

Copies of the laboratory reports and certifications are attached.

Findings

Asbestos:

Following is a listing of the suspect asbestos-containing materials sampled at the site, and the results of the laboratory analysis:

| Homog. Area # & Sample # | Material Description | Cond. | Friable Y/N | Material Location | Est Qty. | Lab Results |
|--------------------------|------------------------------|-------|-------------|-------------------|----------|-------------|
| 01 (2) | Roofing | Good | N | Roof | NA | NAD |
| 02 (2) | Black Flashing | Good | N | Roof | NA | NAD |
| 03 (2) | Interior Man Door Insulation | Dam. | Y | Roof Access Door | NA | NAD |

NAD – No asbestos Detected

A material is considered to be asbestos-containing if at least one sample from the homogeneous area shows asbestos in an amount greater than 1% as determined using the EPA’s Interim Method of the Determination of Asbestos in Bulk Samples. If a material is found to contain 10% or less asbestos, it can be treated as non asbestos-containing per EPA Regulations, if verified to contain 1% or less asbestos by the Point Count Quantification Procedure. No samples were quantified by the Point Count Procedure for this Limited Asbestos Survey.

Conclusion & Recommendation

No asbestos-containing materials were identified in the locations surveyed. No further assessment of the roofing material is recommended.

In addition; during the demolition activities of the roofing materials, if any additional suspect ACM materials are discovered; it will require testing or can be treated as assumed ACM unless tested and found to be non-ACM.

Please refer to the laboratory analyses for a more detailed description of the microscopic analysis of individual samples. A copy of the “Report of Bulk Sample Analysis for Asbestos” and the “Bulk Sample Log”/Chain of Custody field sheet are attached.



Warranty

Asbestos Roof Assessment

The field and laboratory results reported herein are considered sufficient in detail and scope to determine the presence of asbestos in defined suspect asbestos-containing building materials (ACBM) in the specified areas of the facility. This was a limited sampling of only certain defined areas and materials identified by the client. Professional Service Industries (PSI), Inc., warrants that the findings contained herein have been prepared in general accordance with accepted professional practices at the time of its preparation as applied by professionals in the community. Changes in the state of the art or in applicable regulations cannot be anticipated and have not been addressed in this report.

The survey and analytical methods have been used to provide the client with information regarding the presence of accessible and/or exposed suspect ACM existing in the defined surveyed area at the time of the inspection. Test results are valid only for the material tested. There is a distinct possibility that conditions may exist which could not be identified within the scope of the study or which were not apparent during the site visit. This inspection covered only those areas which were exposed and/or physically accessible to the Inspector. The study is also limited to the information available from the client at the time it was conducted.

No other warranties are implied or expressed.

We appreciate the opportunity to provide our services on this project and would be pleased to continue our role as your consultant for future projects. If we can be of any assistance, or if you have any questions regarding this report, please feel free to contact us at (412) 922-4000.

Sincerely Yours,
PROFESSIONAL SERVICE INDUSTRIES, INC.



William L. Nicastro
Department Manager



Eric Oldroyd
Principal Consultant

Attachments:

Report of Bulk Sample Analysis for Asbestos
Asbestos Bulk Sample Log/Chain of Custody
Sample Location Map
Inspector & Laboratory Accreditations



REPORT OF BULK SAMPLE ANALYSIS FOR ASBESTOS

TESTED FOR: PSI, Inc.
 850 Poplar Street
 Pittsburgh, PA 15220
 Attn: Matthew Madeya

Project ID: 08163527
 WVNCC
 New Martinsville

Date Received: 8/14/2018 **Date Completed:** 8/14/2018 **Date Reported:** 8/14/2018

Analyst: Chris Kopar **Work Order:** 1808306 **Page:** 1 of 1

| Client ID | Lab ID (Layer) | Sample Description (Color, Texture, Etc.) <i>Analyst's Comment</i> | Asbestos Content (Percent and Type) | Non-asbestos Fibers (Percent and Type) |
|-----------|----------------|---|-------------------------------------|--|
| 01-01 | 001A | (1) Black, Roofing, Homogeneous | NO ASBESTOS DETECTED | 10% Fibrous Glass 90% Cellulose Fiber |
| | | (2) Yellow, Foam, Homogeneous | NO ASBESTOS DETECTED | None Reported |
| 01-02 | 002A | (1) Black, Roofing, Homogeneous | NO ASBESTOS DETECTED | 10% Fibrous Glass 90% Cellulose Fiber |
| | | (2) Yellow, Foam, Homogeneous | NO ASBESTOS DETECTED | None Reported |
| 02-01 | 003A | (1) Black, Flashing, Homogeneous | NO ASBESTOS DETECTED | None Reported |
| 02-02 | 004A | (1) Black, Flashing, Homogeneous | NO ASBESTOS DETECTED | None Reported |
| 03-01 | 005A | (1) White, Fireproofing, Homogeneous | NO ASBESTOS DETECTED | None Reported |
| 03-02 | 006A | (1) White, Fireproofing, Homogeneous | NO ASBESTOS DETECTED | 3% Fibrous Glass |

Report Notes: (PT) Point Count Results

Quantitation is based on a visual estimation of the relative area of bulk sample components, unless otherwise noted in the "Comments" section of this report. The results are valid only for the item tested. This report may not be used to claim product endorsement by NVLAP or any agency of the U.S. Government. Method used: E.P.A. Interim Method for the Determination of Asbestos in Bulk Insulation Samples (EPA 600/M4-82-020). Polarized Light Microscopy is not consistently reliable in detecting asbestos in floor coverings and similar non-friable organically bound materials. Quantitative Transmission Electron Microscopy is currently the only method that can be used to determine if the material can be considered or treated as non-asbestos containing. Samples will be disposed of within 30 days unless notified in writing by the client. No part of this report may be reproduced, except in full, without written permission of the laboratory. The reporting limit is 1% by weight. NVLAP Lab Code 101350-0.

Respectfully submitted,
 PSI, Inc.


 Approved Signatory
 George Skarupa

CHAIN OF CUSTODY - ASB/LEAD/IH

1008306(2)



IH Laboratory
850 Poplar Street
Pittsburgh, PA 15220
412-922-4001 ext. 228/425

| Project Information | |
|---------------------|------------------------|
| Project Name: | WVNCC New Marlinsville |
| Project No: | 08163527 |
| PO Number: | |
| Sample Date: | 8/13/18 |

| Send Results To: | |
|------------------|---|
| Company: | PSI |
| Attn: | Matthew Madeya |
| Address: | 850 Poplar Street, Pittsburgh, PA 15220 |
| Telephone: | 412-922-4001 x310 |
| Email: | matthew.madeya@psiusa.com |

| Send Invoice To: | |
|------------------|------|
| Company: | Same |
| Attn: | |
| Address: | |
| Telephone: | |
| Email: | |

| Requested Turnaround Time: | | | |
|-------------------------------------|--------------------------|--------------------------|-----------------|
| Same Day | 1-2 Day | 3-5 Day | Requested Date: |
| <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | 8/14/18 |

| Stop at First Positive | |
|-------------------------------------|--------------------------|
| Y | N |
| <input checked="" type="checkbox"/> | <input type="checkbox"/> |

| Laboratory Use Only | |
|--------------------------------------|--|
| All Samples in Acceptable Condition: | Y <input checked="" type="checkbox"/> N <input type="checkbox"/> |
| Comments: | |
| Shipping Charges Apply: | <input type="checkbox"/> |

| Sample ID: | Number of Samples | PLM Bulk | Point Count (400) | Point Count (1000) | Lead Wipe | Lead Air | Lead Soil | Lead Paint Chip | Lead TCLP | PCM | PCM "B Rules" | TEM AHERA | TEM 7402 | TEM Chatfield | TEM Vacuum | TEM Wipe | NY PLM Friable/NOB | NY TEM NOB | NY SOF-V | Total Nuisance Dust | Respirable Dust | Cadmium | Zinc | Total Chromium | Other: |
|------------|-------------------|----------|-------------------|--------------------|-----------|----------|-----------|-----------------|-----------|-----|---------------|-----------|----------|---------------|------------|----------|--------------------|------------|----------|---------------------|-----------------|---------|------|----------------|--------|
| WVNCC NM | 6 | X | | | | | | | | | | | | | | | | | | | | | | | |

| | | | |
|-----------------|-----------|--------------------|----------------|
| Relinquished by | Date/Time | Received by | Date/Time |
| Matthew Madeya | 4:15 | <i>[Signature]</i> | 8/14/18 9:00am |

| | |
|---------------|--------------------|
| Analyst Name: | Analyst Signature: |
| | <i>[Signature]</i> |

| |
|----------------------------------|
| Special Instructions / Comments: |
| |

Client: WVNCC

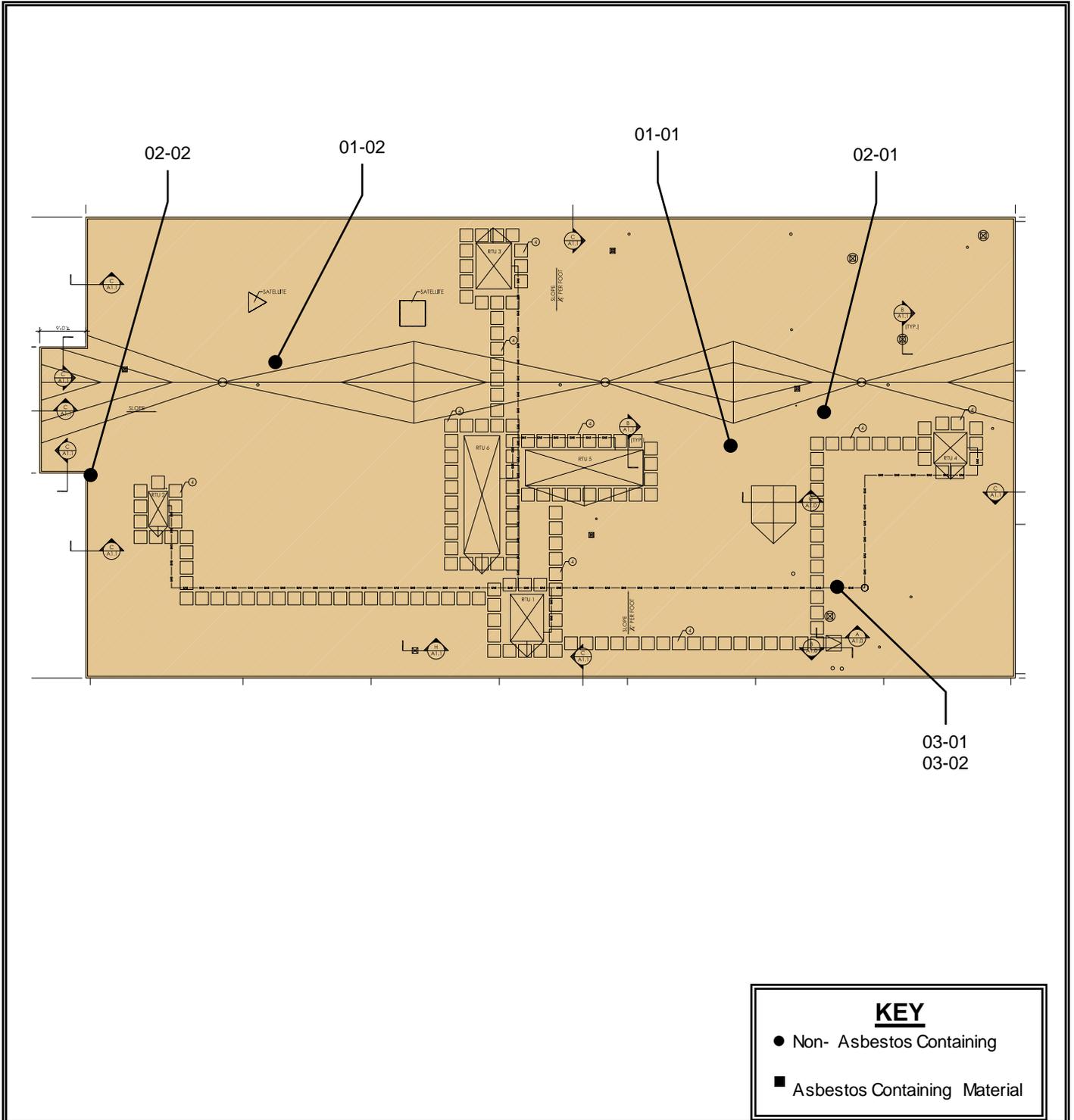
Date: 8/14/18

Project Name: WVNCC Roof Survey New Martinsville

Project No.: 08163527

Work Area Location: Roof

Inspector: Matthew Madeya



| KEY | |
|------------|------------------------------|
| ● | Non- Asbestos Containing |
| ■ | Asbestos Containing Material |



WEST VIRGINIA

Asbestos Program

Matthew Madeya

**IS LICENSED AS AN
ASBESTOS INSPECTOR**

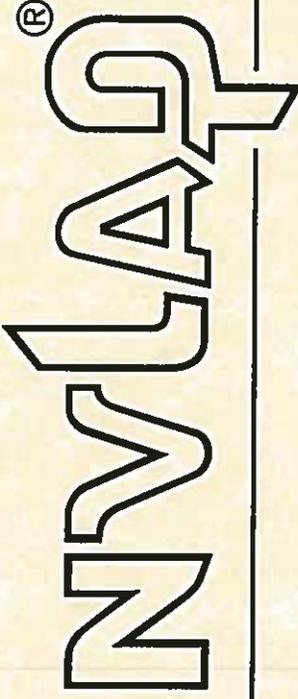
License #: AI009454
Issued: 10/26/2017
Expires: 10/31/2018

Matthew Madeya

**Director
WV OEHS**



United States Department of Commerce
National Institute of Standards and Technology



Certificate of Accreditation to ISO/IEC 17025:2005

NVLAP LAB CODE: 101350-0

PSI
Pittsburgh, PA

is accredited by the National Voluntary Laboratory Accreditation Program for specific services,
listed on the Scope of Accreditation, for:

Asbestos Fiber Analysis

This laboratory is accredited in accordance with the recognized International Standard ISO/IEC 17025:2005.
This accreditation demonstrates technical competence for a defined scope and the operation of a laboratory quality
management system (refer to joint ISO-ILAC-IAF Communiqué dated January 2009).

2018-07-01 through 2019-06-30
Effective Dates



Arthur S. Lamm
For the National Voluntary Laboratory Accreditation Program



SCOPE OF ACCREDITATION TO ISO/IEC 17025:2005

PSI
PSI, Inc.
850 Poplar Street
Pittsburgh, PA 15220
Ms. Catherine McNamee
Phone: 412-922-4010 x286 Fax: 412-922-4014
Email: cathy.mcnamee@psiusa.com
<http://www.psiusa.com>

ASBESTOS FIBER ANALYSIS

NVLAP LAB CODE 101350-0

Bulk Asbestos Analysis

| <u>Code</u> | <u>Description</u> |
|-------------|---|
| 18/A01 | EPA -- 40 CFR Appendix E to Subpart E of Part 763, Interim Method of the Determination of Asbestos in Bulk Insulation Samples |
| 18/A03 | EPA 600/R-93/116: Method for the Determination of Asbestos in Bulk Building Materials |

Airborne Asbestos Analysis

| <u>Code</u> | <u>Description</u> |
|-------------|--|
| 18/A02 | U.S. EPA's "Interim Transmission Electron Microscopy Analytical Methods-Mandatory and Nonmandatory-and Mandatory Section to Determine Completion of Response Actions" as found in 40 CFR, Part 763, Subpart E, Appendix A. |

A handwritten signature in black ink, appearing to read "Dana S. Leman".

For the National Voluntary Laboratory Accreditation Program

SECTION 028200 – ASBESTOS ABATEMENT

PART 1 - ASBESTOS GENERAL

1.01 STIPULATIONS

- A. References herein to “Contractor”, “Asbestos Abatement Contractor” or “AAC” refer to the properly certified personnel employed either directly or as a subcontract under the Prime Construction Contract.
- B. The procedures specified in this section are for minimum performance. Variations to the stipulated work procedures will only be accepted through written approval by Professional Service Industries, Inc. (PSI) and the Owner. The AAC is responsible for conformance to regulatory codes, rules and guidelines. The AAC is required to obtain all permits, licenses and approvals to perform the work, including any rights to use patented systems.

1.02 SCOPE OF WORK

- A. A survey for asbestos-containing materials (ACM) was conducted at the West Virginia Northern Community College – Weirton Campus in Weirton, West Virginia by Professional Service Industries, Inc. (PSI) on August 13, 2018. The survey was used to provide the estimated quantities and locations of each identified ACM in the scope of work.
- B. The work includes removal and disposal of asbestos-containing exterior window glazing.
- C. The scope of work for this project covers the filing of required notifications, landfill charges, supplying of all labor, tools, materials, equipment, services and appurtenances to accomplish the work below. The work shall be performed to the complete satisfaction of the Owner, Architect and the Environmental Consultant, in accordance with the current EPA and OSHA regulations, State Labor and Industry and the Department of Environmental Protection regulations and any other applicable Federal, State and Local Government regulations. The AAC should perform the abatement in accordance with the most stringent of the regulations provided.
- D. There must be at least two (2) state licensed workers/supervisors present and working at all times during the scheduled shifts. The AAC must have written approval from the Environmental Consultant and the Owner to use less than five certified workers for a specific reason. In addition, sufficient manpower must be provided to maintain the overall project schedule.
- E. Submit required documentation in accordance with Division 01 Section “Submittal Procedures”. Copy all communication to Architect and Owner.
 - 1. SDS Submittal will not be acted upon by Architect/Owner, but may be accepted as Information Submittals.

The determination of the exact amount of asbestos-containing materials present is solely the responsibility of the AAC.

Work under this project includes, but is not limited to, the following Proper Removal and Disposal of the following asbestos-containing materials:

West Virginia Northern Community College - Weirton

| Material Description | Material Locations | Estimated Quantity |
|-----------------------------|---------------------------------|---------------------------|
| Exterior Window Glazing | West Elevation (see demo plans) | 12 Windows |

- F. All materials contaminated with ACM and ACM debris must be cleaned as part of the abatement scope.
- G. The AAC shall coordinate with the GC for removal schedule and access.
- H. The determination of the exact amount of asbestos-containing materials present is solely the responsibility of the AAC.

1.03 CONTROL OF WORK

- A. Work which does not conform to the requirements of the contract, plans and specifications will be considered unacceptable.
- B. Unacceptable work, whether the result of poor workmanship, use of defective materials, damage through carelessness, or any other cause found to exist prior to the final acceptance of the work, shall be corrected immediately to an acceptable condition.
- C. If the Owner or the Environmental Consultant finds the materials furnished, work performed, or the finished product not within conformity with the contract documents and have resulted in an unacceptable finished product, the affected work or material shall be corrected by and at the expense of the Contractor.

1.04 QUALITY ASSURANCE

- A. Independent testing agency:
 1. Asbestos Abatement Contractor shall be licensed in the State of West Virginia to bid this work.
 2. Airborne fibers referred to above include all fibers regardless of composition as counted by phase contrast microscopy (PCM) in accordance with NIOSH 7400 Procedure. Should the PCM air monitoring detect either a fault in the work area isolation or visible emission, the Asbestos Abatement Contractor shall immediately cease asbestos abatement activities until the fault is corrected. Work shall not recommence until authorized by the Environmental Consultant.
 3. Any result greater than 0.01 f/cc collected by an air sample outside the work area shall be considered as evidence of a fault in the work area isolation. The Asbestos Abatement Contractor shall strive to maintain the asbestos concentration inside the work area equal to or less than 0.2 f/cc by engineering and work practice controls. It is recognized that there may be situations when this is not feasible. At the discretion of the Environmental Consultant, levels may exceed 0.2 f/cc, but not 0.5 f/cc. Additional engineering and work

practice controls shall be implemented by the Asbestos Abatement Contractor should any result from an air sample collected inside the work area exceed 0.5 f/cc.

4. Excessive Airborne Fiber Counts: The following procedures shall be used to resolve any dispute regarding fiber type when a project has been stopped due to excessive airborne fiber counts. Samples will be taken and analyzed by transmission electron microscopy (TEM) utilizing NIOSH 7402 Method by a NVLAP accredited laboratory.
5. Personnel Air Samples: The Asbestos Abatement Contractor is responsible for monitoring its personnel in accordance with OSHA regulations 29CFR 1926.1101 and mandatory appendices.
6. Asbestos abatement work shall be considered to be substantially complete upon confirmation of final air clearance by the Environmental Consultant.

B. Contractor Experience:

1. The Asbestos Abatement Contractor shall have a minimum of five (5) years experience in the asbestos abatement business and shall have successfully completed five (5) projects of similar or larger size and dollar value to this project and shall not have defaulted on an asbestos abatement project within the last three (3) years. The Asbestos Abatement Contractor shall furnish documentation of these projects, including names and addresses of the purchaser of the service and the location of the work performed.
2. The Asbestos Abatement Contractor shall be certified by the West Virginia Department of Health.
3. The Asbestos Abatement Contractor shall provide a list of any outstanding violations received from OSHA, the EPA or any applicable State and Local Governing body that occurred within the last (24) months.

C. Worker Certification:

1. Furnish proof that its employees have had instruction on the dangers of asbestos exposure, on respirator use, decontamination, and current OSHA and EPA regulations. Proof of training is to be provided to the Environmental Consultant at the pre-construction meeting.
2. Documentation of workers' medical exams, consisting of x-rays and pulmonary function shall be submitted to the Environmental Consultant prior to any work being performed and as may be required by current OSHA and EPA regulations and any applicable State and Local Government regulations.
3. There must be on site at all times, an EPA Certified Asbestos Abatement Supervisor. The Asbestos Abatement Supervisor shall have successfully completed an EPA Certified Practices and Procedures Course as per 40 CFR, Part 763, Subpart E, Appendix C-EPA Model Accreditation Part (must provide a copy of certificate from EPA approved course). All asbestos workers shall have successfully completed an EPA Certified Practices and Procedures Course as per 40 CFR, Part 763, Subpart E, Appendix C-EPA "Model Accreditation Plan". The Contractor must provide copies of current certificates from West Virginia for all workers and supervisors.

4. The Abatement Supervisor and Abatement Workers shall be licensed by the West Virginia Department of Health. Each worker/supervisor shall have license identification issued by the Department of Health available at the work site.

1.05 POSTING OF REGULATIONS

- A. The Asbestos Abatement Contractor will have at all times in his possession at its office one (1) copy and on view at the job site one (1) copy, current OSHA Regulations 29CFR1926.1101, Asbestos, and current Environmental Protection Agency 40 CFR Part 61, Subpart N: National Emission Standard for Asbestos, Asbestos Stripping Work Practices and Disposal of Asbestos Waste.

1.06 CODES AND REGULATIONS AND REGULATORY AGENCIES SUBMITTALS (ASBESTOS ABATEMENT CONTRACTOR'S RESPONSIBILITY)

- A. Except to the extent that more explicit or more stringent requirements are written directly into the contract documents, all applicable codes, regulations, and standards have the same force and effect (and are made a part of the contract documents by reference) as if copied directly into the contract documents, or as if published copies are bound herewith.
- B. The following codes and regulations govern asbestos abatement work, asbestos waste material, hauling and disposal, employee health and safety, and environmental protection:
 1. U.S. Department of labor, Occupational Safety and Health Administration (OSHA), including but not limited to:
 - a. Occupation Exposure to Asbestos, Title 29, Part 1910, Section 1001 and Part 1926, Section 1101 of the Code of Federal Regulations.
 - b. Respiratory Protection, Title 29, Part 1910, Section 134 of the Code of Federal Regulations.
 - c. Training and Work Practices, Title 29, Part 1926, Section 26 of the Code of Federal Regulations.
 - d. Employee Exposure and Medical Records, Title 29, Part 1910, Section 20 of the Code of Federal Regulations.
 - e. Specifications for Accident Prevention Signage and Label, Title 29, Part 1910, Section 145 of the Code of Federal Regulations.
 2. U.S. Environmental Protection (EPA):
 - a. Regulations for Controlling Visible Emissions, National Emission Standard for Asbestos, Title 40, Part 61, Subpart M of the Code of Federal Regulations.
 - b. Guidelines for Disposal of Solid Waste, Title 40, Part 241 of the Code of Federal Regulations.
 - c. Criteria for Classification of Solid Waste Disposal Facilities and Practices, Title 40, Part 257 of the Code of Federal Regulations.
 3. U.S. Department of Transportation
 - a. Hazardous Material Regulations, Title 49, Part 107 of the Code of Federal Regulations.
 4. West Virginia Bureau for Public Health, Office of Environmental Health Services, Radiation, Toxics and Indoor Air Division

- a Title 64, Legislative Rule, Division of Health, Series 63, Asbestos Abatement Licensing Rule
- C. Notify the following agencies in writing ten (10) days prior to starting work for notification and instructions concerning proper disposal of asbestos waste material. Copies of all notifications shall be sent to the Owner and the Environmental Consultant.
1. United States Environmental Protection Agency - Region III
Asbestos - NESHAP Coordinator (3AT33)
841 Chestnut Building
Philadelphia, Pennsylvania 19107
 2. West Virginia Bureau for Public Health
Office of Environmental Health Services
Radiation, Toxics and Indoor Air Division
Certification & Licensing Program
Capital and Washington Streets
One Davis Square, Suite 200
Charleston, WV 25301-1798

1.07 AIR MONITORING

- A. Air sampling of work areas and surrounding environment will be conducted during the performance of this contract so as to ensure compliance with all codes, regulations, ordinances and these specifications.
- B. Asbestos Abatement Contractor shall fully cooperate with the Environmental Consultant and all others responsible for testing and inspecting the work. An air testing and monitoring schedule shall be submitted prior to the start of work.
- C. Air testing and analysis shall be in accordance with current EPA and requirements of Section 29CFR 1926.1101 of the current OSHA Regulations and Title 64, Part 63-6 of the West Virginia Division of Health Asbestos Abatement Licensing Rule, as a minimum. Analysis shall be performed by Phase Contrast Microscopy (PCM) per NIOSH 7400 Method and/or Transmission Electron Microscopy (TEM) per EPA Level II analytical procedures.
- D. Air tests taken prior to start of work (background) and during abatement activities (areas and personals) will be analyzed by PCM. Air samples collected upon completion of removal activities (finals) will be analyzed by PCM.
- E. After a work area has passed the Environmental Consultant's visual inspection, final clearance testing will be performed no earlier than 24 hours later.
- F. The Environmental Consultant shall give verbal notification to the Owner of the final clearance results of each test within 24 hours of the time the samples were received by the laboratory. The Environmental Consultant shall confirm the results in writing within three (3) days thereafter.
- G. Prompt reports are necessary so that, if required, modifications to work methods and/or practices may be implemented as soon as possible, if such action is required.

- H. Representatives of the Environmental Consultant shall have access to the work area at all times. Provide facilities for such access in order that the Environmental Consultant may properly perform its function.
- I. Specimens and samples for testing shall be taken by the testing personnel. Sampling equipment and personnel will be provided by the Environmental Consultant. Air sampling shall be performed in each work area prior to commencement of the work at the location. The highest fiber count reading during pre-clearance clean-up monitoring shall be lower than the background readings established by pre-job monitoring or 0.01 f/cc, whichever is lower.
- J. Air sampling shall be taken on, but not necessarily limited to, the following schedule:

| Area | When | Number of Samples (minimum) | Volume Sample (liters) | Minimum Collection Rate (liters/min) |
|-----------------|-----------------------|-----------------------------|------------------------|--------------------------------------|
| Work Area (PCM) | Prior to job start | 5 | 1500 | 2-10 |
| Work Area (PCM) | During area Isolation | Daily ¹ | 1000 | 2-10 |
| Work Area (PCM) | During abatement work | Daily ^{1, 2} | 1000 | 2-10 |
| Work Area (PCM) | At completion (final) | 5 | 1500 | 2-12 |

NOTES:

- 1 Consecutive daily air samples will be taken during abatement to yield a minimum of eight (8) hours of sampling time for each active work area.
- 2 Exterior samples shall be taken at all decontamination unit entrance, waste load out exit, and discharge of HEPA exhaust units.

- K. Work area clearance testing shall be completed before work site protective barriers are removed.
- L. Asbestos Abatement Contractor is responsible for performing the thirty (30) minute excursion air sampling per OSHA Regulations.
- M. Asbestos Abatement Contractor is responsible for performing personal air samples in the employees breathing zone per OSHA regulations.

1.08 AIR FILTERING

- A. An approved pressure/air movement atmosphere may be created in the active work area using HEPA equipped air movement units.
- B. Air may be drawn from clean areas through the decontamination and active work areas, HEPA filtered and exhausted through air movement units to the containment exterior. Replace filters in accordance with manufacturer's instructions.
- C. Air movement should be sufficient quantity to ensure a minimum of four (4) air changes per hour.

Example: Active work area = 50' x 50' x 20' = 50,000 cu. ft

For four air changes per hour = 4 AC/HR x 50,000 CF/AC = 200,000 cu. ft/hr

In cubic feet per minute = 200,000 CF/HR: 60 min./hr. = 3,333 cu. ft/minute

- D. The exhaust system must be sufficient to maintain a minimum pressure differential of -0.02 inches of water relative to unsealed, adjacent area. Provide continuous, 24-hours per day monitoring of the pressure differential with an automatic recording instrument.
- E. The exhaust system(s) will run twenty-four (24) hours/day until final clearance is obtained and will be maintained in accordance with ANSI Z9.2 and the manufacturer's directions.
- F. To ensure continuous operation, provide a spare negative exhaust unit to be made available.

1.09 ALTERNATIVE AIR FILTERING METHODS

- A. Other approved air filtering methods may be utilized with the stipulation that designed regulatory agencies provide documented approval to the Owner and Environmental Consultant. It shall be the responsibility of the Asbestos Abatement Contractor to submit all documentation required to the appropriate regulatory agency for their review and approval.

1.10 PLACEMENT OF WARNING SIGNS AND LABELS

- A. Warning Signs and Labels: Provide warning signs at all approaches to asbestos control areas containing concentrations of airborne asbestos fibers. Locate signs at such a distance that personnel may read the sign and take the necessary protective steps required before entering the area. Provide labels and affix to all asbestos materials, scrap waste, debris and other products contaminated with asbestos.

Warning Signs: Provide warning signs conforming to 29 CFR 1926.1101 with the following legend:

DANGER
ASBESTOS
CANCER AND LUNG DISEASE HAZARD
AUTHORIZED PERSONNEL ONLY
RESPIRATORS AND PROTECTIVE CLOTHING ARE
REQUIRED IN THIS AREA

Provide spacing between lines at least equal to the height of the upper of any two lines.

- B. Caution Labels: Attach label to each disposal bag and container, displaying the following legend:

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

- C. Identification Label: Attach label to inner opaque or colored disposal bag so that it remains visible through the clear outer bag. Attach labels to container transported from facility site. Text shall include the following legend:

Waste Generator Name:

Generator Location:

- D. Transportation Marking: In accordance with 49 CFR 107, provide marking on all containers with more than one pound of friable asbestos, as follows:

NA2212
RQ ASBESTOS
P OR 11
CLASS 9

PART 2 - PRODUCTS

2.01 EQUIPMENT AND MATERIALS

- A. The list of required materials will include, but is not necessarily limited to the following:
1. Respirators: Provide respiratory protection in accordance with OSHA Regulation 29 CFR 1926.1101 and ANSI Z88.2-1980. Respiratory protection shall be as listed below. There shall be NO EXCEPTION to this requirement. No employee or visitor shall enter the area without this protection until all visible asbestos has been removed from this area. Employees or visitors shall wear this type respirator. Respirators shall be NIOSH/MSHA approved.
 2. Protective Clothing: Provide only disposable protective clothing with material composition of layered polypropylene or spunbonded polyethylene nonwoven material. Disposable protective clothing is to be worn once and disposed of as asbestos-contaminated waste upon exiting from the work area. Suits shall have zipper front and attached hood and shoe covers. "Tyvek" by DuPont, or approved equal are acceptable disposable coveralls. Gloves will be worn for hand cover as required.
 3. Wetting Agents - The asbestos material will be sprayed with water containing an additive to enhance penetration. The additive, or wetting agent, will be polyoxyethylene at a concentration of one (1) ounce per five (5) gallons of water, or equal. A fine spray of this solution must be applied to prevent fiber disturbance preceding the removal of the asbestos material. The asbestos will be sufficiently saturated to prevent emission of airborne fibers in excess of the exposure limits prescribed in the current OSHA standards referenced in these specifications. Dry removal will not be allowed except with written approval.
 4. Polyethylene sheeting: Actual thickness must be six (6) mils, for vertical protection (walls, doors, windows) and for all other uses (floors, fixed equipment, HVAC supply and return openings). Industry Standard "6 mil" sheet is not acceptable.
 5. Polyethylene bags (with warning labels) six mil (.006") minimum for disposal. All asbestos that is removed shall be double bagged.
 6. Tape: High quality vinyl or fabric duct tape.

7. Negative Pressure Filtration Equipment: Air movement and filtering equipment equipped with HEPA filters rated at 99.97% removal down to 0.3 microns, and of sufficient capacity to provide a minimum of four (4) air changes per hour for each active work area.
8. Airless Spray Equipment: Electric airless spray equipment for saturating and mist fiber control. Low-pressure (500 psi) equipment must be available on-site and utilized as required.
9. Vacuum: HEPA rated for surface cleaning and housekeeping. Hand operated and power tools such as, but not limited to, saws, scorers, abrasive wheels and drills should be provided with local exhaust ventilation systems with HEPA filters.
10. Hand tools: Brooms, plastic shovels, scrapers, brushes, etc., in sufficient quantity to ensure the appropriate level of housekeeping.
11. Water Filtration System: Shower and contaminated water filtration system.
12. GFI Equipment: All electrical connectors in the work area must be through "ground fault" protected outlets/circuits.
13. Penetrating Encapsulant: Penetrating encapsulants to be used on this project are International Cellulose Corporation SK-13 Asbestos Encapsulant, International Protective Coatings Corporation Serpiflex Shield, Fiberlock Technology ABC Asbestos Binding Compound Concentrate, and others listed as acceptable in the Environmental Protection Agency - Battelle Laboratory Encapsulant Study, or approved equal.
14. Bridging Encapsulant: Bridging encapsulants to be used on this project are American Coatings Corporation Cable Laboratories Coating 2B, Decadex Laboratories Firecheck, Fiberlock Technology ABC Asbestos Binding Compound Concentrate, or approved equal.
15. SDS for all materials shall be submitted to Independent testing agency and kept on site.

2.02 PERSONNEL PROTECTION

- A. Personnel protection is required for laborers, mechanics, supervision and visitors at the work site during the set-up and abatement operations.
- B. Each worker shall be supplied with a minimum of two (2) complete protective work clothes and respirator filter changes per day for the complete duration of the project. Hard hats should be available as appropriate which meet ANSI Z-89.1 standards. Safety toe footwear is to be worn underneath the disposable or recyclable shoe cover and must meet the requirements and specifications in ANSI Z-41-1. Eye wear and face protection must meet the standards and specifications of ANSI Z-87.1.
- C. In addition to sets of protective work clothes for workers, the Contractor shall have on hand two (2) additional sets of disposable work clothes per day for personnel who are authorized to inspect the work site. Hard hats should be available as appropriate which meet ANSI Z-89.1 standards. Safety toe footwear is to be worn underneath the disposable or recyclable shoe covers and must meet the requirements and specifications in ANSI Z-41-1. Eye wear and face protection must meet the standards and specifications of ANSA Z-87.1.

- D. Respirators approved for asbestos use and protective work clothes will be worn by laborers and mechanics as a minimum during set-up operations (plastic draping, light-fixture dropping or removal, etc.).
- E. Appropriate respirators will be worn by all personnel in the active work area.
- F. Upon leaving the active work area, filters will be discarded, cartridges removed and respirators cleaned in disinfectant solution and clean water rinse.
- G. Clean respirators will be stored in plastic bags when not in use.
- H. Respirators will be inspected daily for broken, missing, or deteriorated parts.

PART 3-EXECUTION

3.01 AREA PREPARATION

- A. Prior to starting the abatement, provide to the Owner and Environmental Consultant the intended methods for set-up and abatement. Issues to be covered must include type of containment, location of decontamination chambers, method to remove ACMs, safety data sheets (SDS) of any solvents to be used, landfill to be used for disposal of asbestos-containing materials, and a schedule for project completion.
- B. Perform any necessary pre-abatement demolition required to access ACMs.
- C. Temporary Electrical Services within Containment Area: As required, coordinate with the Owner's access and connection to temporary power and arrangements for temporary lighting. Ensure safe use of temporary power sources and equipment in compliance with the requirements of the UL Code. Provide ground fault circuit interrupters (GFCI) for all equipment and utility circuits. All extension cords shall be grounded. See Section 01 5000 and Division 26.
- D. Plumbing and Sanitary Services within Containment Area: Provide for temporary water from existing building sources to control the generation of airborne dust, to allow for area, personnel, and equipment decontamination, and to supply decontamination unit needs. Also, provide for temporary sanitary drainage piping to decontamination unit sump at a minimum slope of 2.0%, and temporary drainage piping to waste water pump and existing drain in accordance with local standards.
- E. Isolate the work area for the duration of the work by installing critical barriers completely sealing off all openings in the work area, including, but not limited to, heating ventilation ducts, doorways, corridors, windows, roof ventilator openings, and wall vents, with plastic sheeting taped securely in place.
- F. Under no circumstances will the Asbestos Abatement Contractor allow any containment areas to be broken.
- G. Provide decontamination chamber(s) to be connected to each active work area for entrance to or exit from the active work area. When required a separate material load-out unit shall be provided.

3.02 DECONTAMINATION CHAMBER (USAGE AND ACTIVITIES)

- A. Outside Room (clean room): In this room the worker leaves all street clothes and dresses in clean working clothes. Respiratory protection equipment is also picked up in this area. No asbestos contaminated items should enter this room. Workers enter this room either from outside the structure dressed in street clothes, or naked from the showers, after showering.
- B. Shower Room: This is a separate room used for transit by cleanly dressed workers entering the job from the outside room or by workers headed for the showers after undressing in the equipment room.
- C. Equipment Room (contaminated area): Work equipment, footwear and additional contaminated work clothing are left here. This is a change and transit area for workers.
- D. Decontamination facilities require temporary utility services. Verify during bidding period the availability for temporary hook up. Mobilization, hook-up and demobilization, disconnection costs will be the responsibility of the Contractor. Installation of temporary services during demolition shall be per current EPA and OSHA regulations.
- E. Work Area: The work area should be separated by polyethylene barriers from the equipment room. If the airborne asbestos level in the work area is expected to be high, an additional intermediate cleaning space may be added between the equipment room and the work area. Isolation of the work areas, as required, is necessary to prevent contamination and fiber dispersal to other areas of the building during work and clean-up operation. Air movement will flow uninterrupted from outside the work area through the change and equipment rooms into the active work area. It is then HEPA filtered and exhausted to the building exterior.

3.03 WORK AREA ENTRANCE/EXIT

- A. All workers involved in the removal of asbestos will utilize the following procedure for work area entrance and exit.
- B. The worker enters outside room and removes clothing, puts on clean uniform, gloves and respirator. Gloves will be taped to uniform sleeves and boots taped to coverall legs. Uniforms will be taped closed at neck, zipper seams, wrists and ankles.
- C. Any additional clothing and equipment left in dirty room required by the worker is put on. (When the work area is too cold for coveralls only, worker will usually provide himself with additional warm garments. These must be treated as contaminated clothing and left in the decontamination area.)
- D. Worker proceeds to work area.
- E. Before leaving the work area, the worker shall remove all gross contamination and debris from the coveralls, by vacuuming down the clothes with a vacuum cleaner with a HEPA filter. In practice, this is carried out by one worker assisting another.
- F. The worker proceeds to equipment room and removes all clothing except respiratory protection equipment. Extra work clothing may be stored in contaminated end of the area.

- G. Disposable coveralls are placed in a bag for disposal with other material. The worker then proceeds into the shower room. Respiratory protection equipment should only be removed after wetting in shower to prevent inhalation of fibers. Ensure that employees shower daily before entering the clean room.
- H. After showering, the worker moves to the clean room and dresses in either new coveralls for another entry or street clothes if leaving.
- I. Respirators are picked up, washed and wrapped by protected workers. The respirators are then brought to the clean room by an outside worker.
- J. Workers shall not eat, drink, smoke, chew gum, or chew tobacco in the work area. To eat, drink or smoke, workers shall follow the decontamination procedure outlined above.
- K. All footwear shall be left inside work area until completion of the job, then cleaned or discarded.

3.04 METHOD OF REMOVAL

- A. Remove and dispose of all asbestos-containing materials in accordance with the more stringent methods and procedures as outlined in the United States Department of Labor, Occupational Safety and Health Administration (OSHA) Asbestos Regulations, Codes of Federal Regulations Title 29, Part 1926, Section 1926.1101 or as are written directly into the contract documents.
- B. Dry removal will not be allowed except when wet removal will create a safety hazard. Dry removal process will require written authorization by the USEPA.
- C. Work of this section shall be performed in the following manner:
 - 1. Eliminate airflow into containment area by isolating all supply and return air ducts from mechanical system. Turn off electrical power.
 - 2. Install six (6) mil polyethylene critical barriers over all windows, doors, wall openings, ceiling openings, electrical outlets, ventilation points of entry/exit, etc. Secure with duct tape on all sides.
 - 3. Six (6) mil polyethylene protecting ceiling surface from wall to wall, where needed.
 - 4. Isolation barriers separating occupied areas and work areas shall be framed and covered with ½ inch plywood and two (2) layers of six (6) mil polyethylene.
 - 5. Duct HEPA filter unit through window. Locate unit to prevent dead air pockets.
 - 6. Install triple air curtain, six (6) mil polyethylene (typical), over door opening into decontamination unit or load out unit.
 - 7. Utilize wet methods with amended water.
 - 8. ACM waste must be removed and disposed of by the end of each work shift.
 - 9. Removal of Interior Window & Door Caulking and Exterior Window Glazing
 - a. Establish an exterior and interior regulated work area with barricade tape to prevent entry into an active work area by unauthorized persons. Install drop cloths consisting of 6 mil polyethylene directly underneath active work areas.
 - b. Apply duct tape to all window caulking and glazing seams.
 - c. Remove entire window system and wrap in two layers of 6 mil polyethylene sheeting.
 - d. Accumulate all loose material for disposal. Wet wipe all wall, floor, ceiling and horizontal surfaces.

- e. The Environmental Consultant shall inspect for complete removal of all materials. Contractor shall re-clean and dispose of any asbestos-containing material or caulking identified.
 - D. Vacuum any remaining material from sub surfaces.
 - E. All polyethylene, tape, clothing and cleaning materials shall be bagged and disposed of as specified.
 - F. Clean all equipment, tools, etc., prior to removing them from work area.
 - G. Remove polyethylene on walls and ceiling. Critical barriers sealing all windows, doors, wall openings, ceiling openings, electrical outlets, etc., are to remain. Treat polyethylene as asbestos-contaminated materials.
 - H. Place asbestos-containing and asbestos-contaminated material while still wet into sealable, opaque or colored six (6) mil polyethylene bags. Do not overfill, place more than twenty-five (25) pounds into it or use it for disposal of sharp-edged materials.
 - I. Evacuate the bag with HEPA vacuum and seal collapsed bag by twisting top six (6) inches closed and wrapping with a minimum of two (2) layers of duct tape.
 - J. Twist top and fold over, apply second wrap of duct tape.
 - K. Clean outside of disposal bag by wet wiping and take bag to the equipment and staging area.
 - L. Affix warning and identification labels to opaque or colored bag and then place bag inside a second, six (6) mil polyethylene bag.
 - M. Seal outer bag by repeating steps I. and J.
 - N. Double-bagged waste shall be placed into a lined, covered receptacle or dumpster. Wastes must not remain on the ground.
 - O. HEPA filter unit to remain in place until space has been cleared by clearance test results.
 - P. Door into decontamination unit or load out room to remain.
 - Q. The Environmental Consultant will perform a visual inspection to verify all ACM has been removed.
 - R. The Environmental Consultant will perform final air clearance testing.
 - S. Remove critical barriers upon instructions from the Environmental Consultant.
 - T. Any alternate method of removal must have the written approval of the Owner and the Environmental Consultant.
- 3.05 HOUSEKEEPING
- A. Throughout the work period, maintain the building and site in a standard of cleanliness as specified throughout these specifications.

- B. Contaminated disposable clothing, respirator filters and other debris will be bagged, properly labeled and sealed at the end of each workday.
 - C. All asbestos generated by removal, encapsulation or repair will be bagged, properly labeled, and sealed at the end of each workday.
 - D. Respirators will be thoroughly cleaned at the end of each workday and stored for the next day's use.
 - E. Retain all stored items in an orderly arrangement allowing maximum access, not impeding traffic, and providing the required protection of materials.
 - F. Do not allow the accumulation of scrap, debris, waste material, and other items not required for completion of this work.
 - G. At least weekly, and more often is necessary, completely remove all scrap, debris and waste material from the job site.
 - H. Unless otherwise noted or directed, materials resulting from demolition operations shall be the property of the Asbestos Abatement Contractor, shall not be used in the work and shall be promptly removed from the site.
 - I. Daily and more often if necessary, inspect the work areas and adjoining spaces, and pick up all scrap, debris and waste material. Remove all such items to the place designated for their storage.
 - J. Provide adequate storage for all items awaiting removal from the job site, observing all requirements for fire protection and protection of the ecology.
 - K. Maintain the site in a neat and orderly condition at all times.
 - L. Compressed air is not to be used for cleaning purposes.
- 3.06 FINAL DECONTAMINATION OF WORK AREA
- A. Carefully double bag all removed asbestos material, labeling bags as required.
 - B. Bags shall be wiped with clean damp cloths prior to transportation to approved disposal site.
 - C. Plastic barriers, as specified, shall be carefully removed, folded inward rolled into bundles and bagged for disposal. Note: Final barriers are not to be removed until work is completed and instructed by the Environmental Consultant.
 - D. During decontamination of the work area (after asbestos removal), the Asbestos Abatement Contractor shall remove the polyethylene sheets from walls and floors only. The windows and doors shall remain sealed and any HEPA filtration systems shall remain in service until final acceptance.
 - E. Hard surfaces flooring such as concrete, terrazzo, VAT and ceramic tile, shall be wet mopped, allowed to dry, and damp mopped a second time with clean mop heads.

F. Walls, furniture and equipment (which remain in work area during work operations), windows and other surfaces shall be thoroughly cleaned with damp cloths.

G. Carpeting shall be cleaned with a HEPA type vacuum cleaner.

CONVENTIONAL VACUUMS WILL NOT BE PERMITTED.

H. All surfaces are to be left visually clean.

I. After the work area is found to be in compliance by visual inspection, and before removing plastic barriers, the Environmental Consultant shall take clearance samples as specified in Air Sample Schedule, Section 2B-7 as soon as feasible but not sooner than twenty-four (24) hours after completion of all abatement and final cleaning work, or as may be specified by the Owner. If the average analysis results of all samples are below 0.01 fibers per cubic centimeter of air (f/cc), final air clearance has been achieved and the response action is complete.

J. Should final air clearance fail to meet the standard established above, the Asbestos Abatement Contractor shall pay all costs associated with the Environmental Consultant's re-sampling and analysis.

K. If pre-clearance criteria are not met, repeat final cleaning until additional tests indicate conformity before proceeding with final clearance.

L. All mop heads and cleaning cloths are to be discarded in the same manner as asbestos waste.

M. Clean all glass inside of work area.

N. All windows, doors, louvers, etc., shall be unsealed and the sheeting, tape etc. shall be disposed of as heretofore prescribed.

O. All plastic sheeting, tape, cleaning materials, clothing and all other disposable material or items used in the work area shall be packed into sealable plastic bags (6 mil minimum) for transport. Double bagging is required.

3.07 DISPOSAL OF ASBESTOS WASTE

A. All asbestos materials and miscellaneous debris will be transported to the pre-designated disposal site in accordance with the guidelines of the U.S. Environmental Protection Agency, Tide 40, Part 61, Subpart H, and all local agencies' regulations.

B. The landfill used for dumping shall be certified to receive and buy materials contaminated by asbestos.

C. Obtain signed waste shipment record indicating material is asbestos waste, and site it came from. Waste disposal manifests must also indicate amount of waste in cubic yards or tons.

D. Submit waste disposal manifests to the Owner and Environmental Consultant with final report.

3.08 RECORDKEEPING AND LOG

A. Maintain a daily log documenting the following items:

1. Entry and exiting of work area by work personnel, visitors, and inspectors.
2. Personnel air monitoring test results.
3. Special or unusual events, such as power loss or equipment failure.
4. Daily inspection of decontamination unit, load-out unit, containment area integrity, and air exhausting system.
5. Amount of asbestos-containing material removed from the work site.
6. Work progress narrative.

- B. Provide a copy of the log to the Owner and the Environmental Consultant at the end of the project.

3.09 INSPECTIONS

- A. All work procedures detailed in this specification will be strictly adhered to and meet or exceed all current EPA, OSHA, DEP and WV Department for Public Health regulations.
- B. All work shall meet with the approval of the Owner and Environmental Consultant. Work which does not meet with such approval shall be determined to be unsatisfactory.

END OF SECTION 024200