

**Addendum
No. 2**

Date: July 13, 2026

Project: Holloway Campus Carvel Bldg. Roof Replacement
MC3501000111

The information herein shall be considered part of the bid documents for the referenced project and carried out in accordance with the following supplemental instructions issued in accordance with the Contract Documents without change in Contract Sum or Contract Time. Acknowledge receipt of addendum on the bid form as indicated.

General Clarifications

1. Please see attached Asbestos inspection report from Harvard Environmental, Inc. dated 6/26/25. According to the report, Asbestos containing materials are not present within the scope of work.
2. See attached Roof Assessment report from Roofing Resources, Inc. dated 6/30/25. This report contains roof core information for Roofs 1, 2, & 3.

Requests for Information

The following requests for information have been received. Responses are in ***bold, italic*** print:

1. Please confirm the TPO attachment method (substrate board, vapor barrier, insulation, coverboard and TPO). ***Per Specification Section 07 54 00, Article 1.07, a Manufacturer's total system warranty for a 20-year term and maximum wind speed of 100 miles per hour is required. The Manufacturer shall direct the Contractor on attachment methods required to achieve the 20-year warranty via design letter.***
2. Are there any core cuts available? ***Yes, see attached Roof Report from Roofing Resources, Inc.***
3. Is the intent to only install liquid flashing at window base flashing on Roof A? ***Liquid flashing shall be utilized at entire headwall condition along Roof A. Other applications would be acceptable if approved by the Manufacturer.***
4. Det 8/A-502 shows new alum flat stock around wood blocking and a soffit to remain. Is the intent to remove and re-install soffits in order to install the new closure? ***Terminate new flat stock at existing soffits to remain, and caulk the joint.***
5. Can we bend edge metal on our shop or is it required to be pre-manufactured? ***Edge metal bent in shop shall be acceptable.***
6. Please provide a detail for the new headwall flashing at windows and louvers, keynote C-08. ***Please refer to detail 9/A-502.***
7. When is it expected this roof to be completed? ***The Contractor shall provide a contract duration where indicated in the Bid Forms. The contract duration will be tracked throughout construction and the project is expected to be substantially complete at the end of the duration.***

8. Please provide a spec for the edge metal (fascia and copings), what material and gage should it be? ***Refer to Specification Section 07 62 00, Article 2.01.***
9. Are roofs B&C getting average R-30 or flat iso R-30 value? ***Roofs B & C are required to have a minimum R value of R-30.***
10. Please provide a spec for the liquid flashing. ***See Attached Specification Section 07 56 00 Fluid Applied Roofing.***

Changes to Specifications

1. The attached Specification Section 07 56 00 – Fluid Applied Roofing shall be added to the Bid Specifications.

Attachments

1. Specification Section 07 56 00
2. Asbestos inspection report from Harvard Environmental, Inc.
3. Roof assessment report from Roofing Resources, Inc.

END

**SECTION 07 56 00
FLUID APPLIED ROOFING**

PART 1 GENERAL

1.01 SUMMARY

- A. Fluid Applied Waterproofing System applied to metal or substrate approved by Manufacturer.

1.02 RELATED REQUIREMENTS

- A. Section 07 01 50 - Preparation for Re-roofing
- B. Section 07 62 00 - Sheet Metal Flashing and Trim
- C. Section 07 54 00 - Thermoplastic Membrane Roofing

1.03 REFERENCES

- A. American Society for Testing and Materials (ASTM) - Annual Book of ASTM Standards
- B. National Roofing Contractors Association (NRCA)
- C. American Society of Civil Engineers (ASCE)

1.04 DEFINITIONS

- A. Roofing Terminology: Refer to ASTM D1079 and the glossary of the National Roofing
- B. Contractors Association (NRCA) Roofing and Waterproofing Manual for definitions of roofing terms related to this section.

1.05 PERFORMANCE REQUIREMENTS

- A. Provide an installed roofing membrane that does not permit the passage of water, and will withstand the design pressures calculated in accordance with the most current revision of ASCE 7.
- B. Manufacturer shall provide all primary waterproofing materials that are physically and chemically compatible when installed in accordance with manufacturers current application requirements.

1.06 SUBMITTALS

- A. See Section 01 33 00 - Submittal Procedures, for submittal procedures.

1.07 PROVIDE PRODUCT DATA SHEETS FOR EACH TYPE OF PRODUCT INDICATED IN THIS SECTION.

- A. Provide manufacturers standard details and approved shop drawings for the specified system.
- B. Installer shall provide written documentation from the manufacturer of their authorization to install the system, and eligibility to obtain the warranty specified in this section.
- C. Certification showing full time quality control of production facilities and that each batch of material is tested to ensure conformance with the manufacturer's published physical properties.
- D. Manufacturer's certification that all waterproofing system products meet current Volatile Organic Compound (VOC) regulations as established by the State in which they are being installed; and stating total VOC content, in grams per litre, for all system components (i.e. primers, adhesives, coatings, etc.).

1.08 QUALITY ASSURANCE

- A. Manufacturer's Qualifications: Manufacturer shall demonstrate qualifications to supply materials of this section by certifying the following:
 - 1. Membrane Manufacturer shall have available an in-house technical staff to assist the contractor, when necessary, in application of the products and final inspection of the assembly.
- B. Installer's Qualifications: The Contractor shall demonstrate qualifications to perform the work of this Section by submitting the following documentation:

1. Certification or license by the waterproofing membrane manufacturer as a trained applicator of the product the installer intends to use.
- C. Source Limitations: All components listed in this section shall be provided by a single manufacturer or approved by the primary waterproofing manufacturer.
- D. Final Inspection
 1. Manufacturer's representative shall provide a comprehensive final inspection after completion of the waterproofing system. All application errors must be addressed and final punch list completed.

1.09 PRE-INSTALLATION CONFERENCE

- A. Prior to scheduled commencement of the waterproofing installation and associated work, conduct a meeting at the project site with the installer, architect, owner, manufacturer's representative and any other persons directly involved with the performance of the work. The installer shall record conference discussions to include decisions and agreements reached (or disagreements), and furnish copies of recorded discussions to each attending party. The main purpose of this meeting is to review foreseeable methods and procedures related to waterproofing work.

1.10 REGULATORY REQUIREMENTS

- A. All work shall be performed in a safe, professional manner, conforming to all federal, state and local codes.
- B. All waterproofing system components shall meet current VOC regulations as established herein; and stating total VOC content, in grams per litre, for all system components (i.e. primers, adhesives, coatings, etc.)

1.11 DELIVERY, STORAGE AND HANDLING

- A. Deliver all waterproofing materials to the site in original containers, with factory seals intact.
- B. Store all pail goods in their original undamaged containers in a clean, dry location within their specified temperature range.
- C. Do not expose materials to moisture in any form before, during, or after delivery to the site.
- D. Reject delivery of materials that show evidence of contact with moisture.
- E. Remove manufacturer supplied plastic covers from materials provided with such. Use "breathable" type covers such as canvas tarpaulins to allow venting and protection from weather and moisture. Cover and protect materials at the end of each work day. Do not remove any protective tarpaulins until immediately before the material will be installed.
- F. Materials shall be stored above 55°F a minimum of 24 hours prior to application.

1.12 PROJECT CONDITIONS

- A. Weather
 1. Proceed with waterproofing only when existing and forecasted weather conditions permit.
 2. Membrane installation can proceed when ambient temperatures are above 40°F provided the substrate temperature is a minimum of 5°F above the dew point.
 3. It is recommended that overnight temperatures be above 40°F when applying the membrane system. Consult with the manufacturer for cold weather installation procedures when ambient temperatures are expected to fall below the minimums established herein.
- B. All surfaces to receive the membrane shall be free from visible water, dew, frost, snow and ice.
- C. Application of membrane should be conducted in well ventilated areas.
- D. Over its service life, do not expose membrane to a constant temperature below -58°F or in excess of 176°F (i.e., hot pipes and vents or direct steam venting, etc.).
- E. Contractor shall ensure adequate protection during installation of the waterproofing system.

1.13 WARRANTY

- A. Each warranty varies in scope and terms.
- B. Warranties available from the manufacturer:
 - 1. Watertightness Warranties; includes labor and material. Duration 20 Years.

PART 2 PRODUCTS

2.01 ACCEPTABLE PRODUCTS (NOTE: THE PRODUCT MUST BE APPROVED FOR USE AS PART OF THE ROOFING MANUFACTURER'S 20-YEAR WARRANTY AS INDICATED IN SPECIFICATION SECTION 07 54 00.)

- A. Basis-Of-Design: Versico LiquiSeal
- B. Sikalastic® RoofPro (Decothane®)
- C. Or Approved Equal

2.02 ACCEPTABLE MANUFACTURER

- A. Subject to compliance with the requirements of the specification, products from the following manufacturers may be provided.
 - 1. Sika Corporation
 - 2. Firestone Building Products
 - 3. Gaco
 - 4. GAF
 - 5. Johns Manville
 - 6. Versico
 - 7. Carlisle
 - 8. Or Approved Equal.
- B. Products from the above manufacturers must be approved in writing prior to receipt of bid and membrane must meet or exceed the performance requirements set forth in 2.03C and ASTM D7311-07.
- C. Substitutions: As approved in writing prior to receipt of bid and membrane must meet or exceed the performance requirements set forth in 2.03C and ASTM D7311-07.

2.03 FLUID APPLIED MEMBRANE MATERIALS

- A. A conformable, random woven fiberglass mat for total reinforcement of the roofing/waterproofing membrane system, which provides greater impact resistance and greater resistance to excessive thermal and structural movement while maintaining elasticity and membrane film integrity, Sika Reemat. To be used throughout the entire application within the integral gutter.
- B. A nylon mesh for local reinforcement of the roofing/waterproofing membrane at new and existing standing seams, transition between roof panel and integral gutter, and transition between the integral gutter and throat of custom roof drain/downspout, Sika Flexitape Heavy. To be used at locations herein noted.

2.04 FLASHING MATERIALS

- A. The fluid-applied membrane system is seamless and self-flashing. No special flashings are required for system installation.

PART 3 EXECUTION

3.01 INSPECTION

- A. Verify that the surfaces and site conditions are ready to receive work.
- B. Verify that the deck is supported and secured.
- C. Verify that the deck is clean and smooth, free of depressions, waves, or projections, and properly sloped to drains, valleys, eaves, scuppers or gutters.
- D. Verify that the deck surfaces are dry and free of ice or snow.

- E. Verify that all roof openings or penetrations through the roof are solidly set.

3.02 INSTALLATION - GENERAL

- A. Install roofing/waterproofing system according to all current application requirements in addition to those listed in this section.

3.03 WATER TEST

- A. It is strongly recommended that the deck area or portions thereof be water tested by means of ponded water to a minimum depth of 2" for a period of 4 hours to check the integrity of the membrane installation.
- B. Verify that the structure can support the deadload weight of a water test before testing.
- C. If leaks should occur, the water must be drained completely and the membrane installation repaired. The repaired area should then be retested per the procedures specified in section A above.

3.04 ROOF/WATERPROOFING PROTECTION

- A. Protect all partially and fully completed waterproofing work from other trades until completion.
- B. Whenever possible, stage materials in such a manner that foot traffic is minimized over completed areas.
- C. When it is not possible to stage materials away from locations where partial or complete installation has taken place, temporary walkways and platforms shall be installed in order to protect all completed areas from traffic and point loading during the application process.
- D. Temporary tie-ins shall be installed at the end of each workday and removed prior to commencement of work the following day.

3.05 CLEAN-UP

- A. All work areas are to be kept clean, clear and free of debris at all times.
- B. Do not allow trash, waste, or debris to collect on the roof. These items shall be removed from the roof on a daily basis.
- C. All tools and unused materials must be collected at the end of each workday and stored properly off of the finished roof surface and protected from exposure to the elements.
- D. Dispose of or recycle all trash and excess material in a manner conforming to current EPA regulations and local laws.
- E. Properly clean the finished roof surface after completion, and make sure the drains and gutters are not clogged.
- F. Clean and restore all damaged surfaces to their original condition.

END OF SECTION



**State of Delaware
Division of Facilities Management
Division of Health and Social Services
Herman Holloway Campus – Carvel Building**

1901 North DuPont Highway
New Castle, Delaware 19720

**Asbestos NESHAP Inspection
Carvel Building Roof Replacement Project**

FINAL REPORT

6/26/2025

Harvard Project # 26295

Prepared For:

Robert Purnell
*State of Delaware-Division of Facilities Management
122 Martin Luther King Jr. Boulevard South
Dover, Delaware 19901*

Prepared By:

Harvard Environmental, Inc.
*760 Pulaski Highway
Bear Delaware 19701
302-326-2333*

Written By:


Jacob Horwitz
*Building Inspector
Harvard Environmental, Inc.*

Released By:


Wesley JT Morrison
*Operations Manager
Harvard Environmental, Inc.*

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Introductions & Executive Summary

Harvard Environmental, Inc. herein presents data associated with inspections performed at the Carvel Building located on the Herman Holloway campus at 1901 North DuPont Highway, New Castle, Delaware 19720. This inspection was performed to provide compliance with 40 CFR Part 61, “Asbestos NESHAP. These Environmental Protection Agency, (EPA), regulations require inspections to be performed by certified asbestos building inspectors prior to renovations and/or demolition of facilities. This effort was performed at the request of the State of Delaware Division of Facilities Management.

This project was conducted to identify asbestos containing materials associated with the roof replacement project. Harvard assessed all building materials which would be considered suspect asbestos containing. A listing of locations, systems and/or materials which were not assessed may be found under “Non-Assessed Conditions” found further in this report.

Harvard requested drawings of the existing facility layouts/designs to assist in documenting field assessments and to provide insight as to the location of suspect materials which may be associated with the facility. Floor plans of the facility were available. Harvard utilized drawings and edited for orientation purposes as well as notating asbestos bulk sample locations.

The last date of visitation to the site was performed on June 20, 2025. Conditions described within this document are accurate as of the date of last visitation. Mr. Ronald Knight was the responsible Harvard employee which led the field efforts associated with the work.

Representative sampling of suspect asbestos building materials was performed on impacted building materials. The sampling effort was conducted in accordance with EPA regulations and industry accepted standards. Harvard assessed the layout and design of locations requiring assessment and assigned each geographic area a unique alpha/numeric “grid” identifier. These identifiers are specific locations of the assessment and are the basis for orientation of the data.

Asbestos analysis was completed utilizing Polarized Light Microscopy, (PLM). PLM utilizes an optical microscope equipped with a polarizing lens through which trained microscopist can identify asbestos fibers according to their crystalline structure. This method of analysis is recognized throughout the industry as standard practice. Prior to determining the type of fiber, the sample was placed under a “Stereo Microscope” at approximately 150X magnification for purposes of visual estimation. Various fiber types were pulled from the sample and oils applied to determine refractive indices under the polarized light microscope.

This recognized method of analysis has a detection limit of 1% by volume. Percentages of asbestos <1% are reported as “trace” and are not considered asbestos containing materials under EPA regulations. Floor tiles and other materials were typically manufactured with asbestos fibers milled to specifications which are smaller in size. Often PLM analysis will not detect these fibers and as such produces “false-negative” asbestos results. EPA recommends, these types of materials be validated via use of transmission electron microscopy, (TEM). TEM analysis provides higher magnification levels which will detect smaller fibers that would normally be undetected utilizing PLM analysis. Samples which were validated utilizing TEM analysis are presented in this report.

Based on the information provided to Harvard, coupled with field inspections and laboratory analysis of samples collected, **asbestos containing materials are not present within the scope of work.**

Summary Of Materials Assessed

ID	Description	Analytical Results
001	Roof Material – Rolled on Roof – Asphalt	None Detected
002	Roof Flashing – Mech & Roof	None Detected

Non-Assessed Conditions

Systems and/or materials provided on the list below were not assessed under this inspection and therefore should not be disturbed. In the event disturbance is required to accomplish the project objectives additional investigations will be required.

- This inspection was limited to areas of the roof only.
- No other areas of the building were assessed at the time of the inspection.

Recommendations & Conclusions

Based on the findings of the inspection, Harvard is providing the following recommendations.

- If over the course of project execution, materials of questionable content are discovered, or should the Scope of Work expand beyond the parameters communicated to Harvard, additional inspections will be required to maintain compliance with Federal and State regulations.

This report is intended to provide “basic data” only. It is assumed that individuals reading and interpreting the sample locations and results, methods of analysis and hazards associated with the materials, are knowledgeable in all areas of discussion. Should any questions arise regarding the content of the information presented, contact should be exclusively to Harvard, at (302) 326-2333. This document should be archived by the Owner for historical reference.

Certifications And Accreditations

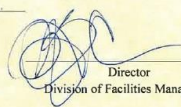
Appendix A

STATE OF DELAWARE	
Department of Finance Division of Revenue	
ACTIVE BUSINESS LICENSE 1993108790	
EFFECTIVE	01/01/2025 - 12/31/2027
ISSUED TO	HARVARD ENVIRONMENTAL INC 760 PULASKI HWY BEAR, DE 19701-5200
LOCATION	HARVARD ENVIRONMENTAL INC 760 PULASKI HWY BEAR, DE 19701-5200
TRADE, BUSINESS, OR PROFESSIONAL ACTIVITY	GENERAL SERVICES
ISSUED: 11/24/2024 FEE PAID: \$225.00	Is hereby licensed to practice, conduct, or engage in the occupation or business activity indicated above in accordance with the license application duly filed pursuant to Title 30, Delaware Code.

2027

POST CONSPICUOUSLY - NOT TRANSFERABLE



STATE OF DELAWARE	
THIS CERTIFIES THAT	
HARVARD ENVIRONMENTAL, INC.	
Has satisfactorily completed the requirements prescribed by the Office of Management & Budget an Asbestos Professional Service Firm this	
Seventeenth	Day of February Two Thousand Twenty-Five
This certification is valid for one (1) year to perform asbestos services within the State of Delaware.	
This certification shall be proof that the above named Contractor has met the minimum requirements established by the State of Delaware for temporary certification. It is not intended as an overall endorsement of the Contractor's ability to provide services of varying size and shape. It does not endorse the methods and types of respiratory protection used by the Contractor.	
Contractor's Address:	760 Pulaski Highway Bear, DE 19701
Expiration Date:	February 17, 2026
Certification Number:	PS-54
 Director Division of Facilities Management	

United States Department of Commerce National Institute of Standards and Technology	
NVLAP[®] ILAC-MRA	
Certificate of Accreditation to ISO/IEC 17025:2017	
NVLAP LAB CODE: 200885-0	
Harvard Environmental, Inc. Bear, DE	
<i>is accredited by the National Voluntary Laboratory Accreditation Program for specific services, listed on the Scope of Accreditation, for:</i>	
Asbestos Fiber Analysis	
<i>This laboratory is accredited in accordance with the recognized International Standard ISO/IEC 17025:2017. 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 on ISO/IEC 17025).</i>	
2024-07-01 through 2025-06-30 <i>Effective Dates</i>	  <i>For the National Voluntary Laboratory Accreditation Program</i>



Schematic Diagram

Appendix B



GENERAL NOTES:

1. PRESENTATION OF INFORMATION IS BASED ON BEST AVAILABLE INFORMATION. DRAWING SCHEMATICS WERE DESIGNED BY HARVARD ENVIRONMENTAL BASED ON FIELD OBSERVATIONS AND INFORMATION PROVIDED TO HARVARD ENVIRONMENTAL.
2. THIS PROJECT INVOLVES AN ASSESSMENT AND SAMPLING FOR PURPOSES OF IDENTIFYING ASBESTOS CONTAINING MATERIALS THAT MAY BE PRESENT WITHIN THE BUILDING. THESE DRAWINGS ARE NOT TO BE CONSIDERED TO SCALE AND ARE INTENDED TO BE USED FOR ORIENTATION PURPOSES ONLY AND IDENTIFYING THE LOCATIONS OF SAMPLES.

KEY:

 **SAMPLE LOCATIONS (+/-)**

 **GRID ID**



HERMAN HOLLOWAY CAMPUS
NEW CASTLE, DELAWARE 19720

ASBESTOS INSPECTION AND SAMPLING

PROJECT:
CARVEL BUILDING
HERMAN HOLLOWAY
CAMPUS
NEW CASTLE, DE 19720
ASBESTOS INSPECTION
AND SAMPLING

CLIENT:
STATE OF DELAWARE
DIVISION OF FACILITIES
MANA
122 MARTIN LUTHER
KING BLVD SOUTH
DOVER, DE 19901

HARVARD
Environmental, Inc.

760 PULASKI HIGHWAY
BEAR, DE 19701

DESIGNED BY:
LDW

DRAWN BY:
JTS

CHECKED BY:
WJTM

DATE:
06-00-2025

SCALE:
NOT TO SCALE

SHEET NO.:
1 OF 1

DRAWING ID:
26295

Laboratory Analytical Report

Appendix C

LR-407

CERTIFICATE OF ANALYSIS

26295

To: **Robert Purnell** **0000739330**

Collected: 009 6/20/2025

State of Delaware Division of Facilities M

Lab Project Number: 29532

122 Martin Luther King Blvd South, 2nd Floor
Dover, DE
19901-

QTY

Received	Ashley Mote	6/20/2025	9
Logged	Ashley Mote	6/20/2025	9
Analyzed	Asghar Keyvanfar	6/23/2025	9

Re: DFM - DHSS - HHC - Carvel Building - Asbestos Roof
Sampling Project

Sample Number: 001A

LAB SAMPLE ID

COC Description: Roof Material, Asphalt Rolled Roof - Roof #1

182133

%	Asbestos Type	%	Other Fibrous Type	%	Non Fibrous Type
	None Detected	10	Glass	90	Other

Color: Black
Other Color: Brown
Homogeneity: Heterogeneous
Treatment: Dissolved
Texture: 7

Sample Number: 001B

LAB SAMPLE ID

COC Description: Roof Material, Asphalt Rolled Roof - Roof #1

182134

%	Asbestos Type	%	Other Fibrous Type	%	Non Fibrous Type
	None Detected	10	Glass	90	Other

Color: Black
Other Color:
Homogeneity: Homogeneous
Treatment: Dissolved
Texture: Firm

Sample Number: 001C

LAB SAMPLE ID

COC Description: Roof Material, Asphalt Rolled Roof - Roof #2

182135

%	Asbestos Type	%	Other Fibrous Type	%	Non Fibrous Type
	None Detected	10	Glass	90	Other

Color: Black
Other Color:
Homogeneity: Homogeneous
Treatment: Dissolved
Texture: Firm

Sample Number: 001D

LAB SAMPLE ID

COC Description: Roof Material, Asphalt Rolled Roof - Roof #2

182136

%	Asbestos Type	%	Other Fibrous Type	%	Non Fibrous Type
	None Detected	10	Glass	90	Other

Color: Black
Other Color:
Homogeneity: Homogeneous
Treatment: Dissolved
Texture: Firm

This confidential report relates only to those item(s) tested and does not represent an endorsement by NIST-NVLAP or any agency of the U.S. government.
The Laboratory did not collect samples conveyed in this report. This report shall not be reproduced except in full, without written approval of the laboratory.

Analysis Methods: EPA 600/R-93/116 / 40 CFR Appendix E to Subpart E of Part 763, interim method
of the Determination of Asbestos in Bulk Samples

Comments: (PC) Indicates Point Count Method performed. Method not performed unless stated. Small asbestos fibers may be missed by PLM due to resolution limitations of the optical microscope. Therefore, negative PLM results cannot be guaranteed. Electron Microscopy can be used as a confirming technique. Regulatory Limit is based on the sample matrix. Quantification at <1% by volume is possible with this method. Analyst specific measurements of uncertainty at lower concentrations are available upon request. Analysis indicates all distinct separable layers in accordance with EPA 600 Method. If not reported or otherwise noted, layer is either not present or the client has specifically requested that it not be analyzed.

Asghar Keyvanfar

Analyst



NVLAP Lab Code 200885-0

Approved For Release:

Page 1 of 3

H-PLM-26295-6/20/2025

CERTIFICATE OF ANALYSIS

26295

To: **Robert Purnell** **0000739330**

Monday, June 23, 2025

State of Delaware Division of Facilities M

Lab Project Number: 29532 QTY

122 Martin Luther King Blvd South, 2nd Floor
Dover, DE
19901-

Received Ashley Mote 6/20/2025 9
Logged Ashley Mote 6/20/2025 9
Analyzed Asghar Keyvanfar 6/23/2025 9

Re: DFM - DHSS - HHC - Carvel Building - Asbestos Roof

Sample Number: 001E

COC Description: Roof Material, Asphalt Rolled Roof - Roof #3

LAB SAMPLE ID

182137

%	Asbestos Type	%	Other Fibrous Type	%	Non Fibrous Type
	None Detected	10	Glass	90	Other

Color: Black
Other Color
Homogeneity: Homogeneous
Treatment: Dissolved
Texture: Firm

Sample Number: 001F

COC Description: Roof Material, Asphalt Rolled Roof - Roof #3

LAB SAMPLE ID

182138

%	Asbestos Type	%	Other Fibrous Type	%	Non Fibrous Type
	None Detected	10	Glass	90	Other

Color: Black
Other Color
Homogeneity: Homogeneous
Treatment: Dissolved
Texture: Firm

Sample Number: 002A

COC Description: Roof Flashing - Mech & Roof - Roof #1

LAB SAMPLE ID

182139

%	Asbestos Type	%	Other Fibrous Type	%	Non Fibrous Type
	None Detected			100	Other

Color: Black
Other Color: Brown
Homogeneity: Heterogeneous
Treatment: Dissolved
Texture: Firm

Sample Number: 002B

COC Description: Roof Flashing - Mech & Roof - Roof #2

LAB SAMPLE ID

182140

%	Asbestos Type	%	Other Fibrous Type	%	Non Fibrous Type
	None Detected			100	Other

Color: Black
Other Color: Brown
Homogeneity: Heterogeneous
Treatment: Dissolved
Texture: Firm

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The Laboratory did not collect samples conveyed in this report. This report shall not be reproduced except in full, without written approval of the laboratory.

Analysis Methods: EPA 600/R-93/116 / 40 CFR Appendix E to Subpart E of Part 763, interim method of the Determination of Asbestos in Bulk Samples

Comments: (PC) Indicates Point Count Method performed. Method not performed unless stated. Small asbestos fibers may be missed by PLM due to resolution limitations of the optical microscope. Therefore, negative PLM results cannot be guaranteed. Electron Microscopy can be used as a confirming technique. Regulatory Limit is based on the sample matrix. Quantification at <1% by volume is possible with this method. Analyst specific measurements of uncertainty at lower concentrations are available upon request. Analysis indicates all distinct separable layers in accordance with EPA 600 Method. If not reported or otherwise noted, layer is either not present or the client has specifically requested that it not be analyzed.

Asghar Keyvanfar
Analyst

NVLAP
"Testing"
NVLAP Lab Code 200885-0

Approved For Release

Page 2 of 3

H-PLM-26295-6/20/2025

CERTIFICATE OF ANALYSIS

26295

To: **Robert Purnell** **0000739330**

Monday, June 23, 2025

State of Delaware Division of Facilities M

122 Martin Luther King Blvd South, 2nd Floor

Dover, DE

19901-

Lab Project Number: 29532

QTY

Received Ashley Mote 6/20/2025 9

Logged Ashley Mote 6/20/2025 9

Analyzed Asghar Keyvanfar 6/23/2025 9

Re: DFM - DHSS - HHC - Carvel Building - Asbestos Roof

Sample Number: 002C

COC Description: Roof Flashing - Mech & Roof - Roof #3

LAB SAMPLE ID

182141

%	Asbestos Type	%	Other Fibrous Type	%	Non Fibrous Type
	None Detected			100	Other

Color: Black
Other Color: Brown
Homogeneity: Heterogeneous
Treatment: Dissolved
Texture: Firm

This confidential report relates only to those item(s) tested and does not represent an endorsement by NIST-NVLAP or any agency of the U.S. government.
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Asghar Keyvanfar

Analyst



NVLAP Lab Code 200885-0

Approved For Release:

Page 3 of 3

H-PLM-26295-6/20/2025

PLM CHAIN OF CUSTODY

REPORT TO: Harvard Environmental, Inc. 760 Pulaski Highway Bear, DE 19701		PROJECT NAME: <i>Dfm-DHSS-HHC-Carvel Bldg - Asbestos Roof Sampling Project</i>	PROJECT NO: <i>26295</i>
ATTN: <i>JT Morrison</i>		LAB ID#	
PHONE: (302) 326 2333 FAX: (302) 326 2335		TURNAROUND TIME (CHECK ONE)	
Collected By: <i>R. Kuzlo</i>	Date: <i>6-20-25</i>	☒ 24 HOUR ☐ 3 HOUR	
Relinquished By: <i>R. Kuzlo</i>	Date: <i>6-20-25</i>	☐ 48 HOUR ☐ 6 HOUR	
Received By: <i>ASB</i>	Date: <i>6-20-25</i>	☐ 72 HOUR ☐ SAME DAY	
Received In Lab: <i>ASB</i>	Date: <i>6-23-25</i>	☐ 1 WEEK ☐ 2 WEEK OTHER _____	
REMARKS			

SAMPLE ID	SYS CODE	29532 Lab ID# (Lab Use Only)	DESCRIPTIONS	LOCATION	No. Everec Analysis	ABC POSITIVE SIG	IF NEGATIVE Analyze TEM	Results (Lab Use Only)	OTHER INSTRUCTIONS
001A	RM	182133	Roof Material - Asphalt Rolled Roof	Roof #1	/	/		NM	
001B		34		↓	/	/		NM	
001C		35		Roof #2	/	/		NM	
001D		36		↓	/	/		NM	
001E		37		Roof #3	/	/		NM	
001F		38		↓	/	/		NM	
002A	RF	39	Roof Flashing - Mech + Roof	Roof #1	/	/		NM	
002B		40		Roof #2	/	/		NM	
002C		41		Roof #3	/	/		NM	



STATE OF DELAWARE ASBESTOS INSPECTION FORM



FACILITY NAME: <u>Herman Holloway Campus - Carver Building - Roof</u>			
ADDRESS: <u>1901 North DuPont Hwy</u>		TAX PARCEL:	
CITY: <u>New Castle</u>	COUNTY: <u>NC</u>	STATE: <u>DE</u>	ZIP: <u>19720</u>
SITE CONTACT NAME: <u>Robert Purnell</u>		CONTACT PHONE: <u>(302) 739-5644</u>	
OWNER NAME: <u>STATE OF Delaware</u>			
OWNER ADDRESS: <u>122 MLK South</u>			
CITY: <u>Dover</u>	COUNTY: <u>Kent</u>	STATE: <u>DE</u>	ZIP: <u>19901</u>
OWNER CONTACT: <u>Robert Purnell</u>		OWNER PHONE: <u>(302) 739-5644</u>	
FACILITY DESCRIPTION: ☐ Agricultural ☐ Commercial ☐ Industrial ☐ Institutional ☒ Public ☐ Residential			
BUILDING DESCRIPTION (describe structure and size): <u>12,000 sq Brick Building</u> <u>State Operated</u>			
NOTE: This Survey Form was designed to be used for ONE Building/Structure only. Use additional forms for additional structures.			
PROFESSIONAL SERVICE FIRM: <u>Harvard Environmental, Inc.</u>			
ADDRESS: <u>760 Pulaski Highway</u>			
CITY: <u>Bear</u>	COUNTY: <u>New Castle</u>	STATE: <u>Delaware</u>	ZIP: <u>19701</u>
INSPECTOR'S NAME:		PHONE NUMBER: <u>302-326-2333</u>	
INSPECTION'S CERTIFICATION: PM# -		PROFESSIONAL SERVICE FIRM CERTIFICATION: PS# - <u>054</u>	
TYPE OF INSPECTION: ☒ RENOVATION ☐ DEMOLITION		DATE OF INSPECTION: <u>4/20/2025</u>	
IS ASBESTOS CONTAINING MATERIAL PRESENT? ☐ YES ☒ NO <u>See summary results on page 2.</u>			
I hereby certify, that I am a Delaware Licensed inspector employed by a Delaware Licensed Professional Service Firm and that the building and/or contents therein located at the property identified above have been inspected for asbestos containing materials in accordance with the State of Delaware Regulations Governing the Control of Air Pollution, Regulation #21 Section 10 Name: <u>Wesley T.J. Morrison</u> Title: <u>Operation Manager</u> Signature: <u>[Signature]</u> Date: <u>4/26/2025</u>			
If ACM is present and will be disturbed, removed or abated: Name of Abatement Company (Print Company Name) _____ Phone # _____ Asbestos Abatement Contractor License # _____ <i>The State of Delaware requires a licensed asbestos abatement contractor for all abatement projects except for work performed in an owner-occupied single family dwelling.</i>			
Asbestos Abatement & Demolition/Renovation Notification Form submitted to DNREC/USEPA			
Region 3 on _____ (insert date) _____ (insert DOANS #)			
The Notification must be submitted a minimum of 10-days prior to beginning the abatement project (see 40 CFR 61 Subpart M).			

SUMMARY OF ABESTOS SURVEY/INSPECTION					
Material/Product Surveyed ¹	Sampled? - Yes/No ²	ACM Present (%) ³	Condition of ACM/ Suspected ACM (e.g. good, damaged)	Qty ACM Present (lf, sf, cf)	Friable? - Yes/No
ROOFING & SIDING					
o Roof felt shingles	☐ Yes ☐ No				☐ Yes ☐ No
o Roofing shingles	☐ Yes ☐ No				☐ Yes ☐ No
o Roofing Tiles	☐ Yes ☐ No				☐ Yes ☐ No
o Siding shingles	☐ Yes ☐ No				☐ Yes ☐ No
o Clapboards	☒ Yes ☐ No				☐ Yes ☒ No
o Other- describe <i>Roof Material</i>	☒ Yes ☐ No				☐ Yes ☒ No
WALLS & CEILINGS					
o Ceiling Tiles	☐ Yes ☐ No				☐ Yes ☐ No
o Ceiling Tile Mastic	☐ Yes ☐ No				☐ Yes ☐ No
o Sprayed/Troweled coating	☐ Yes ☐ No				☐ Yes ☐ No
o Asbestos-cement sheet	☐ Yes ☐ No				☐ Yes ☐ No
o Paneling, Tile, Baseboard Mastic	☐ Yes ☐ No				☐ Yes ☐ No
o Spackle/Joint compounds	☐ Yes ☐ No				☐ Yes ☐ No
o Textured paints	☐ Yes ☐ No				☐ Yes ☐ No
o Millboard, rollboard	☐ Yes ☐ No				☐ Yes ☐ No
o Vinyl wallpaper	☐ Yes ☐ No				☐ Yes ☐ No
o Insulation board	☐ Yes ☐ No				☐ Yes ☐ No
o Other- describe	☐ Yes ☐ No				☐ Yes ☐ No
FLOORS					
o Vinyl-asbestos tile	☐ Yes ☐ No				☐ Yes ☐ No
o Asphalt-asbestos tile	☐ Yes ☐ No				☐ Yes ☐ No
o Resilient sheet flooring	☐ Yes ☐ No				☐ Yes ☐ No
o Mastic adhesives	☐ Yes ☐ No				☐ Yes ☐ No
o Other- describe	☐ Yes ☐ No				☐ Yes ☐ No
PIPES & BOILERS					
o Cement pipe and fittings	☐ Yes ☐ No				☐ Yes ☐ No
o Block insulation	☐ Yes ☐ No				☐ Yes ☐ No
o Preformed pipe wrap	☐ Yes ☐ No				☐ Yes ☐ No
o Corrugated asbestos paper	☐ Yes ☐ No				☐ Yes ☐ No
o Paper tape	☐ Yes ☐ No				☐ Yes ☐ No
o Putty (mudding)	☐ Yes ☐ No				☐ Yes ☐ No
o Other- describe	☐ Yes ☐ No				☐ Yes ☐ No
OTHER PRODUCTS					
o Window Glazing Putty	☐ Yes ☐ No				☐ Yes ☐ No
o Building Caulk	☐ Yes ☐ No				☐ Yes ☐ No
o Gaskets/Packing	☐ Yes ☐ No				☐ Yes ☐ No
o Clothing/Cloth/Blankets	☐ Yes ☐ No				☐ Yes ☐ No
o Cement/mortar	☐ Yes ☐ No				☐ Yes ☐ No
o Metal-clad firebrick	☐ Yes ☐ No				☐ Yes ☐ No
o Gunnite/fire-proofing spray	☐ Yes ☐ No				☐ Yes ☐ No
o Hot-tops (ingot mold covers and inserts)	☐ Yes ☐ No				☐ Yes ☐ No
o Other - describe	☐ Yes ☐ No				☐ Yes ☐ No

¹This list is not an exclusive list of potential materials containing asbestos and the inspector should use it only as a minimal reference of potential asbestos containing materials present.

²No sampling is required if the inspector suspects that the materials are ACM and treats them as ACM. For a suspect material to be classified as non-ACM, a minimum number of samples must be collected and analyzed as required by ASHERA/ASHARA regulations.

³All materials identified as having an asbestos content greater than 1% are considered to be regulated asbestos containing materials (RACM).

NOTE: If this structure is to be demolished by intentional burning by a Delaware Fire Company. This form must be provided to the Fire Company in order for DNREC-AQM to process the Fire Fighting Instruction by intentional burning application.



***Carvel Building
New Castle, Delaware***

Roof Assessment

June 30, 2025

PREPARED BY:



PROFESSIONAL ROOF CONSULTANTS
423 McFarlan Road
Suite #100
Kennett Square, PA 19348
Tel: 610-558-4000
WEBSITE: www.teamrri.com

A WOMAN OWNED SMALL BUSINESS

PREPARED FOR:

Jim Fox
Project Manager
State of Delaware
Division of Facilities Management
122 Martin Luther King Blvd. South
Dover, DE 19901

STATE OF DELAWARE

Carvel Building
New Castle, DE

Roof Assessment

TABLE OF CONTENTS

- I. Executive Summary**
- II. Conditions and Recommendations**
- III. Summary of Recommendations**
- IV. Budgets**
- V. Appendix A: Roof Plan**
- VI. Appendix B: Roof Cores**

EXECUTIVE SUMMARY

The Carvel Building, owned by the State of Delaware, is located in New Castle, Delaware. The building, located on the Herman Holloway Campus, is part of Delaware Health and human Services. The roof is divided into three main parts along with a small penthouse section. The approximately 38,000 square foot roof system is low-sloped. The roofs on the building have been coated with a white fluid applied membrane with has started to crack and delaminate.

OMB has expressed concerns with the existing roof system based on the age of the current roof system and the visual appearance of the coating material.

On June 20th, personnel from RRI performed a site visit at the Carvel Building. The purpose of the visit was to complete a survey of the existing roof conditions at the facility. RRI gathered information for an assessment of the existing roof systems including measurements, photographic documentation, etc., and roof cores. Roof cores were taken to determine existing roof assembly and to provide material samples to the States environmental contractor for asbestos testing. Core results are provided in Appendix B of this report.



Figure 1 – Building Overview

CONDITIONS & RECOMMENDATIONS

The information below outlines the conditions observed during RRI's site visit. Recommendations and budgets are also provided.

During our site visit, RRI noticed deficiencies with components of the existing roof systems.

Descriptions and conditions of the Carvel Building are listed below and are based on the observations from a site visit which took place on June 20th, 2025, to document the location and severity of conditions related to the potential water infiltration issues. Extensive photographs of the building were taken over the course of the visit, to record and confirm existing conditions. Once the conditions were documented, recommendations were made based on the conditions existing at the time of the survey.

The conditions have been organized by building component type:

A. Thermal & Moisture Protection

1. Roof System

a. Modified Built-up Roof with Non-Reinforced Fluid Applied Coating

i. Description

The roof at the Carvel Building is separated into three distinct roof areas, not including a small penthouse section. The roof is fairly low to the ground, at approximately 15' from grade and accessible through an internal roof hatch and various rooftop ladders. The roof system appears to consist of a multi-ply modified asphalt assembly (base sheet and cap sheet) covered by a layer of non-reinforced fluid applied roof coating material. The flashing elements appear to be constructed using a granular surfaced cap sheet (also coated). The system is then terminated at the perimeter with a metal counter flashing that is tucked under the existing through-wall flashing at the rising wall.

ii. Conditions

These roofs appear to be in generally poor condition. The fluid applied coating has started to fail, with widespread cracking and delamination visible. The lower portion of the roof appears to have drainage issues, with large areas of ponding water present during our survey. The flashings, though few in numbers show typical signs of aging and appear to be lower than the industry standard of 8" at the rising walls. There is also a fair amount of biological growth that is forming in the ponding areas of the roof.

iii. Recommendations

The roof appears to be at the end of its useful life. We are unaware of the exact installation date of the current roof system; however, the roof appears to be between 20-25 years old, which is the typical life expectancy of this type of roof. This roof should be scheduled for replacement in the next 1-3 years. When the roof is in the design phase for replacement, issues related to insulation, access for maintenance and fall protection should be addressed by the appropriate design firm and their recommendations should be incorporated into the project.

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Photo 1 – Overview of upper roof section



Photo 2 – Overview of upper roof section and small penthouse roof.



Photo 3 – Overview of lower roof area covered in ponding water.

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State of Delaware Carvel Building
Roof Assessment



Photo 5 – Cracked roof coating material. Cap sheet also appears to be damaged.



Photo 6 – Failing coating in ponding locations. The submerged coating material is separating from the cap sheet.

Photo 7 – Overview of low through-wall flashing at the rising wall. Several copper pipes penetrate the flashing below the through-wall flashing.

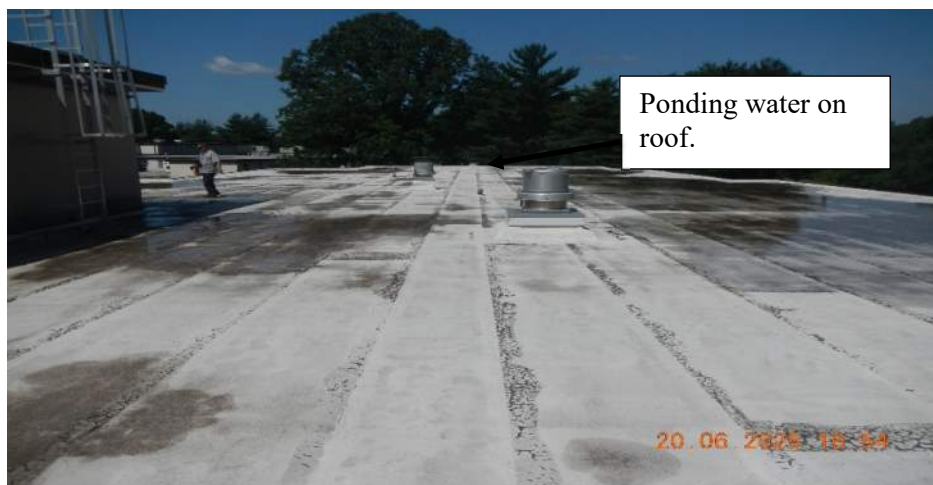
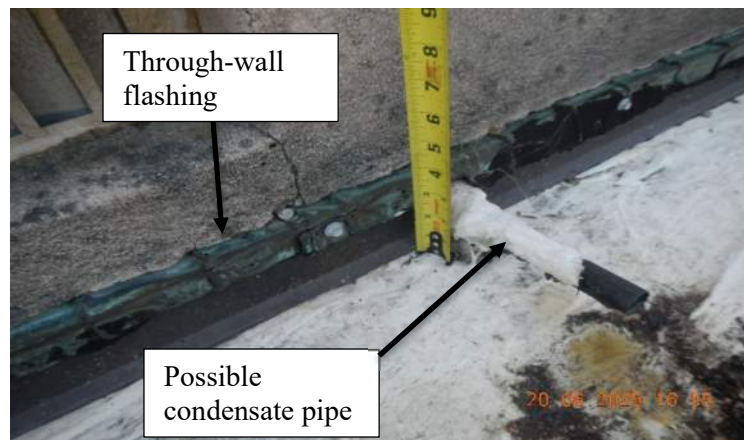


Photo 8 – Overview of ponding water around most drains on the lower roof.

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Photo 9 – Low flashing heights at window units on the lower roof.



Photo 10 – Typical flashing at exhaust unit on upper roof.



Photo 11 – Typical lead flashed pipe penetration.

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Photo 12 – Typical roof drain and roof divider.



Photo 13 – Overview of typical rooftop units and penthouse roof section.



Photo 14 – Overview of penthouse gutter edge and downspout.



Photo 15 – Typical roof edge



Photo 16 – Typical fascia profile



Photo 17 – Typical drain leaders from roof drains. The drains are not part of an internal stormwater system.

SUMMARY OF RECOMMENDATIONS

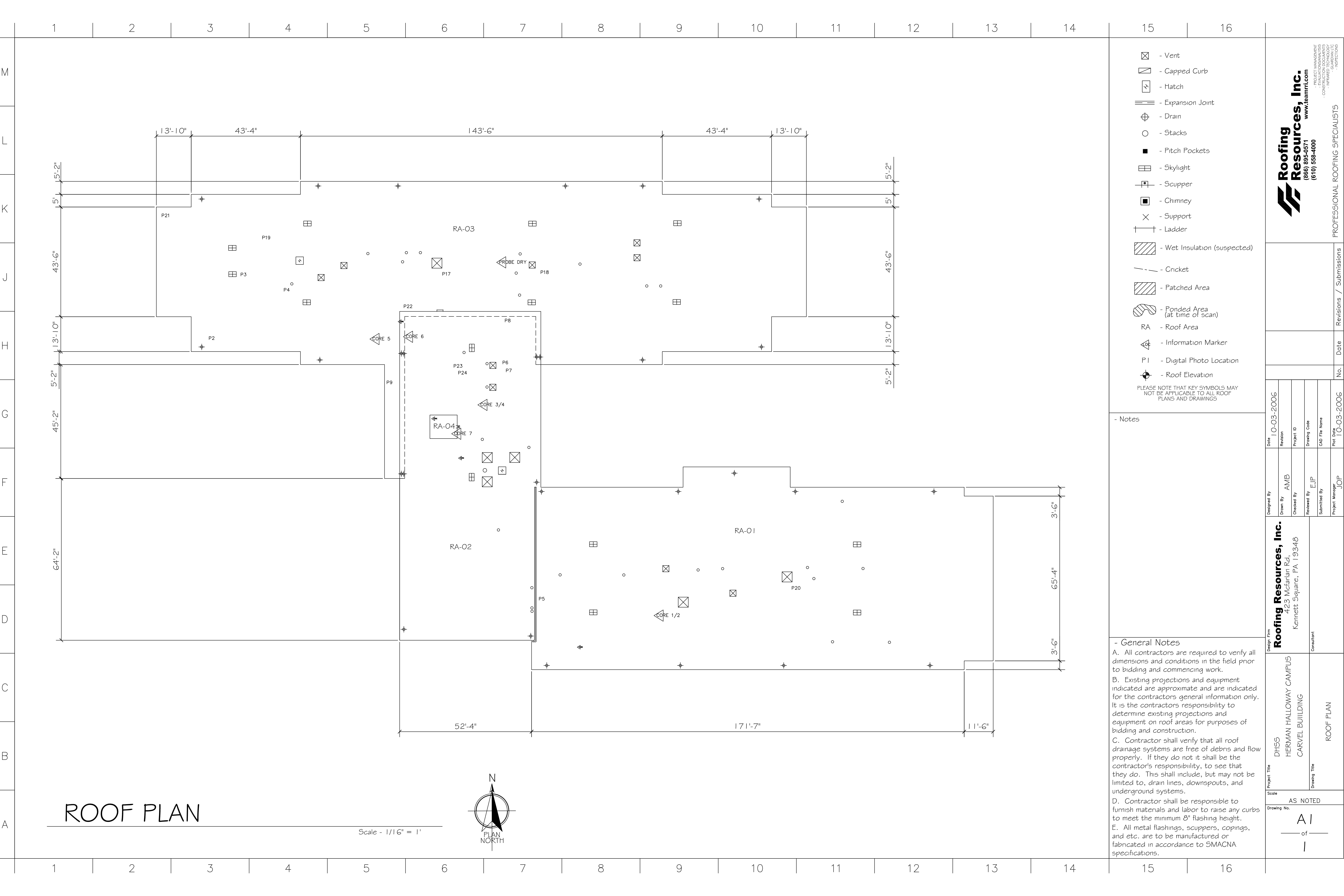
A. Thermal and Moisture Protection

Overall, the roofing systems surveyed appear to be in poor condition. The roof sections at the facility should be replaced in the next 1-3 years. Immediate action should be taken to repair any leaking sections to prevent further damage from water infiltration. Short-term repairs to address active leaks should not negatively impact the existing roof system. The roof system is estimated to be between 20-25 years old, putting it at or near the end of its' expected useful life. Delamination of the coating, cracks in the coating, low flashing heights at the rising wall and the large-scale ponding are ongoing shortcomings with the existing roof system. The stormwater drainage system for the roof does not appear to be connected to an internal system. Roof drains appear to be located in a soffit section that extends out past the base of the structure. This condition may allow for the installation of an increased slope in the roof to improve drainage without needing to raise the height at the perimeter edge. Issues related to the roof including but not limited to drainage, insulation, and maintenance access should be discussed and evaluated by the design professional to comply with local code requirements.

BUDGETS

Material/Repair/Replacement Type	Square Foot Area	Estimated Square Foot Cost	Steep or Low Slope	Total Estimated Budget
Single-ply Membrane	36,725	\$30	Low	\$1,101,750
Two-ply Modified Bitumen	36,725	\$35	Low	\$1,285,375

Note: Pricing may vary based on the selected warranty duration.



APPENDIX A

ROOF PLAN

APPENDIX B

ROOF CORE DATA

Carvel Building**New Castle, Delaware****Roof Core Information**

Roof Area: 01

Core 1:

- Metal Deck
- 1 1/2" Polyisocyanurate Insulation
- 1/2" Gypsum Board Insulation
- Modified Built-Up Roof Membrane
- White Fluid Applied Coating
- Dry
- Overall Core Depth 2 1/2"



Core Overview

Note: The 2nd core was taken 20' from the 1st. Appears to show presence of tapered insulation

Roof Area: 01

Core 2:

- Metal Deck
- 4" Polyisocyanurate Insulation
- 1/2" Gypsum Board Insulation
- Modified Built-Up Roof Membrane
- White Fluid Applied Coating
- Dry
- Overall Core Depth 5"



Core Overview

Carvel Building**New Castle, Delaware****Roof Core Information**

Roof Area: 02

Core 4:

- Metal Deck
- 2 1/4" Polyisocyanurate Insulation
- 1/2" Gypsum Board Insulation
- Modified Built-Up Roof Membrane
- White Fluid Applied Coating
- Dry
- Overall Core Depth 3 1/2"



Core Overview

Note: The 2nd core was taken 20' from the 1st. Appears to show presence of tapered insulation

Roof Area: 02

Core 5:

- Metal Deck
- 4" Polyisocyanurate Insulation
- 1/2" Gypsum Board Insulation
- Modified Built-Up Roof Membrane
- White Fluid Applied Coating
- Dry
- Overall Core Depth 5"



Core Overview

Carvel Building**New Castle, Delaware****Roof Core Information**

Roof Area: 03

Core 6:

- Metal Deck
- 2 1/4" Polyisocyanurate Insulation
- 1/2" Gypsum Board Insulation
- Modified Built-Up Roof Membrane
- White Fluid Applied Coating
- Dry
- Overall Core Depth 3 1/2"



Core Overview

Note: The 2nd core was taken 20' from the 1st. Appears to show presence of tapered insulation

Roof Area: 03

Core 7:

- Metal Deck
- 4" Polyisocyanurate Insulation
- 1/2" Gypsum Board Insulation
- Modified Built-Up Roof Membrane
- White Fluid Applied Coating
- Dry
- Overall Core Depth 5"



Core Overview

Note: Cores #3 and #8 were flashing cuts taken by the States environmental testing contractor and patched by RRI. Samples of each core were provided to the environmental contractor for testing purposes.
