

**Addendum
No. 3**

Date: September 21, 2026

Project: Holloway Campus Carvel Bldg. Roof Replacement - REBID
MC3501000111A

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. What is the Existing Roof Insulation composed of and what is the overall Thickness? ***See attached Roof Assessment Report.***
2. Were there any Core Samples taken? Any Core Reports done? ***Yes. See attached Roof Assessment Report.***
3. Are All Drain Stainer Domes and Clamping Rings to remain? ***Replace drain strainer domes and clamping rings.***
4. What is the roof decking material, Concrete, Steel, Wood etc. in case any needs to be repaired/replaced? ***Per the attached report, the existing roof decks are metal. Any deck repair or replacement will be applied to the Allowance.***
5. Will there be a Unit price to repair/replace roof deck? ***No. There are no Unit Prices required with the Bid.***
6. Is all insula*on to be fastened one shot through the vapor barrier? Or are we to use low rise adhesive to install all ISO and this way we don't penetrate the Vapor barrier? ***Provide a fully-adhered system above the vapor barrier. See attached revised Specification Section 07 54 00.***
7. Please confirm the roof decks are sloped and were only to install flat iso except for crickets? ***Per the roof cores findings in the report and existing drawings, it appears the roof decks are flat. The field insulation at all roofs shall be tapered as indicated on the Drawings.***

Changes to Specifications

1. Replace Specification Section 07 54 00 – Thermoplastic Membrane Roofing in its entirety with the attached. All roofing materials above the new vapor barrier shall be adhered, not mechanically fastened. Manufacturers to

provide a system to achieve the warranty and wind uplift without mechanical fasteners puncturing the vapor barrier.

Attachments

1. Specification Section 07 54 00 – Thermoplastic Membrane Roofing.
2. Asbestos inspection report from Harvard Environmental, Inc.
3. Roof assessment report from Roofing Resources, Inc.

END

SECTION 07 54 00
THERMOPLASTIC MEMBRANE ROOFING

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Adhered system with thermoplastic (TPO) roofing membrane.
- B. Insulation, tapered.
- C. Vapor retarder.
- D. Deck sheathing.
- E. Cover boards.
- F. Flashings.
- G. Walkway Pads.

1.02 RELATED REQUIREMENTS

- A. Section 06 10 00 - Rough Carpentry: Wood blocking and cant strips.

1.03 REFERENCE STANDARDS

- A. ASTM C1177/C1177M - Standard Specification for Glass Mat Gypsum Substrate for Use as Sheathing; 2013.
- B. ASTM C1289 - Standard Specification for Faced Rigid Cellular Polyisocyanurate Thermal Insulation Board; 2016.
- C. ASTM D6878/D6878M - Standard Specification for Thermoplastic Polyolefin Based Sheet Roofing; 2013.
- D. ASTM E96/E96M - Standard Test Methods for Water Vapor Transmission of Materials; 2016.
- E. NRCA (RM) - The NRCA Roofing Manual; 2017.
- F. NRCA (WM) - The NRCA Waterproofing Manual; 2005.

1.04 SUBMITTALS

- A. See Section 01 30 00 - Administrative Requirements for submittal procedures.
- B. Product Data: Provide data indicating membrane materials, flashing materials, insulation, surfacing, and fasteners.
- C. Shop Drawings: Submit drawings that indicate joint or termination detail conditions and setting plan for tapered insulation.
- D. Manufacturer's Certificate: Certify that products meet or exceed specified requirements.
- E. Warranty Documentation:
 - 1. Submit manufacturer warranty and ensure that forms have been completed in Owner's name and registered with manufacturer.
 - 2. Submit installer's written verification that installation complies with warranty conditions for waterproof membrane.

1.05 DELIVERY, STORAGE, AND HANDLING

- A. Deliver materials in manufacturer's original containers, dry and undamaged, with seals and labels intact, unless otherwise indicated.
- B. Store materials in weather protected environment, clear of ground and moisture.
- C. Ensure storage and staging of materials does not exceed static and dynamic load-bearing capacities of roof decking.
- D. Protect foam insulation from direct exposure to sunlight.

1.06 FIELD CONDITIONS

- A. Do not apply roofing membrane during unsuitable weather.
- B. Do not apply roofing membrane to damp or frozen deck surface or when precipitation is expected or occurring.
- C. Do not expose materials vulnerable to water or sun damage in quantities greater than can be weatherproofed the same day.
- D. Schedule applications so that no partially completed sections of roof are left exposed at end of workday.

1.07 WARRANTY

- A. See Section 01 78 00 - Closeout Submittals for additional warranty requirements.
- B. System Warranty: Provide manufacturer's total system warranty agreeing to repair or replace roofing that leaks or is damaged due to wind or other natural causes.
 - 1. Warranty Term: 20 years.
 - 2. For repair and replacement include costs of both material and labor in warranty.
 - 3. Exceptions are not Permitted:
 - a. Damage due to wind speed greater than 50 miles per hour but less than or equal to 100 miles per hour.

PART 2 PRODUCTS

2.01 MANUFACTURERS

- A. Thermoplastic Polyolefin (TPO) Membrane Roofing Materials:
 - 1. Carlisle SynTec Systems: www.carlisle-syntec.com/#sle.
 - 2. Elevate; UltraPly TPO Membrane: www.holcimelevate.com/#sle.
 - 3. Flex Membrane International Corporation: www.flexroofingsystems.com/#sle.
 - 4. GAF: www.gaf.com/#sle.
 - 5. GenFlex Roofing Systems, LLC: www.genflex.com/#sle.
 - 6. IKO Industries Inc: www.iko.com/#sle.
 - 7. Johns Manville: www.jm.com/#sle.
 - 8. Mule-Hide Products Co, Inc: www.mulehide.com/#sle.
 - 9. Versico Roofing Systems; VersiWeld TPO (Basis-of-Design): www.versico.com/#sle.
 - 10. Approved Equal.
 - 11. Substitutions: See Section 01 60 00 - Product Requirements.
- B. Insulation:
 - 1. BASF Corporation: www.neopor.basf.us/#sle.
 - 2. Carlisle SynTec Systems: www.carlisle-syntec.com/#sle.
 - 3. DuPont de Nemours, Inc: building.dupont.com/#sle.
 - 4. GAF: www.gaf.com/#sle.
 - 5. Hunter Panels: www.hunterpanels.com/#sle.
 - 6. InsulFoam LLC: www.insulfoam.com/#sle.
 - 7. Johns Manville: www.jm.com/#sle.
 - 8. Owens Corning Corporation: www.ocbuildingspec.com/#sle.
 - 9. R-50 Systems LLC: www.R-50.com/#sle.
 - 10. ROCKWOOL: www.rockwool.com/#sle.
 - 11. Versico Roofing Systems; 20-PSI VersiCore Polyisocyanurate (Basis-of-Design): www.versico.com/#sle.
 - 12. Elevate, ISOGARD GL.
 - 13. Approved Equal.
 - 14. Substitutions: See Section 01 60 00 - Product Requirements.

2.02 MEMBRANE ROOFING AND ASSOCIATED MATERIALS

- A. Membrane Roofing Materials:
 - 1. TPO: Thermoplastic polyolefin (TPO) complying with ASTM D6878/D6878M, sheet contains reinforcing fabrics or scrims.
 - a. Thickness: 60 mil, 0.060 inch, minimum.
 - 2. Color: White.
- B. Seaming Materials: As recommended by membrane manufacturer.
- C. Vapor Retarder: Material approved by roof manufacturer; compatible with roofing and insulation materials. Self-adhered.
- D. Primer: Material approved by roof Manufacturer; apply primer to all single-ply surfaces.
- E. Flexible Flashing Material: Same material as membrane.
- F. Liquid Flashing: As recommended by Roofing Manufacturer.
 - 1. Apply liquid flashing with a minimum bottom coat of 30 MIL wet thickness and minimum top coat of 30 MIL wet thickness.
- G. Through-Wall Flashing with Termination Bar: At least 40 mil, 0.040 inch thick poly-reinforced membrane with extruded termination bar and drip-edge.
 - 1. Width: 18 inches, minimum.

2.03 DECK SHEATHING

- A. Deck Sheathing: Glass-mat faced gypsum panels complying with ASTM C1177/C1177M.

2.04 COVER BOARDS

- A. Cover Boards: Faced, and with high compressive strength polyisocyanurate (ISO) insulation complying with ASTM C1289, and the following characteristics:
 - 1. Board Size: 48 by 96 inches.
 - 2. Board Thickness: 1/2 inch, minimum.
 - 3. Products:
 - a. Johns Manville: www.jm.com/#sle.
 - b. Carlisle Syntec Systems; Securshield HD (Basis-of-Design); www.carlisesyntec.com.
 - c. DensDeck Prime
 - d. Approved Equal.
 - e. Substitutions: See Section 01 60 00 - Product Requirements.

2.05 INSULATION

- A. Polyisocyanurate (ISO) Board Insulation: Rigid cellular foam, complying with ASTM C1289.
 - 1. Classifications:
 - 2. Board Size: 48 by 96 inches.
 - 3. Tapered Board: Slope as indicated; minimum thickness 1/2 inch; fabricate of fewest layers possible.
 - 4. Board Edges: Square.
 - 5. Products:
 - a. Elevate; ISOGARD GL: elevatecommercialbp.com
 - b. DuPont de Nemours, Inc: building.dupont.com/#sle.
 - c. GAF; EnergyGuard Polyiso Insulation: www.gaf.com/#sle.
 - d. Johns Manville: www.jm.com/#sle.
 - e. Mule-Hide Products Co, Inc: www.mulehide.com/#sle.
 - f. Versico Roofing Systems; 20-psi VersiCore (Basis-of-Design): www.versico.com/#sle.
 - g. Approved Equal.
 - h. Substitutions: See Section 01 60 00 - Product Requirements.

2.06 ACCESSORIES

- A. Stack Boots: Prefabricated flexible boot and collar for pipe stacks through membrane; same material as membrane.
- B. Cant and Edge Strips: Wood fiberboard, compatible with roofing materials; cants formed to 45 degree angle.
- C. Membrane Adhesive: Cold applied, moisture cured, single component roof membrane adhesive.
 - 1. Products:
 - a. Basis-of-Design: CAV-GRIP 3V Low-VOC Adhesive/Primer.
 - b. Elevate Single-Ply LVOC Bonding Adhesive or Jet Bond..
 - c. Or approved equal.
 - d. Substitutions: See Section 01 60 00 - Product Requirements.
- D. Insulation Adhesive: As recommended by insulation manufacturer.
- E. Sealants: As recommended by membrane manufacturer.
- F. Walkway Pads: Suitable for maintenance traffic, contrasting color or otherwise visually distinctive from roof membrane.
 - 1. Composition: Asphaltic with mineral granule surface.
 - 2. Size: 18 by 18 inches.
 - 3. Surface Color: White.

PART 3 EXECUTION

3.01 PREPARATION - METAL DECK

- A. Install deck sheathing on metal deck:
 - 1. Lay with long side at right angle to flutes; stagger end joints; provide support at ends.
 - 2. Cut sheathing cleanly and accurately at roof breaks and protrusions to provide smooth surface.
 - 3. Tape joints.
 - 4. Mechanically fasten sheathing to roof deck, in accordance with roofing manufacturer's instructions.

3.02 INSTALLATION, GENERAL

- A. Perform work in accordance with manufacturer's instructions, NRCA (RM), and NRCA (WM) applicable requirements.
- B. Do not apply roofing membrane during cold or wet weather conditions.
- C. Do not apply roofing membrane when ambient temperature is outside the temperature range recommended by manufacturer.
- D. Do not apply roofing membrane to damp or frozen deck surface or when precipitation is expected or occurring.
- E. Do not expose materials vulnerable to water or sun damage in quantities greater than can be weatherproofed the same day.

3.03 INSTALLATION - VAPOR RETARDER AND INSULATION, UNDER MEMBRANE

- A. Install vapor retarder to deck surface with adhesive in accordance with manufacturer's instructions.
 - 1. Extend vapor retarder under cant strips and blocking to deck edge.
 - 2. Install flexible flashing from vapor retarder to air seal material of wall construction, lap and seal to provide continuity of the air barrier plane.
- B. Attachment of Insulation:

1. Embed first layer of insulation in full bed of adhesive in accordance with roofing and insulation manufacturers' instructions.
- C. Cover Boards: Fully adhere cover boards in accordance with roofing manufacturer's instructions.
- D. Lay subsequent layers of insulation with joints staggered minimum 6 inches from joints of preceding layer.
- E. On metal deck, place boards parallel to flutes with insulation board edges bearing on deck flutes.
- F. Lay boards with edges in moderate contact without forcing. Cut insulation to fit neatly to perimeter blocking and around penetrations through roof.
- G. Do not install more insulation than can be covered with membrane in same day.

3.04 INSTALLATION - MEMBRANE

- A. Roll out membrane, free from wrinkles or tears. Place sheet into place without stretching.
- B. Shingle joints on sloped substrate in direction of drainage.
- C. Overlap edges and ends and seal seams by contact adhesive, minimum 3 inches. Seal permanently waterproof. Apply uniform bead of sealant to joint edge.
- D. At intersections with vertical surfaces:
 1. Extend membrane over cant strips and up a minimum of 4 inches onto vertical surfaces.
 2. Fully adhere flexible flashing over membrane and up to nailing strips.
- E. Around roof penetrations, seal flanges and flashings with flexible flashing.
- F. Install roofing expansion joints where indicated. Make joints watertight.
 1. Install prefabricated joint components in accordance with manufacturer's instructions.
- G. Coordinate installation of roof drains and sumps and related flashings.

3.05 FIELD QUALITY CONTROL

- A. See Section 01 40 00 - Quality Requirements for additional requirements.
- B. Owner may provide inspection services, and Contractor to provide temporary construction and materials for testing in accordance with requirements.

3.06 CLEANING

- A. See Section 01 70 00 - Execution and Closeout Requirements for additional requirements.
- B. Remove bituminous markings from finished surfaces.
- C. In areas where finished surfaces are soiled by work of this section, consult manufacturer of surfaces for cleaning advice and comply with their documented instructions.
- D. Repair or replace defaced or damaged finishes caused by work of this section.

3.07 PROTECTION

- A. Protect installed roofing and flashings from construction operations.
- B. Where traffic must continue over finished roof membrane, protect surfaces using durable materials.

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.*

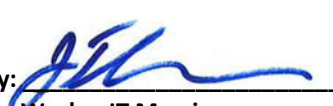
Released By: 
Wesley JT Morrison
*Operations Manager
Harvard Environmental, Inc.*

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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

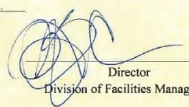
Appendix A

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>	  For the National Voluntary Laboratory Accreditation Program



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

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

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

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

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: 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

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
"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

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: 002C

LAB SAMPLE ID

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

182141

%	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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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.

Roofing Resources, Inc.
State of Delaware Carvel Building
Roof Assessment



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.

Roofing Resources, Inc.
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.

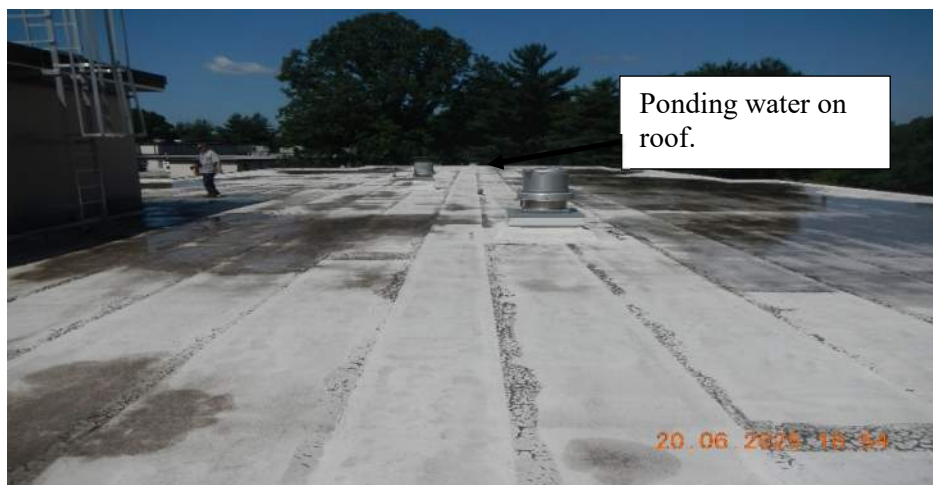
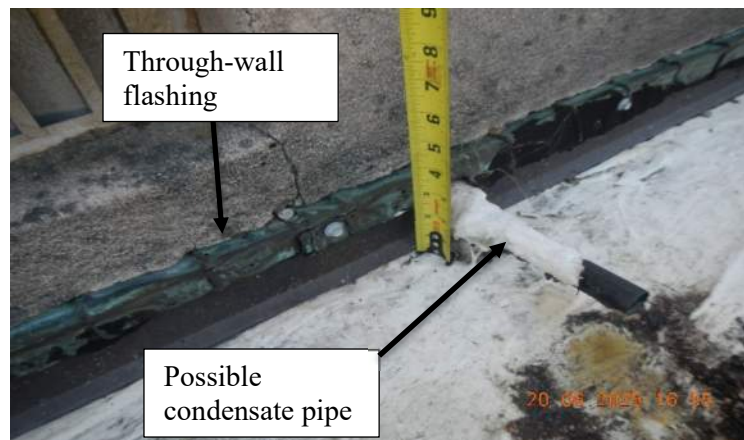


Photo 8 – Overview of ponding water around most drains on the lower roof.

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State of Delaware Carvel Building
Roof Assessment



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.



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.

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.
