

PROJECT MANUAL

CITY OF BEAFORT – CARNEGIE LIBRARY ROOF REPAIR & RESTORATION

PROJECT NO. 2024-109

MEADORS, Inc.

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Bid Set
February 19, 2024

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TABLE OF CONTENTS

PROJECT NAME: CITY OF CARNEGIE LIBRARY ROOF REPAIR & RESTORATION

PROJECT NUMBER: 2024-109

Division	Section Title	Pages
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PROCUREMENT AND CONTRACTING DOCUMENTS GROUP

DIVISION 00 - PROCUREMENT AND CONTRACTING REQUIREMENTS

Table of Contents	2
000107 Seals Page.....	1
003126 Existing Hazardous Material Information.....	1
..... Limited Asbestos Survey dated July 19, 2022.....	34

GENERAL REQUIREMENTS SUBGROUPS

DIVISION 01 - GENERAL REQUIREMENTS

011000 Summary	4
012300 Alternates	2
012500 Substitution Procedures	3
..... Substitution Request Form	2
012600 Contract Modification Procedures.....	3
012900 Payment Procedures.....	4
013000 Administrative Requirements.....	2
013100 Project Management and Coordination.....	6
013200 Construction Progress Documentation.....	4
013233 Photographic Documentation.....	3
013300 Submittal Procedures	6
013591 Historic Treatment Procedures	5
015000 Temporary Facilities and Controls	4
017700 Closeout Procedures.....	5
017839 Project Record Documents.....	4

DIVISION 04 – MASONRY

040513 – Mortars for Structural Repairs and Repointing	6
--	---

DIVISIONS 06 – WOOD, PLASTICS, AND COMPOSITES

061000 – Exterior Rough Carpentry.....	8
062000 – Exterior Finish Carpentry.....	6

DIVISION 07 - THERMAL AND MOISTURE PROTECTION

070150.19 – Preparation for Reroofing	5
073213 – Clay Roof Tiles.....	6
075419 – Polyvinyl-chloride (PVC) Roofing.....	8
076200 – Sheet Metal Flashing and Trim.....	4
077123– Gutters and Downspouts.....	6
079200 – Joint Sealants	6

DIVISION 09 - FINISHES

090120 – Maintenance of Plaster.....	8
090170.52 – Paint Removal.....	5
097200 – Wall Coverings.....	3
099000 – Architectural Coatings	11

TABLE OF CONTENTS

City of Beaufort- Carnegie Library Roof Repair & Restoration Project
Project No. 2024-109

2/19/2024
Meadors, Inc.

099600 – High Performance Coatings	5
DIVISION 31 - EARTHWORK	
311000 – Site Clearing	5
DIVISION 32 – EXTERIOR IMPROVEMENTS	
32313 – Concrete Walks, Curb, & Pavement	5
DIVISION 33 – UTILITIES	
334100 – Storm Drainage Piping	3
APPENDIX	
Report Beaufort Carnegie Library Assessment dated 09.26.22	128
END OF TABLE OF CONTENTS	

DOCUMENT 000107 - SEALS PAGE

1.1 DESIGN PROFESSIONALS OF RECORD

BUILDING
ARCHITECT

Betty Prime
SC #8919
Architectural Sections in
Divisions 01 – 14;
Section 313116



SECTION 003126 – EXISTING HAZARDOUS MATERIAL INFORMATION

PART 1 - GENERAL

1.1 HAZARDOUS MATERIALS REPORTS

A. The following reports are attached for Contractor's information:

1. "Limited Asbestos Survey" performed by Trident Environmental Services, Inc., Survey Date: July 19, 2022.

END OF SECTION 003126

LIMITED ASBESTOS SURVEY

**CARNEGIE LIBRARY INTERIOR
701 CRAVEN STREET
BEAUFORT, SOUTH CAROLINA 29902**



Prepared For:

MEADORS
SINCE 1984

**Attn: Ms. Betty Prime
2811 Azalea Drive
North Charleston, SC 29405
(843) 723-8585**

Performed By:

TES

Trident Environmental Services, Inc.

*Consultants in Industrial Hygiene and Safety
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**LIMITED
ASBESTOS SURVEY**

Carnegie Library Interior
701 Craven Street
Beaufort, SC 29902

Executive Summary	4
Background	5
• Asbestos	5
• Limitations	5
Asbestos Survey	6
• Asbestos Investigative Procedures	6
• Visual Inspection	6
• Laboratory/Analysis	6
• Asbestos Classifications & Categories	7
• Asbestos Abbreviations/Hazard Assessment Key	8
Asbestos Summary Table	9
Homogeneous Estimated Quantity Table	10
Asbestos Sample Data Table	11
Conclusions / Recommendations	14
• Conclusions	14
• Recommendations	14
• Response Actions	14
Regulatory Requirements	15
• Friable Abatement	15
• Non Friable Abatement	15
• Demolitions	15
• OSHA	16
Homogenous Area Photographs	17
Diagram(s)	20
Inspector Accreditation	22
Laboratory Accreditation	23
Chain of Custody/Laboratory Reports	25
• Chain of Custody	25
• PLM Laboratory Report	29
• TEM Laboratory Report	33

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EXECUTIVE SUMMARY

The limited asbestos survey performed by Trident Environmental Services, Inc. on July 19, 2022 of the Carnegie Library Interior located at 701 Craven Street in Beaufort, South Carolina **did** identify the presence of asbestos containing materials (ACM). The following table lists the asbestos identified in the scope of the limited inspection.

Description	Type
Carpet Mastic (black)	Category I – Non Friable
Plaster/Skim Coat	RACM – Friable
Vinyl Sheet Flooring (brick pattern)	RACM – Friable

RACM – Regulated Asbestos Containing Material

PACM – Presumed Asbestos Containing Material

Abatement of ACM shall be performed by a properly trained and licensed abatement contractor prior to the planned renovation/demolition activities in accordance with Federal/State regulations. The Asbestos Survey describes the investigative procedures utilized, results of the suspect materials sampled/analyzed, and recommendations regarding the structures as related to asbestos.

BACKGROUND

Trident Environmental Services, Inc. was contracted by **Meadors, Inc.** to perform a limited asbestos survey of the Carnegie Library Interior located at 701 Craven Street in Beaufort, South Carolina. This survey was performed in order to satisfy the NESHAP requirements for an impending renovation/modification to the building. The historical 1.5 story masonry building is constructed on a raised basement and consists of approximately 2,443 square feet. Date of construction is 1917.

Interior walls are drywall with joint compound applied at seams and plaster with skim coat over a wood lathe. Ceilings are a suspended metal grid system with lay-in ceiling tiles and plaster. Floor finishes include hardwood, vinyl floor planks, vinyl floor tiles and carpet over wood. **Note: This inspection was limited to the interior and should not be used or considered as an all-inclusive asbestos survey for the building.**

Asbestos

The inspection was conducted to identify ACM which may be disturbed during the renovation/demolition activities. The identification of ACM will aid in the prevention of occupational exposures and/or environmental releases of airborne asbestos fibers. Identification of ACM also complies with Title 40 Code of the Federal Regulations, Part 61, and South Carolina Department of Health and Environmental Control (SCDHEC) Regulation 61-86.1, along with Title 29 Code of Federal Regulations, Part 1926 enforced by the Occupational Safety and Hazard Administration (OSHA). The Asbestos Survey describes the investigative procedures utilized, results of the suspect ACM sampled/analyzed, and recommendations regarding the structures as related to asbestos.

Limitations

There is a possibility that suspect materials may be located in areas that are inaccessible during the inspection. These areas include but not limited to the following: walls, voids, chases, above ceilings, or areas where building components obstruct views, where there are operational mechanical/electrical/HVAC systems, under platforms, slabs, foundations, inside attics or crawlspaces, under multiple layers of flooring/floor systems and roofing. When additional un-sampled suspect ACM are discovered during renovation or demolition activities, work shall immediately stop until receipt of laboratory results confirming the material is non asbestos.

ASBESTOS SURVEY

Asbestos Investigative Procedures

It is our understanding that the subject structure is scheduled for renovation and repair in the near future. The asbestos survey was performed by observing and sampling suspect building materials. Significant destructive testing was not utilized during the inspection. There is a possibility that suspect materials exist in inaccessible areas such as wall cavities and pipe chases. If any additional suspect ACM are discovered during the course of demolition activities, bulk samples should be extracted to identify the presence, or absence, of asbestos prior to continuation of work activities.

Visual Inspection

The survey began with a visual observation of building and/or structure components to identify homogeneous areas of suspect ACM. A homogeneous area consists of building materials, which appear similar throughout in terms of color, texture and date of application. Building materials not identified as concrete, glass, wood, masonry, metal, rubber, foam or plastic were not considered ACM. A sampling strategy was developed to provide representative samples for analysis. Samples were then extracted from a variety of suspect ACM.

Laboratory & Analysis

Bulk samples collected were recorded on a Chain-of-Custody record and submitted to Electron Microscopy Services Laboratory Analytical, Inc. (EMSL) a Polarized Light Microscopy (PLM) laboratory. The laboratory is accredited by the National Voluntary Laboratory Accreditation Program (NVLAP), administered by the National Institute of Standards and Technology (NIST). EMSL is accredited by NVLAP for the analysis of bulk asbestos by PLM and Transmission Electron Microscopy (TEM) ([NVLAP Lab Code: 200841-0](#)). Non-Friable Organically Bound (NOB) samples were analyzed by TEM

The suspect materials were analyzed by trained microscopists utilizing PLM techniques coupled with dispersion staining in accordance with EPA Test Method Title 40 CFR Regulations, Chapter I (1-1-87 edition), Part 763, Subpart F- Appendix A. This method identifies asbestos mineral fibers based on six optical characteristics: morphology, birefringence, refractive index, extinction angle, sign of elongation and dispersion staining colors. The laboratory analysis reports the specific type of asbestos identified (there are six asbestos minerals) and the percentage of asbestos present. The EPA and SCDHEC defines materials as asbestos containing if an asbestos content of greater than one percent (>1%) is detected in a representative sample. OSHA considered a material with any content of asbestos as an ACM.

The State requires NOB materials with negative or trace results by PLM to be analyzed by at least one TEM. SCDHEC in accordance with ASTM E 2356-04 defines NOB materials as “materials that are not friable and that consist of fibers and other particulate matter embedded in a solid matrix of asphalt, vinyl or other organic substances.” Examples of NOB materials include but are not limited to flooring materials such as vinyl floor tiles, vinyl sheet flooring, adhesives, mastics, asphalt shingles, roofing materials, glazing, caulks, and cove base.

Asbestos Classifications & Categories

The EPA classifies ACM into two categories, friable and non-friable. A friable material creates a greater health hazard due to the fact that it may be “crumbled, pulverized or reduced to powder by the forces expected to act upon it in the course of demolition or renovation operations.”

Friable Asbestos material means any material containing more than one percent asbestos as determined using the method specified in appendix A, subpart F, 40 CFR part 763 section 1, Polarized Light Microscopy, that, when dry, can be crumbled, pulverized, or reduced to powder by hand pressure. If the asbestos content is less than 10 percent as determined by a method other than point counting by polarized light microscopy (PLM), verify the asbestos content by point counting using PLM.

Category I Non Friable Asbestos-Containing Material (ACM) means asbestos-containing packings, gaskets, resilient floor coverings, and asphalt roofing products containing more than one percent asbestos as determined using the method specified in appendix A, subpart F, 40 CFR part 763, section 1, Polarized Light Microscopy.

Category II Non Friable ACM means any material, excluding Category I non friable ACM, containing more than one percent asbestos as determined using the methods specified in appendix A, subpart F, 40 CFR part 763, section 1, Polarized Light Microscopy that, when dry, cannot be crumbled, pulverized, or reduced to powder by hand pressure. (cement siding, transite board shingles, etc.)

Regulated Asbestos-Containing Material (RACM) means (a) Friable asbestos material, (b) Category I non friable ACM that has become friable, (c) Category I non friable ACM that will be or has been subjected to sanding, grinding, cutting, or abrading, or (d) Category II non friable ACM that has a high probability of becoming or has become crumbled, pulverized, or reduced to powder by the forces expected to act on the material in the course of demolition or renovation operations.

The following section summarizes the sample numbers, locations, type material, asbestos type, percent of asbestos detected, present condition of the asbestos containing material, potential for disturbance, and hazard assessment ratings. The asbestos sample laboratory analyses and chain of custody records are included at the end of this report.

Asbestos Abbreviations and Hazard Assessment Key

The EPA and SCDHEC require that confirmed ACM is given a hazard assessment based on its present condition and potential for future disturbance. This hazard assessment is used as a tool for prioritization in future remedial actions regarding the ACM. The following key demonstrates the criteria that make up the hazard assessment.

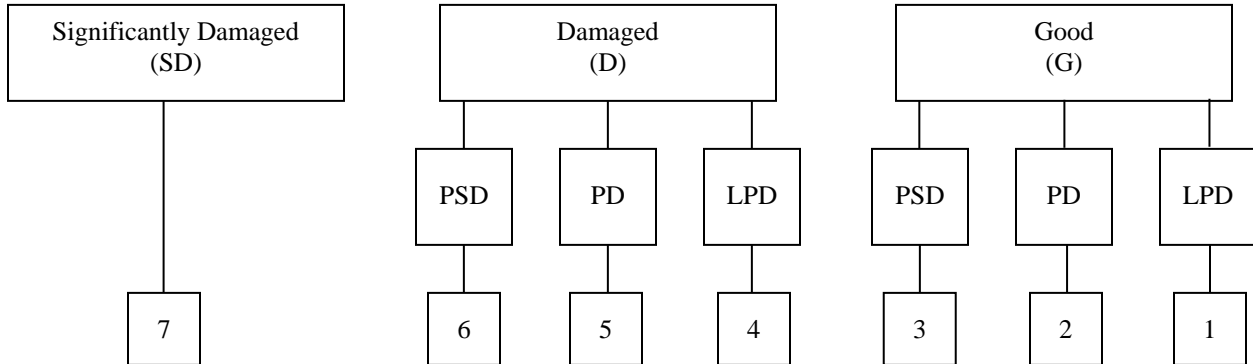
Present Condition

- F = Friable G = Good (very localized limited damage)
NF = Non-friable D = Damaged (<10% distributed and/or <25% localized)
S = Significantly Damaged (≥10% distributed and/or 25% localized)

Potential for Future Disturbance

- LPD = Low Potential for Disturbance (Contact, Vibration, and/or Air Erosion – low concern)
PD = Potential for Damage (Contact, Vibration, and/or Air Erosion – moderate concern)
PSD = Potential for Significant Damage (Contact, Vibration and/or Air Erosion – high concern)

Hazard Assessment



ASBESTOS SUMMARY

DESCRIPTION	TYPE	LOCATION	ESTIMATED QUANTITY
Carpet Mastic (black)	Category I Non Friable	First Floor	1,182 SF
Plaster/Skim Coat	RACM – Friable	First Floor, Basement	9,456 SF
Vinyl Sheet Flooring (brick pattern)	RACM – Friable	Basement Storage	50 SF

RACM – Regulated Asbestos Containing Material

PACM – Presumed Asbestos Containing Material

The estimated quantities/locations provided shall be verified by abatement contractor and building owner with any discrepancies reported to Consultant and addressed prior to abatement. Removal costs vary depending on the contractor, the quantity/condition, and the accessibility/location. This survey report shall not be used as a bidding document and field conditions are to be verified and not used in lieu of a site visit.

HOMOGENOUS AREA ESTIMATED QUANTITY TABLE

HOMOGENOUS AREA ID #	DESCRIPTION	ESTIMATED QUANTITY
01	Carpet Mastic (yellow)	1,182 SF
02	Carpet Mastic (black)	1,182 SF
03	HVAC Duct mastic (white)	270 SF
04A/B	Plaster/Skim Coat	9,456 SF
05	Vinyl Sheet Flooring (brick pattern)	50 SF
06	Vinyl Mastic (black)	50 SF
07	Vinyl Plank Flooring (brown)	1,066 SF
08	12" Floor Tile (tan)	1,066 SF
09	Floor Tile Mastic (yellow)	
10	2' x 2' Ceiling Tile	1,230 SF
11	HVAC Duct Mastic (beige)	80 SF
12	Vinyl Cove Base (gray)	1,654 LF
13	Cove Base mastic (beige)	
14	Drywall	2,960 SF
15	Joint Compound	
16	Roof Felt Paper	1,500 SF

ASBESTOS SAMPLE DATA TABLE

DESCRIPTION OF EACH SAMPLE AREA				LABORATORY		ASSESSMENT OF MATERIALS	
Homogeneous Area & Sample ID	Description	Unit # / Room	Friable (Y/N)	Asbestos Present		Condition Assessment Category	Hazard Assessment Category
				Percent	Asbestos		
01-01	Carpet Mastic (yellow)	1 st Floor	N	0.0%	ND	7	N/A
01-02	Carpet Mastic (yellow)	1 st Floor	N	0.0%	ND	7	N/A
01-03 T	Carpet Mastic (yellow)	1 st Floor	N	0.0%	ND	7	N/A
02-04	Carpet Mastic (black)	1st Floor	N	2.0%	CHRY	7	3
02-05	Carpet Mastic (black)	1st Floor	N	NT	PACM	7	3
02-06	Carpet Mastic (black)	1st Floor	N	NT	PACM	7	3
03-07	HVAC Duct Mastic (white)	Basement	N	0.0%	ND	7	N/A
03-08	HVAC Duct Mastic (white)	Basement	N	0.0%	ND	7	N/A
03-09 T	HVAC Duct Mastic (white)	Basement	N	0.0%	ND	7	N/A
04-10A	Plaster (white coat)	1 st Floor	Y	0.0%	ND	4	N/A
04-10B	Plaster (gray coat)	1st Floor	Y	4.0%	CHRY	4	3
04-11A	Plaster (white coat)	1 st Floor	Y	0.0%	ND	4	N/A
04-11B	Plaster (gray coat)	1st Floor	Y	2.0%	CHRY	4	3
04-12A	Plaster (white coat)	1 st Floor	Y	0.0%	ND	4	N/A
04-12B	Plaster (gray coat)	1st Floor	N	2.0%	CHRY	4	3
04-13A	Plaster (white coat)	Basement	Y	0.0%	ND	4	N/A
04-13B	Plaster (gray coat)	Basement	Y	3.0%	CHRY	4	3
04-14A	Plaster (white coat)	Basement	Y	0.0%	ND	4	N/A
04-14B	Plaster (gray coat)	Basement	Y	2.0%	CHRY	4	3
04-15A	Plaster (white coat)	Basement	Y	0.0%	ND	4	N/A
04-15B	Plaster (gray coat)	Basement	Y	3.0%	CHRY	4	3
04-16A	Plaster (white coat)	Basement	Y	0.0%	ND	4	N/A
04-16B	Plaster (gray coat)	Basement	Y	3.0%	CHRY	4	3
05-17	Viny Sheet Flooring (brick pattern)	Basement Storage	Y	15.0%	CHRY	7	3
05-18	Viny Sheet Flooring (brick pattern)	Basement Storage	Y	NT	PACM	7	3
05-19	Viny Sheet Flooring (brick pattern)	Basement Storage	Y	NT	PACM	7	3
06-20	Vinyl Mastic (black)	Basement Storage	N	0.0%	ND	7	N/A
06-21	Vinyl Mastic (black)	Basement Storage	N	0.0%	ND	7	N/A
06-22 T	Vinyl Mastic (black)	Basement Storage	N	0.0%	ND	7	N/A
07-23	Vinyl Plank Floor (brown)	Basement – Top Layer	N	0.0%	ND	7	N/A

ASBESTOS SAMPLE DATA TABLE

DESCRIPTION OF EACH SAMPLE AREA				LABORATORY		ASSESSMENT OF MATERIALS	
Homogeneous Area & Sample ID	Description	Unit # / Room	Friable (Y/N)	Asbestos Present		Condition Assessment Category	Hazard Assessment Category
				Percent	Asbestos		
07-24	Vinyl Plank Floor (brown)	Basement – Top Layer	N	0.0%	ND	7	N/A
07-25 T	Vinyl Plank Floor (brown)	Basement – Top Layer	N	0.0%	ND	7	N/A
08-26	12” Floor Tile (tan)	Basement Bottom Layer	N	0.0%	ND	7	N/A
08-27	12” Floor Tile (tan)	Basement Bottom Layer	N	0.0%	ND	7	N/A
08-28 T	12” Floor Tile (tan)	Basement Bottom Layer	N	0.0%	ND	7	N/A
09-29	Floor Tile Mastic (black)	Basement Bottom Layer	N	0.0%	ND	7	N/A
09-30	Floor Tile Mastic (black)	Basement Bottom Layer	N	0.0%	ND	7	N/A
09-31 T	Floor Tile Mastic (black)	Basement Bottom Layer	N	0.0%	ND	7	N/A
10-32	2’ x 2’ Ceiling Tile	Basement	Y	0.0%	ND	7	N/A
10-33	2’ x 2’ Ceiling Tile	Basement	Y	0.0%	ND	7	N/A
10-34	2’ x 2’ Ceiling Tile	Basement	Y	0.0%	ND	7	N/A
11-35	HVAC Duct Mastic (beige)	Basement	N	0.0%	ND	7	N/A
11-36	HVAC Duct Mastic (beige)	Basement	N	0.0%	ND	7	N/A
11-37 T	HVAC Duct Mastic (beige)	Basement	N	0.0%	ND	7	N/A
12-38	Vinyl Cove Base (gray)	Basement	N	0.0%	ND	7	N/A
12-39	Vinyl Cove Base (gray)	Basement	N	0.0%	ND	7	N/A
12-40 T	Vinyl Cove Base (gray)	Basement	N	0.0%	ND	7	N/A
13-41	Cove Base Mastic (beige)	Basement	N	0.0%	ND	7	N/A
13-42	Cove Base Mastic (beige)	Basement	N	0.0%	ND	7	N/A
13-43 T	Cove Base Mastic (beige)	Basement	N	0.0%	ND	7	N/A
14-44	Drywall	1 st Floor	Y	0.0%	ND	7	N/A
14-45	Drywall	Basement	Y	0.0%	ND	7	N/A
14-46	Drywall	Basement	Y	0.0%	ND	7	N/A
15-47	Joint Compound	1 st Floor	Y	0.0%	ND	4	N/A
15-48	Joint Compound	1 st Floor	Y	0.0%	ND	4	N/A
15-49	Joint Compound	1 st Floor	Y	0.0%	ND	4	N/A
15-50	Joint Compound	Basement	Y	0.0%	ND	4	N/A
15-51	Joint Compound	Basement	Y	0.0%	ND	4	N/A

ASBESTOS SAMPLE DATA TABLE

DESCRIPTION OF EACH SAMPLE AREA				LABORATORY		ASSESSMENT OF MATERIALS	
Homogeneous Area & Sample ID	Description	Unit # / Room	Friable (Y/N)	Asbestos Present		Condition Assessment Category	Hazard Assessment Category
				Percent	Asbestos		
16-52	Roof Felt Paper	Rooftop	N	0.0%	ND	7	N/A
16-53	Roof Felt Paper	Rooftop	N	0.0%	ND	7	N/A
16-54 T	Roof Felt Paper	Rooftop	N	0.0%	ND	7	N/A

Assessment Categories

- | | |
|--|---|
| (1) Thermal Systems Insulation – Good Condition | (5) Surfacing – Damaged |
| (2) Thermal Systems Insulation – Damaged | (6) Surfacing – Significantly Damaged |
| (3) Thermal Systems Insulation – Significantly Damaged | (7) Miscellaneous – Good Condition |
| (4) Surfacing – Good Condition | (8) Miscellaneous – Damaged |
| | (9) Miscellaneous – Significantly Damaged |

Asbestos Present

- | | |
|----------------------|--------------------------|
| AMOS – Amosite | ACTI – Actinolite |
| CHRY – Chrysotile | ND – None Detected |
| CROC – Crocidolite | NT – Not Tested |
| ANTH – Anthophyllite | PACM – Presumed ACM |
| TREM – Tremolite | Asbestos Detected |

CONCLUSIONS/RECOMMENDATIONS

Conclusions

The limited asbestos survey performed by Trident Environmental Services, Inc. on July 19, 2022 of the Carnegie Library Interior located at 701 Craven Street in Beaufort, South Carolina **did** identify the presence of asbestos. Renovation or demolition activities that disturb asbestos will require removal per state and federal regulations. Asbestos materials can become hazardous when, due to damage, disturbance, or deterioration over time, they release asbestos fibers into the air of the building. All areas that contain asbestos should be utilized in a controlled manner to reduce the potential for disturbance. OSHA requires notification to all trades/contractors about the condition of the ACM to prevent possible occupational exposures.

Recommendations

Based on the findings of the survey, we recommend the following: Removal of the ACM by a SCDHEC licensed asbestos abatement contractor prior to disturbance by renovation/demolition activities in the building under controlled conditions. The state requires abatement of all identified ACM prior to demolitions. Keep a copy of the asbestos inspection report on site during renovation or demolition activities as required by state regulations.

Response Actions

Appropriate response actions for the identified ACM that are in good condition as follows:

No further action: Leave asbestos in place and implement and Operations and Maintenance (O & M) program to monitor the condition of the identified ACM

Remove: The abatement of identified ACM that will be disturbed during renovation or demolition activities using a licensed abatement contractor in compliance with state and federal regulations. Abatement is defined as procedures to control fiber release from regulated asbestos-containing materials. This includes removal, enclosure, encapsulation, repair, and any associated preparation, clean up and disposal activities having the potential to disturb regulated asbestos-containing material.

Enclosure: Construct an airtight, impermeable, permanent barrier around/over ACM to prevent the release of asbestos fibers into the air.

REGULATORY REQUIREMENTS

Friable Abatement

The owner or operator shall provide SCDHEC with a notification of planned abatement and removal activities prior to the commencement of those activities. There is a ten (10) day notification for RACM projects and is typically submitted by the abatement contractor. The Department collects project license fees for all RACM being removed and for previously non-regulated ACM rendered regulated by use of destructive removal techniques such as chipping, grinding, sawing, and abrading, drilling, or extensive breaking. Abatement project fees for RACM are calculated at 10 cents per linear, cubic, or square foot, with a minimum fee of \$25.00 and a maximum fee of \$1,000.00.

Abatement projects involving greater than 3,000 square feet, 1,500 LF or 656 cubic feet of regulated ACM require a project design prepared by a SCDHEC licensed Project Designer for each structure. Air monitoring is required prior to, during and upon completion of abatement activities during friable interior ACM removal for NESHAP size projects. Air sampling shall be performed by a SCDHEC licensed Air Sampler not underemployment of the abatement entity. Clearance sampling is by TEM when the project design threshold is met and/or when the Department requires a project design.

Non Friable Abatement

Provide SCDHEC with an electronic or written application and obtain a Department-issued abatement license for the project four (4) working days prior to beginning abatement. The license shall be maintained at the project site for the duration of the project. Approved SCDHEC methods for non-friable abatement include dry ice or infra-red heat machine. The use of spud bars, shovels, scraping tools, buffer or grinders is considered a regulated/friable abatement and shall be notified and as such and performed in a negative pressure enclosure under controlled condition.

Demolitions

Demolition activities in public and commercial buildings are regulated by OSHA, EPA, and SCDHEC in compliance with CFR Part 61, subpart M, Final Rule (NESHAP) and SCDHEC Regulation 61-86.1. Demolition is defined as the wrecking or taking out any load-supporting structural member. These regulations require the proper removal and disposal of ACM that is affected by renovation or demolition. Demolition of the subject structures will require written notification, proper transportation, and disposal per state and federal regulations.

SCDHEC Asbestos Section requires the following prior to demolitions of each structure:

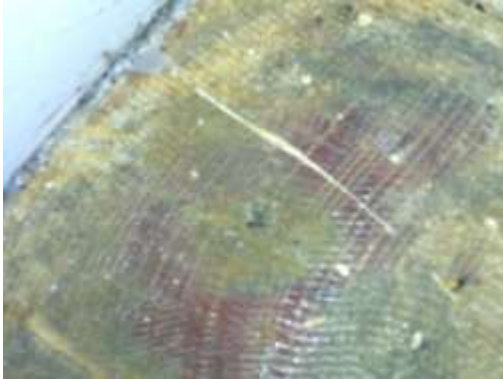
Submit an electronic or written demolition project license application for each separate structure/facility that includes all information required on the application form and a \$50.00 fee (payable to SCDHEC) at least **10 working days prior to the start date**. A copy of the asbestos survey report (no older than 3 years) must accompany the application. Obtain an asbestos demolition license for each structure/facility, regardless of whether the required building inspection indicates the presence of ACM and prior to demolition activities. For additional information concerning regulatory requirements, contact our office or visit the SCDHEC website <http://www.scdhec.gov/environment/baq/asbestos>

OSHA

OSHA considers a material with any content of asbestos as an ACM. The OSHA construction standard 29 CFR 1926.1101 regulates construction, alteration, repair, maintenance, or renovation and demolition of structures containing asbestos. Employers are required to notify affected employees and contractors of the presence and location of asbestos-containing materials and test results. See OSHA3507 Fact Sheet for additional requirements.

For the purpose of this survey, the following materials are considered asbestos containing by OSHA: Carpet Mastic (black), Plaster, and Vinyl Sheet Flooring (brick pattern).

HOMOGENOUS AREA PHOTOGRAPHS



HOMOGENEOUS AREA 01
CARPET MASTIC (YELLOW)



HOMOGENEOUS AREA 02
CARPET MASTIC (BLACK)



HOMOGENEOUS AREA 03
HVAC DUCT MASTIC (WHITE)



HOMOGENEOUS AREA 04, 04A
PLASTER/SKIM COAT



HOMOGENEOUS AREAS 05, 06
VINYL SHEET FLOOR (BRICK PATTERN)
MASTIC (BLACK)



HOMOGENEOUS AREA 07
VINYL PLANK FLOORING (BROWN)

HOMOGENOUS AREA PHOTOGRAPHS



HOMOGENEOUS AREAS 08, 09
12" FLOOR TILE (TAN)
MASTIC (YELLOW)



HOMOGENEOUS AREA 10
2' X 2' CEILING TILE



HOMOGENEOUS AREA 11
HVAC DUCT MASTIC (BEIGE)



HOMOGENEOUS AREAS 12, 13
VINYL COVE BASE (GRAY)
MASTIC (BEIGE)



HOMOGENEOUS AREA 14
DRYWALL

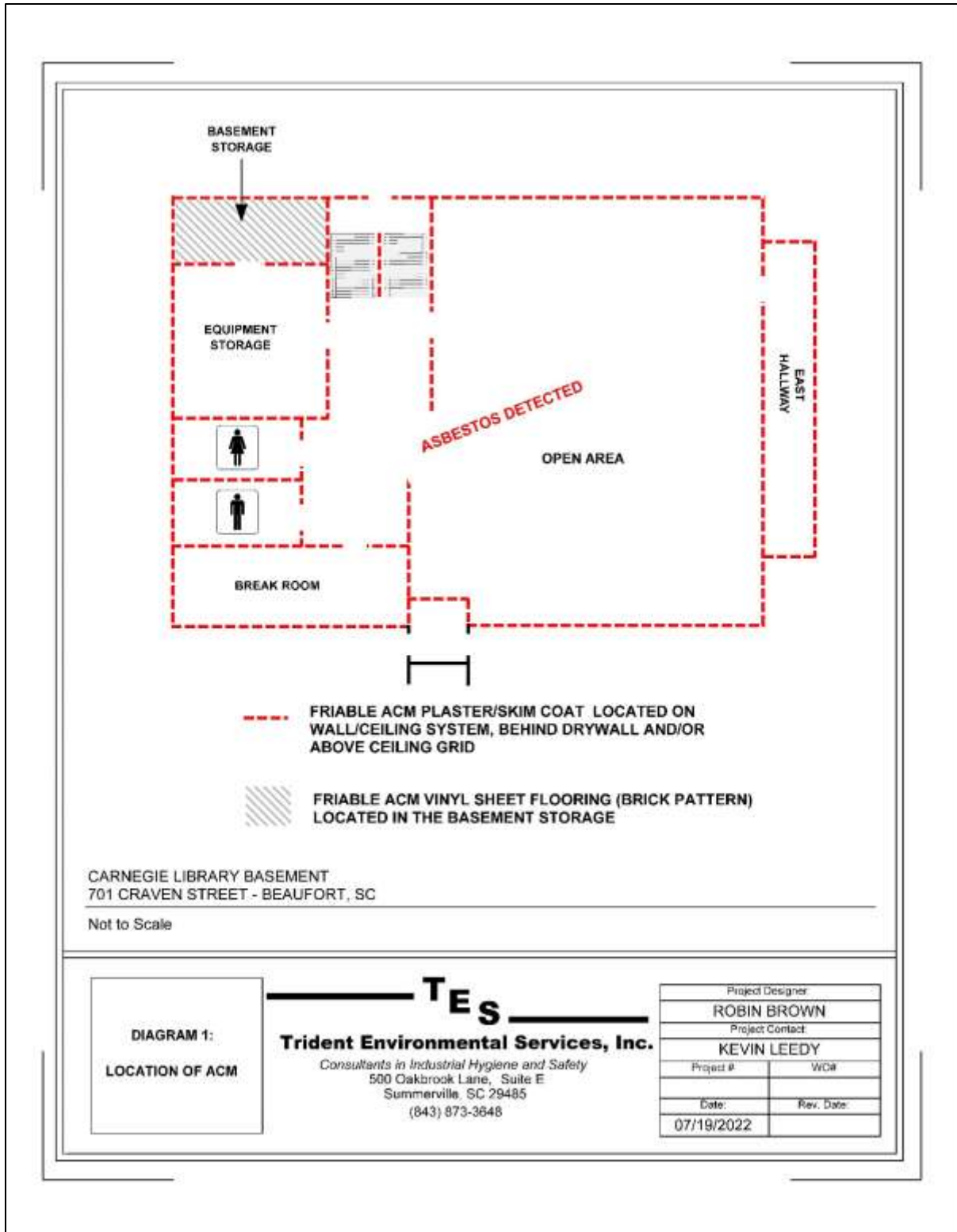


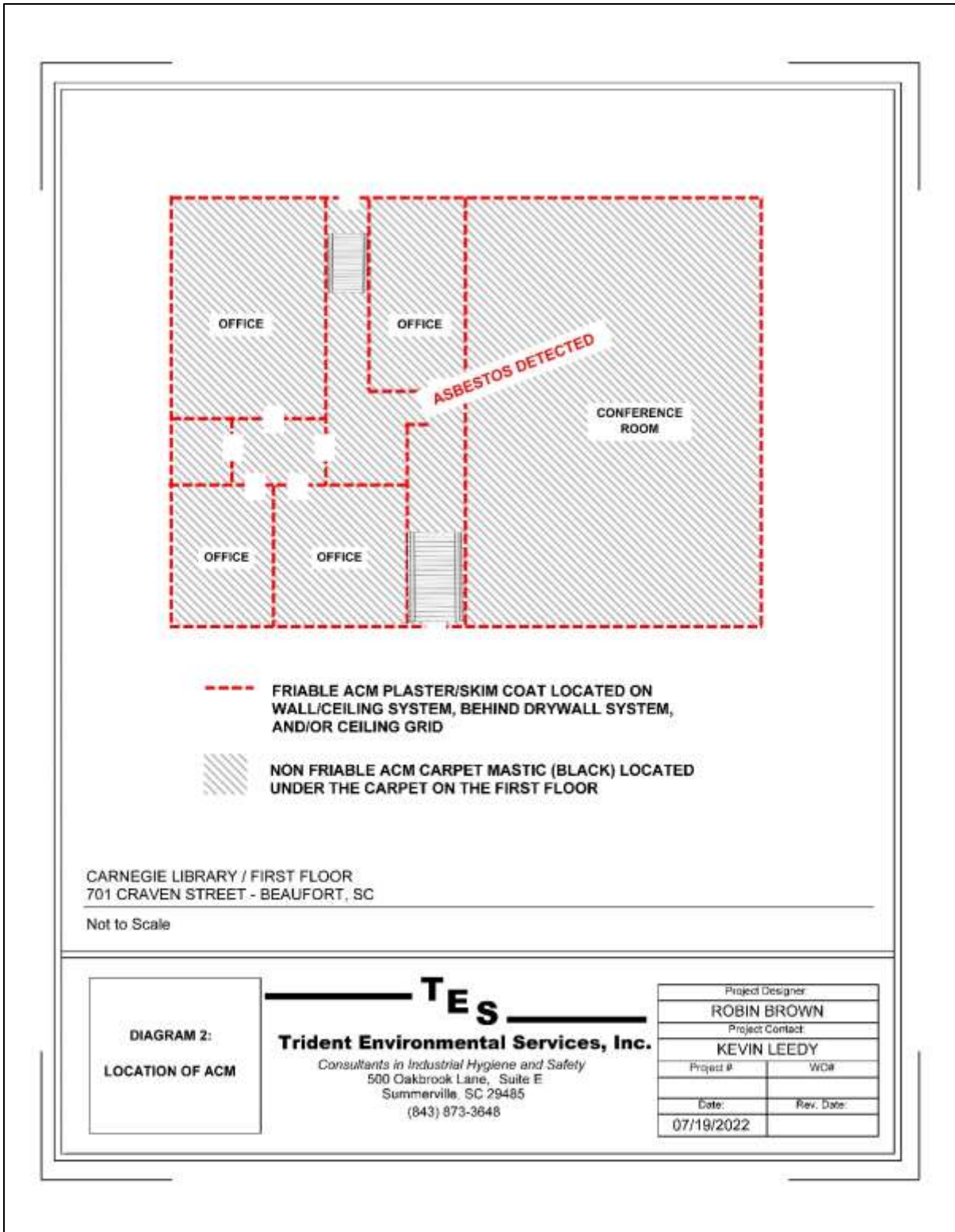
HOMOGENEOUS AREA 15
JOINT COMPOUND

HOMOGENOUS AREA PHOTOGRAPHS



HOMOGENEOUS AREA 16
ROOF FELT PAPER





INSPECTOR ACCREDITATION

Inspection Date: July 19, 2022

Preparation Date: August 15, 2022

Prepared By:



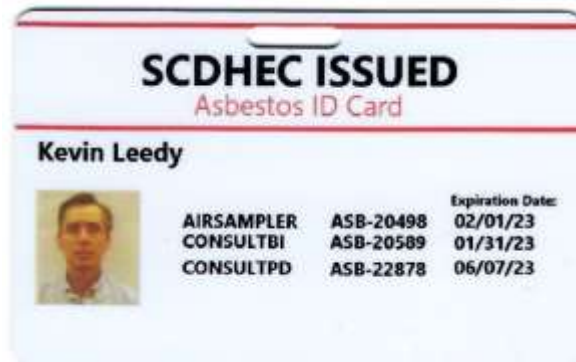
Hunter Hanson
S.C. Inspector License BI – 01468



Inspected By:



Kevin E Leedy
S.C. Inspector License ASB – 20589



United States Department of Commerce
National Institute of Standards and Technology



Certificate of Accreditation to ISO/IEC 17025:2017

NVLAP LAB CODE: 200841-0

EMSL Analytical, Inc.
Pineville, NC

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

Asbestos Fiber Analysis

This laboratory is accredited in accordance with the recognized International Standard ISO/IEC 17025:2017.
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 dated January 2009).

2022-07-01 through 2023-06-30
Effective Dates



A handwritten signature in black ink, appearing to read 'T. S. Sander', is written over a horizontal line.

For the National Voluntary Laboratory Accreditation Program

**National Voluntary
Laboratory Accreditation Program**



SCOPE OF ACCREDITATION TO ISO/IEC 17025:2017

EMSL Analytical, Inc.
10801 Southern Loop Blvd.
Pineville, NC 28134
Mr. Lee Plumley
Phone: 704-525-2205 Fax: 704-525-2382
Email: lplumley@emsl.com
<http://www.emsl.com>

ASBESTOS FIBER ANALYSIS

NVLAP LAB CODE 200841-0

Bulk Asbestos Analysis

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

Airborne Asbestos Analysis

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

A handwritten signature in black ink, appearing to read 'Dana S. Kaman', is written over a horizontal line.

For the National Voluntary Laboratory Accreditation Program

Order ID: 412206988
EMSL ANALYTICAL, INC.
 LABORATORY PRODUCTS DIVISION

Asbestos Bulk Building Materials - Chain of Custody
 EMSL Order Number / Lab Use Only
 412206988

EMSL Analytical, Inc.
 10801 Southern Loop Blvd
 Pineville, NC 28134
 PHONE: (704) 525-2205
 EMAIL: charlotte@EMSL.com

Customer Information		Billing Information	
Customer ID:	Company Name: Trident Environmental Services, Inc.	Billing ID:	Company Name: Trident Environmental Services, Inc.
Contact Name: Kevin Leedy	Street Address: 500 Oakbrook Lane Suite E	Billing Contact: Kevin Leedy	Street Address: 500 Oakbrook Lane, Suite E
City, State, Zip: Summerville SC 29485	Country: US	City, State, Zip: Summerville SC	Country: US
Phone: 8438733648	Email(s) for Report: kevinleedy@tridentenvironmental.com	Phone: 8438733648	Email(s) for Invoice:

Project Information

Project Name: Carnegie Library 701 Craven Street Beaufort, SC
 Purchase Order:
 EMSL LIMS Project ID: (Optional, visit us online)
 US State where samples collected: SC
 State of Collection (ET) must state project location:
 Commercial (Taxable) Residential (Non-Taxable)
 Sampled By Name: Leedy Sampled By Signature: *[Signature]* Date Sampled: 07/19 No. of Samples in Segment: 54

Turn-Around Time (TAT)
 3 Hour 8 Hour 24 Hour 32 Hour 48 Hour 72 Hour 96 Hour 1 Week 2 Week
 Please call ahead for large projects and/or turnaround times in hours/days. *32 Hour TAT available for select sites only; samples must be submitted by 11:30am.

Test Selection

PLM - Bulk (regarding limit)

PLM EPA 800/R-83/116 (<1%)
 PLM EPA NOB (<1%)
 POINT COUNT
 400 (<0.25%) 1,000 (<0.1%)
 POINT COUNT w/ GRAVIMETRIC
 400 (<0.25%) 1,000 (<0.1%)
 NIOSH 8602 (<1%)
 NYS 198.1 (Friable - NY)
 NYS 198.6 NOB (Non-Friable - NY)
 NYS 198.8 (Vermiculite SM-V)

TEM - Bulk

TEM EPA NOB
 NYS NOB 198.4 (Non-Friable - NY)
 TEM EPA 800/R-83/116 w Milling Prop (0.1%)
 Other Tests (please specify):

Positive Stop - Clearly Identified Homogeneous Areas (HA)

Sample Number	HA Number	Sample Location	Material Description
See Attached COC			

Special Instructions and/or Regulatory Requirements (Sample Specifications, Processing Methods, Limits of Detection, etc.)

Method of Shipment: *FEDEX*
 Relinquished by: Leedy Date/Time: 07/19/22
 Received by: *[Signature]* Date/Time: 7/20/22
 Relinquished by: *[Signature]* Date/Time: 10am
 Received by: *[Signature]* Date/Time: 10am

AGREE TO ELECTRONIC SIGNATURE (By checking, I consent to signing this Chain of Custody document by electronic signature.)

EMSL Analytical, Inc.'s Laboratory Terms and Conditions are incorporated into this Chain of Custody by reference to their entirety. Submission of samples to EMSL Analytical, Inc. constitutes acceptance and acknowledgment of all terms and conditions by Customer.

Page 1 of 4

OrderID: 412206988

6988

TES
 Trident Environmental Services, Inc.
 Consultants in Industrial Hygiene and Safety
 500 Oakbrook Lane, Suite E
 Summerville, SC 29485
 Phone (843) 873-3648
 Fax (843) 821-1767

CHAIN OF CUSTODY FORM
Asbestos Bulk Samples

Project Name: Carnegie Library Date: 7/19/22
 Location: Beaufort, SC

DESCRIPTION OF EACH SAMPLE AREA						ASSESSMENT OF MATERIALS			
Homog Area	Sample ID	Location	Description	Friable (+)	Friable (-)	Asbestos Type	COND Assess	HAZ Assess	
01	01	1 st Floor	carpet mastic (yellow)		X				
	02				X				
	03				X				
02	04	↓	carpet mastic (black)		X				
	05				X				
	06				X				
03	07	Basement	HVAC duct mastic (white)		X				
	08				X				
	09				X				
04	10	1 st Flr	plaster	X					
	11			X					
	12			X					
	13			Basement	X				
	14				X				
	15				X				
05	16	Basement	vinyl sheet floor (brick pattern)		X				
	17				X			50.09 ft ²	
	18				X				
06	19	↓	vinyl mastic (black)		X				
	20				X				

COND Assessment Categories (1) Thermal System Insulation - Good Condition (2) Thermal System Insulation - Damaged (3) Thermal System Insulation - Significantly Damaged (4) Surfacing - Good Condition (5) Surfacing - Damaged (6) Surfacing - Significantly Damaged (7) Miscellaneous - Good Condition (8) Miscellaneous - Damaged	Asbestos Presets (1) Amosite (2) Chrysotile (3) Crocidolite (4) Anthophyllite (5) Tremolite (6) Actinolite ND - None Detected NT - Not Tested	HAZARD Assessment Categories G = Good Condition D = Damaged S = Significantly Damaged LFD = Low Potential for Disturbance PD = Potential for Damage PSD = Potential for Significant Damage
--	--	---

Samples Collected by: [Signature] Date / Time: 7/19/22
 Samples Received by: _____ Date / Time: _____

OrderID: 412206988

6988

TES
Trident Environmental Services, Inc.
 Consultants in Industrial Hygiene and Safety
 500 Oakbrook Lane, Suite E
 Summerville, SC 29485
 Phone (843) 873-3648
 Fax (843) 821-1787

CHAIN OF CUSTODY FORM
Asbestos Bulk Samples

Project Name: Carnegie Library Date: 7/19/22
 Location: Beaufort, SC

DESCRIPTION OF EACH SAMPLE AREA					ASSESSMENT OF MATERIALS				
Room Area	Sample ID	Location	Description	Friable (+)	Friable (-)	Asbestos Type	COND Assnmt	HAZ Assess	
	06 22	Basement	vinyl mat.		X				
	07 23		plank floor			X			
	24		(top of 2)			X			
	25					X			
08	26		12" Fir tile			X			
	27		(tan)			X			
	28					X			
09	29		tile mast.			X			
	30		(yellow)			X			
	31					X			
10	32		ceiling tile		X				
	33		(axal)		X				
	34				X				
11	35	HVAC Duct			X				
	36	mantle			X				
	37	(beige)			X				
12	38	vinyl scove base			X				
	39				X				
	40				X				
13	41	scove base mast.			X				
	42				X				

CONDITION Assessment Categories
 (1) Thermal Systems Insulation - Good Condition
 (2) Thermal Systems Insulation - Damaged
 (3) Thermal Systems Insulation - Significantly Damaged
 (4) Surfacing - Good Condition
 (5) Surfacing - Damaged
 (6) Surfacing - Significantly Damaged
 (7) Miscellaneous - Good Condition
 (8) Miscellaneous - Damaged

Asbestos Phase
 (1) Amosite
 (2) Chrysotile
 (3) Crocidolite
 (4) Anthrophylos
 (5) Tremolite
 (6) Actinolite
 ND - None Detected
 NT - Not Tested

HAZARD Assessment Categories
 G = Good Condition
 D = Damaged
 S = Significantly Damaged
 LPD = Low Potential for Disruption
 PD = Potential for Damage
 PSD = Potential for Significant Damage

Samples Collected by: [Signature] Date / Time: 7/19/22
 Samples Received by: _____ Date / Time: _____

OrderID: 412206988

6988

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 Phone (843) 873-3648
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CHAIN OF CUSTODY FORM
Asbestos Bulk Samples

Project Name: Carnegie Library Date: 7/19/22
 Location: Beaufort, SC

DESCRIPTION OF EACH SAMPLE AREA						ASSESSMENT OF MATERIALS		
Homog Area	Sample ID	Location	Description	Friable (+)	Friable (-)	Asbestos Type	COND Assess	HQZ Assess
13	43	Basement	ceiling basement		X			
14	44	1st Flr	original	X				
	45	Basement	}	X				
	46	2		X				
15	47	1st Flr	joint compound	X				
	48	}	}	X				
	49			X				
	50			X				
	51	Basement	}	X				
	52	2		X				
16	52	Roofing	felt paper		X			
	53	}	}		X			
	54			X				

CONDITION Assessment Categories (1) Thermal Systems Insulation - Good Condition (2) Thermal Systems Insulation - Damaged (3) Thermal Systems Insulation - Significantly Damaged (4) Surfacing - Good Condition (5) Surfacing - Damaged (6) Surfacing - Significantly Damaged (7) Miscellaneous - Good Condition (8) Miscellaneous - Damaged	Asbestos Present (1) Amosite (2) Chrysotile (3) Crocidolite (4) Anthrophyllite (5) Tremolite (6) Actinolite ND - None Detected NT - Not Tested	HS4290 Assessment Categories G = Good Condition D = Damaged S = Significantly Damaged LPD = Low Potential for Disturbance PD = Potential for Damage PSD = Potential for Significant Damage
--	---	---

Samples Collected by: [Signature] Date / Time: 7/19/22
 Samples Received by: _____ Date / Time: _____



EMSL Analytical, Inc.
 10801 Southern Loop Blvd Pineville, NC 28134
 Tel/Fax: (704) 525-2205 / (704) 525-2362
<http://www.EMSL.com> / charlotelab@emsl.com

EMSL Order: 412206988
 Customer ID: TRID50
 Customer PO:
 Project ID:

Attention: Kevin Leedy
 Trident Environmental Services, Inc.
 500 Oakbrook Lane
 Suite E
 Summerville, SC 29485
Project: Carnegie Library 701 Craven Street Beaufort, SC

Phone: (843) 670-9987
Fax:
Received Date: 07/20/2022 10:00 AM
Analysis Date: 07/20/2022 - 07/22/2022
Collected Date: 07/19/2022

Test Report: Asbestos Analysis of Bulk Materials via EPA 600/R-93/116 Method using Polarized Light Microscopy

Sample	Description	Appearance	Non-Asbestos		Asbestos % Type
			% Fibrous	% Non-Fibrous	
01-01 41220698-0307	1st Floor - Carpet Mastic (Yellow)	Yellow Non-Fibrous Homogeneous	2% Synthetic	98% Non-fibrous (Other)	None Detected
01-02 41220698-0302	1st Floor - Carpet Mastic (Yellow)	Tan Non-Fibrous Homogeneous	1% Synthetic	99% Non-fibrous (Other)	None Detected
02-04 41220698-0303	1st Floor - Carpet Mastic (Black)	Black Non-Fibrous Homogeneous		99% Non-fibrous (Other)	2% Chrysotile
02-05 41220698-0304	1st Floor - Carpet Mastic (Black)				Positive Stop (Not Analyzed)
03-07 41220698-0305	Basement - HVAC - Duct Ins Mastic (White)	White Non-Fibrous Homogeneous	2% Synthetic	15% Ca Carbonate 83% Non-fibrous (Other)	None Detected
03-08 41220698-0306	Basement - HVAC - Duct Ins Mastic (White)	White Non-Fibrous Homogeneous	1% Synthetic	15% Ca Carbonate 84% Non-fibrous (Other)	None Detected
04-10-White Coat 41220698-0307	1st Floor - Plaster	White Non-Fibrous Homogeneous		15% Ca Carbonate 85% Non-fibrous (Other)	None Detected
04-10-Gray Coat 41220698-0307A	1st Floor - Plaster	Gray Non-Fibrous Homogeneous		98% Non-fibrous (Other)	4% Chrysotile
04-11-White Coat 41220698-0308	1st Floor - Plaster	White Non-Fibrous Homogeneous		15% Ca Carbonate 85% Non-fibrous (Other)	None Detected
04-11-Gray Coat 41220698-0308A	1st Floor - Plaster	Gray Non-Fibrous Homogeneous		98% Non-fibrous (Other)	2% Chrysotile
04-12-White Coat 41220698-0309	1st Floor - Plaster	White Non-Fibrous Homogeneous		15% Ca Carbonate 85% Non-fibrous (Other)	None Detected
04-12-Gray Coat 41220698-0309A	1st Floor - Plaster	Gray Fibrous Homogeneous		98% Non-fibrous (Other)	2% Chrysotile
04-13-White Coat 41220698-0310	Basement - Plaster	White Non-Fibrous Homogeneous		15% Ca Carbonate 85% Non-fibrous (Other)	None Detected
04-13-Gray Coat 41220698-0310A	Basement - Plaster	Gray Fibrous Homogeneous		97% Non-fibrous (Other)	3% Chrysotile
04-14-White Coat 41220698-0311	Basement - Plaster	White Non-Fibrous Homogeneous		10% Ca Carbonate 90% Non-fibrous (Other)	None Detected
04-14-Gray Coat 41220698-0311A	Basement - Plaster	Gray Non-Fibrous Homogeneous		98% Non-fibrous (Other)	2% Chrysotile

Report amended: 07/23/2022 12:59:56 Replaces amended report from: 07/22/2022 12:20:21 Reason Code: Client-Additional Analysis



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EMSL Order: 412206988
 Customer ID: TRID50
 Customer PO:
 Project ID:

Test Report: Asbestos Analysis of Bulk Materials via EPA 600/R-93/116 Method using Polarized Light Microscopy

Sample	Description	Appearance	Non-Asbestos		Asbestos
			% Fibrous	% Non-Fibrous	% Type
04-15-White Coat 412206988-0012	Basement - Plaster	White Non-Fibrous Homogeneous		15% Ca Carbonate 85% Non-fibrous (Other)	None Detected
04-15-Gray Coat 412206988-0012A	Basement - Plaster	Gray Fibrous Homogeneous		97% Non-fibrous (Other)	3% Chrysotile
04-16-White Coat 412206988-0013	Basement - Plaster	White Non-Fibrous Homogeneous		15% Ca Carbonate 85% Non-fibrous (Other)	None Detected
04-16-Gray Coat 412206988-0013A	Basement - Plaster	Gray Fibrous Homogeneous		97% Non-fibrous (Other)	3% Chrysotile
05-17 412206988-0014	Basement Storage/ AHJ - Vinyl Sheet Floor (Brick Pattern)	Tan/Red Fibrous Homogeneous		85% Non-fibrous (Other)	15% Chrysotile
05-18 412206988-0015	Basement Storage/ AHJ - Vinyl Sheet Floor (Brick Pattern)				Positive Stop (Not Analyzed)
06-20 412206988-0016	Basement Storage/ AHJ - Vinyl Mastic (Black)	Clear Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
06-21 412206988-0017	Basement Storage/ AHJ - Vinyl Mastic (Black)	Clear Non-Fibrous Homogeneous		5% Ca Carbonate 95% Non-fibrous (Other)	None Detected
07-23 412206988-0018	Basement - Plank Floor (Top of 2)	Brown/Black Non-Fibrous Homogeneous		20% Ca Carbonate 80% Non-fibrous (Other)	None Detected
07-24 412206988-0019	Basement - Plank Floor (Top of 2)	Black Non-Fibrous Homogeneous		20% Ca Carbonate 80% Non-fibrous (Other)	None Detected
08-26 412206988-0020	Basement - 12" Floor Tile (Tan)	Tan Non-Fibrous Homogeneous		30% Ca Carbonate 70% Non-fibrous (Other)	None Detected
08-27 412206988-0021	Basement - 12" Floor Tile (Tan)	Brown Non-Fibrous Homogeneous		20% Ca Carbonate 80% Non-fibrous (Other)	None Detected
08-29 412206988-0022	Basement - Tile Mastic (Yellow)	Yellow Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
08-30 412206988-0023	Basement - Tile Mastic (Yellow)	Yellow Non-Fibrous Homogeneous	1% Cellulose	5% Ca Carbonate 94% Non-fibrous (Other)	None Detected
10-32 412206988-0024	Basement - Ceiling Tile (2x2)	White/Beige Fibrous Homogeneous	60% Cellulose 20% Min. Wool	15% Perlite 5% Non-fibrous (Other)	None Detected
10-33 412206988-0025	Basement - Ceiling Tile (2x2)	White/Beige Fibrous Homogeneous	60% Cellulose 20% Min. Wool	15% Perlite 5% Non-fibrous (Other)	None Detected
10-34 412206988-0026	Basement - Ceiling Tile (2x2)	Gray/White Fibrous Homogeneous	50% Cellulose 15% Min. Wool	15% Perlite 20% Non-fibrous (Other)	None Detected
11-35 412206988-0027	Basement - HVAC - Duct Mastic (Beige)	Beige Non-Fibrous Homogeneous	2% Cellulose	98% Non-fibrous (Other)	None Detected
11-36 412206988-0028	Basement - HVAC - Duct Mastic (Beige)	Tan Non-Fibrous Homogeneous	1% Cellulose	5% Ca Carbonate 94% Non-fibrous (Other)	None Detected

Report amended: 07/23/2022 12:59:56 Replaces amended report from: 07/22/2022 12:20:21 Reason Code: Client-Additional Analysis



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EMSL Order: 412206988
 Customer ID: TRID50
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 Project ID:

Test Report: Asbestos Analysis of Bulk Materials via EPA 600/R-93/116 Method using Polarized Light Microscopy

Sample	Description	Appearance	Non-Asbestos		Asbestos
			% Fibrous	% Non-Fibrous	% Type
12-38 412206988-0029	Basement - Vinyl Cove Base	Gray Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
12-39 412206988-0030	Basement - Vinyl Cove Base	Gray Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
13-41 412206988-0031	Basement - Cove Base Mastic	Beige Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
13-42 412206988-0032	Basement - Cove Base Mastic	Beige Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
14-44 412206988-0033	1st Floor - Drywall	Gray Non-Fibrous Homogeneous	10% Cellulose	90% Non-fibrous (Other)	None Detected
14-45 412206988-0034	Basement - Drywall	Gray Non-Fibrous Homogeneous	10% Cellulose	90% Non-fibrous (Other)	None Detected
14-46 412206988-0035	Basement - Drywall	Gray Fibrous Homogeneous	5% Cellulose	95% Non-fibrous (Other)	None Detected
15-47 412206988-0036	1st Floor - Joint Compound	White Non-Fibrous Homogeneous		40% Ca Carbonate 80% Non-fibrous (Other)	None Detected
15-48 412206988-0037	1st Floor - Joint Compound	White Non-Fibrous Homogeneous		30% Quartz 70% Non-fibrous (Other)	None Detected
15-49 412206988-0038	1st Floor - Joint Compound	White Non-Fibrous Homogeneous		40% Ca Carbonate 80% Non-fibrous (Other)	None Detected
15-50 412206988-0039	Basement - Joint Compound	White Non-Fibrous Homogeneous		15% Ca Carbonate 85% Non-fibrous (Other)	None Detected
15-51 412206988-0040	Basement - Joint Compound	White Non-Fibrous Homogeneous		15% Ca Carbonate 85% Non-fibrous (Other)	None Detected
16-52 412206988-0041	Rooftop - Felt Paper	Black Fibrous Homogeneous	80% Cellulose	20% Non-fibrous (Other)	None Detected
16-53 412206988-0042	Rooftop - Felt Paper	Black Fibrous Homogeneous	80% Cellulose	20% Non-fibrous (Other)	None Detected

Report amended: 07/23/2022 12:59:56 Replaces amended report from: 07/22/2022 12:20:21 Reason Code: Client-Additional Analysis



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EMSL Order: 412206988
Customer ID: TRID50
Customer PO:
Project ID:

Analyst(s)

Brant Aiyee (10)
Jessica Cooper (18)
Sarah Beneman (19)

Lee Plumley, Laboratory Manager
or Other Approved Signatory

EMSL maintains liability limited to cost of analysis. Interpretation and use of test results are the responsibility of the client. This report relates only to the samples reported above, and may not be reproduced, except in full, without written approval by EMSL. EMSL bears no responsibility for sample collection activities or analytical method limitations. The report reflects the samples as received. Results are generated from the field sampling data (sampling volumes and areas, locations, etc.) provided by the client on the Chain of Custody. Samples are within quality control criteria and met method specifications, unless otherwise noted. The above analyses were performed in general compliance with Appendix E to Subpart E of 40 CFR (previously EPA 600/4-92-020 "Interim Method"), but augmented with procedures outlined in the 1993 ("final") version of the method. This report must not be used by the client to claim product certification, approval, or endorsement by NVLAP, NIST or any agency of the federal government. Non-friable organically bound materials present a problem matrix and therefore EMSL recommends gravimetric reduction prior to analysis. Unless requested by the client, building materials manufactured with multiple layers (i.e. freestum, wallboard, etc.) are reported as a single sample. Estimates of uncertainty is available on request.

Samples analyzed by EMSL Analytical, Inc. Pineville, NC NVLAP Lab Code 200841-0, VA 3353 00012

Report amended: 07/23/2022 12:59:56 Replaces amended report from: 07/22/2022 12:20:21 Reason Code: Client-Additional Analysis



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EMSL Order: 412206988
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Attention: Kevin Leedy
 Trident Environmental Services, Inc.
 500 Oakbrook Lane
 Suite E
 Summerville, SC 29485
Project: Carnegie Library 701 Craven Street Beaufort, SC

Phone: (843) 670-9987
Fax:
Received Date: 07/20/2022 10:00 AM
Analysis Date: 07/22/2022
Collected Date: 07/19/2022

Test Report: Asbestos Analysis of Non-Friable Organically Bound Materials by TEM via EPA/600/R-93/116 Section 2.5.5.1

Sample ID	Description	Appearance	% Matrix Material	% Non-Asbestos Fibers	Asbestos Types
01-03 #12206988-0043	1st Floor - Carpet Mastic (Yellow)	Tan Non-Fibrous Homogeneous	100.0 Other	None	No Asbestos Detected
03-09 #12206988-0044	Basement - HVAC - Duct Ins Mastic (White)	White Non-Fibrous Homogeneous	100.0 Other	None	No Asbestos Detected
06-22 #12206988-0045	Basement - Vinyl Mastic (Black)	Clear Non-Fibrous Homogeneous	100.0 Other	None	No Asbestos Detected
07-25 #12206988-0046	Basement - Plank Floor (Top of 2)	Gray Non-Fibrous Homogeneous	100.0 Other	None	No Asbestos Detected
08-28 #12206988-0047	Basement - 12" Floor Tile (Tan)	Gray Non-Fibrous Homogeneous	100.0 Other	None	No Asbestos Detected
09-31 #12206988-0048	Basement - Tile Mastic (Yellow)	Tan Non-Fibrous Homogeneous	100.0 Other	None	No Asbestos Detected
11-37 #12206988-0049	Basement - HVAC - Duct Mastic (Beige)	Tan Non-Fibrous Homogeneous	100.0 Other	None	No Asbestos Detected
12-40 #12206988-0050	Basement - Vinyl Cove Base	Gray Non-Fibrous Homogeneous	100.0 Other	None	No Asbestos Detected
13-43 #12206988-0051	Basement - Cove Base Mastic	Tan Non-Fibrous Homogeneous	100.0 Other	None	No Asbestos Detected
16-54 #12206988-0052	Rooftop - Felt Paper	Black Fibrous Homogeneous	100.0 Other	None	No Asbestos Detected

EMSL maintains liability limited to cost of analysis. Interpretation and use of test results are the responsibility of the client. This report relates only to the samples reported above, and may not be reproduced, except in full, without written approval by EMSL. EMSL bears no responsibility for sample collection activities or analytical method limitations. The report reflects the samples as received. Results are generated from the field sampling data (sampling volume and areas, locations, etc.) provided by the client on the Chain of Custody. Samples are within quality control criteria and met method specifications unless otherwise noted. EMSL recommends that samples reported as none detected or <1% undergo additional analysis via PLM to avoid the possibility of false negatives.

Samples analyzed by EMSL Analytical, Inc. Pineville, NC

Initial report from: 07/25/2022 07:48:03



EMSL Analytical, Inc.
 10801 Southern Loop Blvd Pineville, NC 28134
 Tel/Fax: (704) 525-2205 / (704) 525-2362
<http://www.EMSL.com> / charlotte@emsl.com

EMSL Order: 412206988
 Customer ID: TRID50
 Customer PO:
 Project ID:

Attention: Kevin Leedy
 Trident Environmental Services, Inc.
 500 Oakbrook Lane
 Suite E
 Summerville, SC 29485
Project: Carnegie Library 701 Craven Street Beaufort, SC

Phone: (843) 670-9967
Fax:
Received Date: 07/20/2022 10:00 AM
Analysis Date: 07/22/2022
Collected Date: 07/19/2022

**Test Report: Asbestos Analysis of Non-Friable Organically Bound Materials by TEM via
 EPA/600/R-93/116 Section 2.5.5.1**

Sample ID	Description	Appearance	% Matrix Material	% Non-Asbestos Fibers	Asbestos Types
-----------	-------------	------------	-------------------	-----------------------	----------------

Analyst(s)
 Derrick Young (10)

Lee Plumley
 Lee Plumley, Laboratory Manager
 or other approved signatory

EMSL maintains liability limited to cost of analysis. Interpretation and use of test results are the responsibility of the client. This report relates only to the samples reported above, and may not be reproduced, except in full, without written approval by EMSL. EMSL bears no responsibility for sample collection activities or analytical method limitations. The report reflects the samples as received. Results are generated from the field sampling data (sampling volume and areas, locations, etc.) provided by the client on the Chain of Custody. Samples are within quality control criteria and met method specifications unless otherwise noted. EMSL recommends that samples reported as none detected or <1% undergo additional analysis via PLM to avoid the possibility of false negatives.

Samples analyzed by EMSL Analytical, Inc. Pineville, NC

Initial report from: 07/25/2022 07:48:03

SECTION 011000 - SUMMARY

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. Section Includes:
 - Project information.
 - Work covered by Contract Documents.
 - Work by Owner.
 - Regulatory requirements.
 - Access to site.
 - Coordination with occupants.
 - Work restrictions.
 - Specification and drawing conventions.
- B. Related Requirements:
 - Section 015000 "Temporary Facilities and Controls" for limitations and procedures governing temporary use of Owner's facilities.

1.3 PROJECT INFORMATION

- A. Project Identification: Carnegie Library
Project Location: 701 Craven Street, Beaufort, South Carolina 29902.
- B. Owner: City of Beaufort
- C. Architect: Meadors, Inc., PO Box 21758, Charleston, SC 29413.

1.4 WORK COVERED BY CONTRACT DOCUMENTS

- A. The Work of Project is defined by the Contract Documents and consists of the following:

The Carnegie Library is a local historic site and a contributing structure in the City of Beaufort's National Historic Landmark District.

The scope of work for this project includes the repair of the existing terracotta roof, new dormer flashing, repair of the built-in-gutter liner, exterior wood repair, paint removal, painting, replacement of the addition roof on the east side of the building, and new underground drainage from the downspouts to the street. The interior scope of work is limited to interior repairs associated with water damage from previous and current roof leaks. Water damage has resulted in damage to historic plaster.

- B. Type of Contract:
Project will be constructed under a single prime contract.

1.5 REGULATORY REQUIREMENTS

- A. Conform to requirements of all authorities having jurisdiction.
- B. Standards for Historic Properties: All work shall comply with the Secretary of the Interior's "Standards for the Treatment of Historic Properties."

1.6 ACCESS TO SITE

- A. General: Contractor shall have limited use of Project site for construction operations as indicated on Drawings by the Contract limits and as indicated by requirements of this Section.
- B. Use of Site: Limit use of Project site to work outlined in drawings. Do not disturb portions of Project site beyond areas in which the Work is indicated.
- C. Driveways, Walkways and Entrances: Keep driveways loading areas, and entrances serving premises clear and available to Owner, Owner's employees, and emergency vehicles at all times. Do not use these areas for parking or storage of materials.
 - a. Schedule deliveries to minimize space and time requirements for storage of materials and equipment on-site.
- D. Owner to provide key(s) to access the site.
- E. Condition of Existing Building: Maintain portions of existing building affected by construction operation throughout construction period. Repair damage caused by construction operations.

1.7 COORDINATION WITH OCCUPANTS

- A. The building is to remain open during construction. Maintain existing exits unless otherwise indicated.
- B. Maintain access to existing walkways, corridors and other adjacent occupied or used facilities. Do not close or obstruct walkways, corridors or other occupied or used areas without written permission from Owner and approval of authorities having jurisdiction.
- C. All entrances and exits are to remain clear at all times so patrons and staff can come and go unimpeded. Active work areas are to be delineated by appropriate cautionary tape or like signage.
- D. Notify Owner not less than 72 hours in advance of activities that will affect Owner's operations of adjacent properties.

1.8 WORK RESTRICTIONS

- A. Work Restrictions, General: Comply with restrictions on construction operations.
- B. Comply with limitations on use of public streets and with other requirements of authorities having jurisdiction.
- C. On-Site Work Hours: The building is to remain open during construction.

1. Monday - Friday work hours between 7:30 AM – Dark
 2. Weekend Hours: Notify owner in advance when planning to work Weekends. No loud noises on Sundays due to proximity to Churches. Confirm that weekend work hours do not conflict with special events held on site.
 3. Hours for Core Drilling and Other Noisy Activity: 8:00 AM -10:30 PM
- D. Property surrounding the building is not owned by the City of Beaufort (with the exception of the Beaufort Arsenal). The surrounding properties must be returned to their current condition at the close of construction.
- E. Existing Utility Interruptions: Do not interrupt utilities serving facilities occupied by Owner.
- F. Cleanup: Job site shall remain litter- and debris-free at all times. It shall be contractor's responsibility to clean both interior and exterior work sites thoroughly at the end of each workday.
- G. Nonsmoking Building: Smoking is not permitted within the building or within 25 feet of entrances.
- H. Controlled Substances: Use of tobacco products and other controlled substances on Project site is not permitted.

1.9 SPECIFICATION AND DRAWING CONVENTIONS

- A. Specification Content: The Specifications use certain conventions for the style of language and the intended meaning of certain terms, words, and phrases when used in particular situations. These conventions are as follows:
1. Imperative mood and streamlined language are generally used in the Specifications. The words "shall," "shall be," or "shall comply with," depending on the context, are implied where a colon (:) is used within a sentence or phrase.
 2. Specification requirements are to be performed by Contractor unless specifically stated otherwise.
- B. Document Interpretation: In the case of conflicts or discrepancies between drawings and Divisions 02-49 of the specifications, or within or among the Contract Documents and not clarified by Addendum, the most stringent requirement shall apply.
1. Note: None of the documents included in the drawing index are intended to be considered in isolation of one another.
 2. All bidders, sub-bidders, contractors, and sub-contractors shall utilize complete sets of the bidding and/or Construction Documents in quantifying and construction. Neither the owner nor architect assume responsibility for errors, omissions, or misinterpretations resulting from the use of incomplete sets of bidding and/or construction documents.
- C. Division 01 General Requirements: Requirements of Sections in Division 01 apply to the Work of all Sections in the Specifications.
- D. Drawing Coordination: Requirements for materials and products identified on Drawings are described in detail in the Specifications. One or more of the following are used on Drawings to identify materials and products:
1. Terminology: Materials and products are identified by the typical generic terms used in the individual Specifications Sections.
 2. Abbreviations: Materials and products are identified by abbreviations scheduled on Drawings.
 3. Keynoting: Materials and products are identified by reference keynotes referencing Specification Section numbers found in this Project Manual.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 011000

SECTION 012300 - ALTERNATES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. Section includes administrative and procedural requirements for alternates.

1.3 DEFINITIONS

- A. Alternate: An amount proposed by bidders and stated on the Bid Form for certain work defined in the bidding requirements that may be added to or deducted from the base bid amount if Owner decides to accept a corresponding change either in the amount of construction to be completed or in the products, materials, equipment, systems, or installation methods described in the Contract Documents.
 - 1. Alternates described in this Section are part of the Work only if enumerated in the Agreement.
 - 2. The cost or credit for each alternate is the net addition to or deduction from the Contract Sum to incorporate alternate into the Work. No other adjustments are made to the Contract Sum.

1.4 PROCEDURES

- A. Coordination: Revise or adjust affected adjacent work as necessary to completely integrate work of the alternate into Project.
 - 1. Include as part of each alternate, miscellaneous devices, accessory objects, and similar items incidental to or required for a complete installation whether or not indicated as part of alternate.
- B. Notification: Immediately following award of the Contract, notify each party involved, in writing, of the status of each alternate. Indicate if alternates have been accepted, rejected, or deferred for later consideration. Include a complete description of negotiated revisions to alternates.
- C. Execute accepted alternates under the same conditions as other work of the Contract.
- D. Schedule: A schedule of alternates is included at the end of this Section. Specification Sections referenced in schedule contain requirements for materials necessary to achieve the work described under each alternate.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION

3.1 SCHEDULE OF ALTERNATES

- A. Alternate No. 1: Replace Existing Downspouts
 - 1. Base Bid: Repair to existing downspouts.
 - 2. Alternate: Remove existing downspouts and install new copper downspouts. Paint to match the building.
 - 3. State amount to ADD.

- B. Alternate No.2: Restore Landscape Stucco Masonry Walls
 - 1. Base Bid: None.
 - 2. Alternate: Restore landscape stucco masonry walls and paint.
 - 3. State amount to ADD.

- C. Alternate No.3:
 - 1. Base Bid: Copper flashing.
 - 2. Alternate: Substitute specified copper flashing, downspout, and leaderhead with PVC coated flashing and prefinished, non-ferrous downspout and leaderhead; compatible with flashing.
 - 3. State amount to DEDUCT.

- D. Alternate No.4: Structural Repairs
 - 1. Base Bid: None.
 - 2. Alternate: Execute structural repairs. See drawings.
 - 3. State amount to ADD.

END OF SECTION 012300

SECTION 012500 - SUBSTITUTION PROCEDURES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. Section includes administrative and procedural requirements for substitutions after award of Contract.

1.3 DEFINITIONS

- A. Substitutions: Changes in products, materials, equipment, and methods of construction from those required by the Contract Documents and proposed by Contractor.
 - 1. Substitutions for Cause: Changes proposed by Contractor that are required due to changed Project conditions, such as unavailability of product, regulatory changes, or unavailability of required warranty terms.
 - 2. Substitutions for Convenience: Changes proposed by Contractor or Owner that are not required in order to meet other Project requirements but may offer advantage to Contractor or Owner.

1.4 ACTION SUBMITTALS

- A. Substitution Requests: Submit one copy of each request for consideration. Identify product or fabrication or installation method to be replaced. Include Specification Section number and title and Drawing numbers and titles.
 - 1. Substitution Request Form: Use facsimile of form provided in Project Manual.
 - 2. Documentation: Show compliance with requirements for substitutions and the following, as applicable:
 - a. Statement indicating why specified product or fabrication, or installation cannot be provided, if applicable.
 - b. Coordination information, including a list of changes or revisions needed to other parts of the Work and to construction performed by Owner and separate contractors, that will be necessary to accommodate proposed substitution.
 - c. Detailed comparison of significant qualities of proposed substitution with those of the Work specified. Include annotated copy of applicable Specification Section. Significant qualities may include attributes such as performance, weight, size, durability, visual effect, sustainable design characteristics, warranties, and specific features and requirements indicated. Indicate deviations, if any, from the Work specified.

- d. Product Data, including drawings and descriptions of products and fabrication and installation procedures.
 - e. Samples, where applicable or requested.
 - f. Certificates and qualification data, where applicable or requested.
 - g. List of similar installations for completed projects with project names and addresses and names and addresses of architects and owners.
 - h. Material test reports from a qualified testing agency indicating and interpreting test results for compliance with requirements indicated.
 - i. Research reports evidencing compliance with building code in effect for Project, from ICC-ES.
 - j. Detailed comparison of Contractor's construction schedule using proposed substitution with products specified for the Work, including effect on the overall Contract Time. If specified product or method of construction cannot be provided within the Contract Time, include letter from manufacturer, on manufacturer's letterhead, stating date of receipt of purchase order, lack of availability, or delays in delivery.
 - k. Cost information, including a proposal of change, if any, in the Contract Sum.
 - l. Contractor's certification that proposed substitution complies with requirements in the Contract Documents except as indicated in substitution request, is compatible with related materials, and is appropriate for applications indicated.
 - m. Contractor's waiver of rights to additional payment or time that may subsequently become necessary because of failure of proposed substitution to produce indicated results.
3. Architect's Action: If necessary, Architect will request additional information or documentation for evaluation within seven days of receipt of a request for substitution. Architect will notify Contractor of acceptance or rejection of proposed substitution within 15 days of receipt of request, or seven days of receipt of additional information or documentation, whichever is later.
- a. Forms of Acceptance: Change Order, Construction Change Directive, or Architect's Supplemental Instructions for minor changes in the Work.
 - b. Use product specified if Architect does not issue a decision on use of a proposed substitution within time allocated.

1.5 QUALITY ASSURANCE

- A. Compatibility of Substitutions: Investigate and document compatibility of proposed substitution with related products and materials. Engage a qualified testing agency to perform compatibility tests recommended by manufacturers.

1.6 PROCEDURES

- A. Coordination: Revise or adjust affected work as necessary to integrate work of the approved substitutions.

PART 2 - PRODUCTS

2.1 SUBSTITUTIONS

- A. Substitutions for Cause: Submit requests for substitution immediately on discovery of need for change, but not later than 15 days prior to time required for preparation and review of related submittals.
1. Conditions: Architect will consider Contractor's request for substitution when the following conditions are satisfied. If the following conditions are not satisfied, Architect will return requests without action, except to record noncompliance with these requirements:
- a. Requested substitution is consistent with the Contract Documents and will produce indicated results.
 - b. Requested substitution provides sustainable design characteristics that specified product provided.
 - c. Substitution request is fully documented and properly submitted.
 - d. Requested substitution will not adversely affect Contractor's construction schedule.
 - e. Requested substitution has received necessary approvals of authorities having jurisdiction.
 - f. Requested substitution is compatible with other portions of the Work.
 - g. Requested substitution has been coordinated with other portions of the Work.
 - h. Requested substitution provides specified warranty.
 - i. If requested substitution involves more than one contractor, requested substitution has been coordinated with other portions of the Work, is uniform and consistent, is compatible with other products, and is acceptable to all contractors involved.
- B. Substitutions for Convenience: Not allowed.

PART 3 - EXECUTION (Not Used)

END OF SECTION 012500

COMPLETE AND SUBMIT THIS FORM FOR APPROVAL OF SUBSTITUTES. SUBMISSION SHALL BE MADE IN DUPLICATE FOR EACH PROPOSED SUBSTITUTE ITEM.

SUBSTITUTION REQUEST FORM

TO: Betty Prime, Meadors, Inc., betty@meadorsinc.com

PROJECT: Carnegie Library Roof Repair and Restoration Project

We submit for your consideration the following product instead of the specified item for the above project:

<u>Section</u>	<u>Paragraph</u>	<u>Specified Item</u>
_____	_____	_____

Proposed Substitution: _____

Attach complete technical data, including laboratory tests, if applicable.

Include complete information on changes to Drawings and/or Specifications which proposed substitution will require for its proper installation.

Fill in blanks below:

A. Does the substitution affect dimensions shown on the drawings?

Yes _____ No __

B. Will the undersigned pay for changes to building design, including engineering and detailing costs caused by the requested substitution?

Yes _____ No __

C. What effect does substitution have on other trades?

D. Differences between proposed substitution and specified item?

E. Manufacturer's guarantees of proposed and specified items are:

Same

Different (Explain on Attachments)

The Undersigned states that the function, appearance, and quality are equivalent or superior to the specified item.

Submitted by:

Signature

For Use by Design Consultant

Firm

Accepted Accepted as Noted
 Not Accepted Received Too Late

Address

By: _____

Date: _____

Date: _____ TEL/FAX: _____

Notes:

SECTION 012600 - CONTRACT MODIFICATION PROCEDURES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. Section includes administrative and procedural requirements for handling and processing Contract modifications.
- B. Related Requirements:
 - 1. Section 012500 "Substitution Procedures" for administrative procedures for handling requests for substitutions made after the Contract award.

1.3 MINOR CHANGES IN THE WORK

- A. Architect will issue supplemental instructions authorizing minor changes in the Work, not involving adjustment to the Contract Sum or the Contract Time, on AIA Document G710, "Architect's Supplemental Instructions."

1.4 PROPOSAL REQUESTS

- A. Owner-Initiated Proposal Requests: Architect will issue a detailed description of proposed changes in the Work that may require adjustment to the Contract Sum or the Contract Time. If necessary, the description will include supplemental or revised Drawings and Specifications.
 - 1. Work Change Proposal Requests issued by Architect are not instructions either to stop work in progress or to execute the proposed change.
 - 2. Within time specified in Proposal Request or 20 days, when not otherwise specified, after receipt of Proposal Request, submit a quotation estimating cost adjustments to the Contract Sum and the Contract Time necessary to execute the change.
 - a. Include a list of quantities of products required or eliminated and unit costs, with total amount of purchases and credits to be made. If requested, furnish survey data to substantiate quantities.
 - b. Indicate applicable taxes, delivery charges, equipment rental, and amounts of trade discounts.
 - c. Include costs of labor and supervision directly attributable to the change.
 - d. Include an updated Contractor's construction schedule that indicates the effect of the change, including, but not limited to, changes in activity duration, start and finish times, and activity relationship. Use available total float before requesting an extension of the Contract Time.

- B. Contractor-Initiated Proposals: If latent or changed conditions require modifications to the Contract, Contractor may initiate a claim by submitting a request for a change to Architect.
1. Include a statement outlining reasons for the change and the effect of the change on the Work. Provide a complete description of the proposed change. Indicate the effect of the proposed change on the Contract Sum and the Contract Time.
 2. Include a list of quantities of products required or eliminated and unit costs, with total amount of purchases and credits to be made. If requested, furnish survey data to substantiate quantities.
 3. Indicate applicable taxes, delivery charges, equipment rental, and amounts of trade discounts.
 4. Include costs of labor and supervision directly attributable to the change.
 5. Include an updated Contractor's construction schedule that indicates the effect of the change, including, but not limited to, changes in activity duration, start and finish times, and activity relationship. Use available total float before requesting an extension of the Contract Time.
 6. Comply with requirements in Section 012500 "Substitution Procedures" if the proposed change requires substitution of one product or system for product or system specified.

1.5 ADMINISTRATIVE CHANGE ORDERS

- A. Unit-Price Adjustment: See Section 012200 "Unit Prices" for administrative procedures for preparation of Change Order Proposal for adjusting the Contract Sum to reflect measured scope of unit-price work.

1.6 CHANGE ORDER PROCEDURES

- A. On Owner's approval of a Work Changes Proposal Request, Architect will issue a Change Order for signatures of Owner and Contractor on Owner approved form.

1.7 CONSTRUCTION CHANGE DIRECTIVE

- A. Change Directive: Architect may issue a Change Directive on AIA Document G714. Change Directive instructs Contractor to proceed with a change in the Work, for subsequent inclusion in a Change Order.
1. Change Directive contains a complete description of change in the Work. It also designates method to be followed to determine change in the Contract Sum or the Contract Time.
- B. Documentation: Maintain detailed records on a time and material basis of work required by the Change Directive.
1. After completion of change, submit an itemized account and supporting data necessary to substantiate cost and time adjustments to the Contract.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 012600

SECTION 012900 - PAYMENT PROCEDURES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. Section includes administrative and procedural requirements necessary to prepare and process Applications for Payment.
- B. Related Requirements:
 - 1. Section 012600 "Contract Modification Procedures" for administrative procedures for handling changes to the Contract.
 - 2. Section 013200 "Construction Progress Documentation" for administrative requirements governing the preparation and submittal of the Contractor's construction schedule.

1.3 DEFINITIONS

- A. Schedule of Values: A statement furnished by Contractor allocating portions of the Contract Sum to various portions of the Work and used as the basis for reviewing Contractor's Applications for Payment.

1.4 SCHEDULE OF VALUES

- A. Coordination: Coordinate preparation of the schedule of values with preparation of Contractor's construction schedule. Gantt Chart may serve to satisfy requirements for the schedule of values.
 - 1. Coordinate line items in the schedule of values with other required administrative forms and schedules, including the following:
 - a. Application for Payment forms with continuation sheets.
 - b. Submittal schedule.
 - c. Items required to be indicated as separate activities in Contractor's construction schedule.
 - 2. Submit the schedule of values to Architect at earliest possible date, but no later than seven (7) days before the date scheduled for submittal of initial Applications for Payment.
- B. Format and Content: Use Project Manual table of contents as a guide to establish line items for the schedule of values. Provide at least one-line item for each Specification Section.
 - 1. Identification: Include the following Project identification on the schedule of values:
 - a. Project name and location.
 - b. Name of Architect.
 - c. Architect's project number.
 - d. Contractor's name and address.
 - e. Date of submittal.

2. Arrange schedule of values consistent with format of AIA Document G703.
3. Arrange the schedule of values in tabular form with separate columns to indicate the following for each item listed:
 - a. Related Specification Section or Division.
 - b. Description of the Work.
 - c. Name of subcontractor.
 - d. Name of manufacturer or fabricator/supplier.
 - e. Change Orders (numbers) that affect value.
 - f. Dollar value of the percentage of the Contract Sum to nearest one-hundredth percent, adjusted to total 100 percent.
4. Provide a breakdown of the Contract Sum in enough detail to facilitate continued evaluation of Applications for Payment and progress reports. Coordinate with Project Manual table of contents.
5. Provide a separate line item in the schedule of values for each part of the Work where Applications for Payment may include materials or equipment purchased or fabricated and stored, but not yet installed.
 - a. Differentiate between items stored on-site and items stored off-site. If required, include evidence of insurance.
6. Provide separate line items in the schedule of values for initial cost of materials, for each subsequent stage of completion, and for total installed value of that part of the Work.
7. Each item in the schedule of values and Applications for Payment shall be complete.
 - a. Temporary facilities and other major cost items that are not direct cost of actual work-in-place may be shown either as separate line items in the schedule of values or distributed as general overhead expense, at Contractor's option.
8. Schedule Updating: Update and resubmit the schedule of values before the next Applications for Payment when Change Orders or Construction Change Directives result in a change in the Contract Sum.

1.5 APPLICATIONS FOR PAYMENT

- A. Each Application for Payment following the initial Application for Payment shall be consistent with previous applications and payments as certified by Architect and paid for by Owner.
 1. Initial Application for Payment, Application for Payment at time of Substantial Completion, and final Application for Payment involve additional requirements.
- B. Payment Application Times: The date for each progress payment is indicated in the Agreement between Owner and Contractor. The period of construction work covered by each Application for Payment is the period indicated in the Agreement.
 1. Submit draft copy of Application for Payment seven (7) days prior to due date for review by Architect.
- A. Application for Payment Forms: Use AIA Document G702 and AIA Document G703 Continuation Sheets as form for Applications for Payment.
- B. Application Preparation: Complete every entry on form. Notarize and execute by a person authorized to sign legal documents on behalf of Contractor. Architect will return incomplete applications without action.
 1. Entries shall match data on the schedule of values and Contractor's construction schedule. Use updated schedules if revisions were made.
 2. Include amounts for work completed following previous Application for Payment, whether or not payment has been received. Include only amounts for work completed at time of Application for Payment.
 3. Include amounts of Change Orders and Construction Change Directives issued before last day of construction period covered by application.

4. Indicate separate amounts for work being carried out under Owner-requested project acceleration.
- C. Stored Materials: Include in Application for Payment amounts applied for materials or equipment purchased or fabricated and stored, but not yet installed. Differentiate between items stored on-site and items stored off-site.
1. Provide certificate of insurance, evidence of transfer of title to Owner, and consent of surety to payment, for stored materials.
 2. Provide supporting documentation that verifies amount requested, such as paid invoices. Match amount requested with amounts indicated on documentation.
 3. Provide summary documentation for stored materials indicating the following:
 - a. Value of materials previously stored and remaining stored as of date of previous Applications for Payment.
 - b. Value of previously stored materials put in place after date of previous Application for Payment and on or before date of current Application for Payment.
 - c. Value of materials stored since date of previous Application for Payment and remaining stored as of date of current Application for Payment.
- D. Transmittal: Submit one signed and notarized PDF copy of each Application for Payment to Architect by a method ensuring receipt within 24 hours. Include waivers of lien and similar attachments if required.
1. Transmit each copy with PDF transmittal form listing attachments and recording appropriate information about application.
- E. Waivers of Mechanic's Lien: With each Application for Payment, submit waivers of mechanic's lien from entities lawfully entitled to file a mechanic's lien arising out of the Contract and related to the Work covered by the payment.
1. Submit partial waivers on each item for amount requested in previous application, after deduction for retainage, on each item.
 2. When an application shows completion of an item, submit conditional final or full waivers.
 3. Owner reserves the right to designate which entities involved in the Work must submit waivers.
 4. Waiver Forms: Submit executed waivers of lien on forms acceptable to Owner.
- F. Initial Application for Payment: Administrative actions and submittals that must precede or coincide with submittal of first Application for Payment include the following:
1. List of subcontractors.
 2. Schedule of values.
 3. Contractor's construction schedule (preliminary if not final).
 4. Certificates of insurance and insurance policies.
 5. Performance and payment bonds.
 6. Data needed to acquire Owner's insurance.
 7. Progress and preconstruction photographs.
- G. Application for Payment at Substantial Completion: After Architect issues the Certificate of Substantial Completion, submit an Application for Payment showing 100 percent completion for portion of the Work claimed as substantially complete.
1. Include documentation supporting claim that the Work is substantially complete and a statement showing an accounting of changes to the Contract Sum.
 2. This application shall reflect Certificate(s) of Substantial Completion issued previously for Owner occupancy of designated portions of the Work.
- H. Final Payment Application: After completing Project closeout requirements, submit final Application for Payment with releases and supporting documentation not previously submitted and accepted, including, but not limited, to the following:

1. Evidence of completion of Project closeout requirements (maintenance documents, warranties, etc.).
2. Insurance certificates for products and completed operations where required and proof that taxes, fees, and similar obligations were paid.
3. Updated final statement, accounting for final changes to the Contract Sum.
4. AIA Document G706, "Contractor's Affidavit of Payment of Debts and Claims."
5. AIA Document G706A, "Contractor's Affidavit of Release of Liens."
6. AIA Document G707, "Consent of Surety to Final Payment."
7. Evidence that claims have been settled.
8. Final liquidated damages settlement statement.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 012900

SECTION 013000 – ADMINISTRATIVE REQUIREMENTS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. Section includes, but not limited to, the following:
 - 1. Electronic document submittal.
 - a. Procore pre-approved.
 - b. Submittal Exchange pre-approved.
- B. Related Requirements:
 - 1. Section 013200 "Construction Progress Documentation" for preparing and submitting Contractor's construction schedule.
 - 2. Section 017700 "Closeout Procedures" for coordinating closeout of the Contract.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION

3.1 ELECTRONIC SUBMITTAL PROCEDURES

- A. Summary:
 - 1. Shop drawing and product data submittals shall be transmitted to Architect in electronic (PDF) format using electronic submittal, a website service designed specifically for transmitting submittals between construction team members.
 - 2. The intent of electronic submittals is to expedite the construction process by reducing paperwork, improving information flow, and decreasing turnaround time.
 - 3. The electronic submittal process is not intended for color samples, color charts, or physical material samples.
- B. Procedures:
 - 1. Submittal Preparation - Contractor may use any or all of the following options:
 - a. Subcontractors and Suppliers provide electronic (PDF) submittals to Contractor via the electronic document submittal website.
 - b. Subcontractors and Suppliers provide paper submittals to General Contractor who electronically scans and converts to PDF format.
 - c. Subcontractors and Suppliers provide paper submittals to Scanning Service which electronically scans and converts to PDF format.
 - 2. Contractor shall review and apply electronic stamp certifying that the submittal complies with the requirements of the Contract Documents including verification of manufacturer / product, dimensions, and coordination of information with other parts of the work.
 - 3. Contractor shall transmit each submittal to Architect using electronic document submittal website.

4. Architect / Engineer review comments will be made available on the electronic document submittal website for downloading. Contractor will receive email notice of completed review.
5. Distribution of reviewed submittals to subcontractors and suppliers is the responsibility of the Contractor.
6. Submit paper copies of reviewed submittals at project closeout for record purposes in accordance with Section 017800 – Closeout Submittals

C. Costs:

1. General Contractor shall include the full cost of electronic document submittal project subscription in their proposal. This cost is included in the Contract Amount. Contact electronic document submittal company to verify cost prior to bid.
2. Internet Service and Equipment Requirements:
 - a. Email address and Internet access at Contractor's main office.

END OF SECTION 013000

SECTION 013100 - PROJECT MANAGEMENT AND COORDINATION

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. Section includes administrative provisions for coordinating construction operations on Project including, but not limited to, the following:
 - 1. General coordination procedures.
 - 2. Requests for Information (RFIs).
 - 3. Project meetings.
- B. Related Requirements:
 - 1. Section 013200 "Construction Progress Documentation" for preparing and submitting Contractor's construction schedule.
 - 2. Section 017700 "Closeout Procedures" for coordinating closeout of the Contract.

1.3 DEFINITIONS

- A. RFI: Request from Owner, Architect, or Contractor seeking information required by or clarifications of the Contract Documents.

1.4 INFORMATIONAL SUBMITTALS

- A. Subcontract List: Prepare a written summary identifying individuals or firms proposed for each portion of the Work, including those who are to furnish products or equipment fabricated to a special design. Include the following information in tabular form:
 - 1. Name, address, and telephone number of entity performing subcontract or supplying products.
 - 2. Number and title of related Specification Section(s) covered by subcontract.
 - 3. Drawing number and detail references, as appropriate, covered by subcontract.
- B. Key Personnel Names: Within 15 days of starting construction operations, submit a list of key personnel assignments, including superintendent and other personnel in attendance at Project site. Identify individuals and their duties and responsibilities; list addresses and telephone numbers, including office, and cellular telephone numbers and e-mail addresses. Provide names, addresses, and telephone numbers of individuals assigned as alternates in the absence of individuals assigned to Project.

1.5 GENERAL COORDINATION PROCEDURES

- A. Coordination: Coordinate construction operations included in different Sections of the Specifications to ensure efficient and orderly installation of each part of the Work. Coordinate construction operations, included in different Sections, that depend on each other for proper installation, connection, and operation.
1. Schedule construction operations in sequence required to obtain the best results where installation of one part of the Work depends on installation of other components, before or after its own installation.
 2. Coordinate installation of different components to ensure maximum performance and accessibility for required maintenance, service, and repair.
 3. Make adequate provisions to accommodate items scheduled for later installation.
- B. Administrative Procedures: Coordinate scheduling and timing of required administrative procedures with other construction activities to avoid conflicts and to ensure orderly progress of the Work. Such administrative activities include, but are not limited to, the following:
1. Preparation of Contractor's construction schedule.
 2. Preparation of the schedule of values.
 3. Installation and removal of temporary facilities and controls.
 4. Delivery and processing of submittals.
 5. Progress meetings.
 6. Progress photographic documentation.
 7. Pre-installation conferences.
 8. Project closeout activities.
- C. Conservation: Coordinate construction activities to ensure that operations are carried out with consideration given to conservation of energy, water, and materials. Coordinate use of temporary utilities to minimize waste.

1.6 REQUESTS FOR INFORMATION (RFIs)

- A. General: Immediately on discovery of the need for additional information or interpretation of the Contract Documents, Contractor shall prepare and submit an RFI in the form specified.
1. Architect will return RFIs submitted to Architect by other entities controlled by Contractor with no response.
 2. Coordinate and submit RFIs in a prompt manner so as to avoid delays in Contractor's work or work of subcontractors.
- B. Content of the RFI: Include a detailed, legible description of item needing information or interpretation and the following:
1. Project name.
 2. Project number.
 3. Date.
 4. Name of Contractor.
 5. Name of Architect.
 6. RFI number, numbered sequentially.
 7. RFI subject.
 8. Specification Section number and title and related paragraphs, as appropriate.
 9. Drawing number and detail references, as appropriate.
 10. Field dimensions and conditions, as appropriate.

11. Contractor's suggested resolution. If Contractor's suggested resolution impacts the Contract Time or the Contract Sum, Contractor shall state impact in the RFI.
 12. Contractor's signature.
 13. Attachments: Include sketches, descriptions, measurements, photos, Product Data, Shop Drawings, coordination drawings, and other information necessary to fully describe items needing interpretation.
 - a. Include dimensions, thicknesses, structural grid references, and details of affected materials, assemblies, and attachments on attached sketches.
- C. RFI Forms: AIA Document G716 or similar software-generated form, acceptable to Architect.
1. Attachments shall be electronic files in Adobe Acrobat PDF format.
- D. Architect's Action: Architect will review each RFI, determine action required, and respond. Allow seven (7) working days for Architect's response for each RFI. RFIs received by Architect after 1:00 p.m. will be considered as received the following working day.
1. The following Contractor-generated RFIs will be returned without action:
 - a. Requests for approval of submittals.
 - b. Requests for approval of substitutions.
 - c. Requests for approval of Contractor's means and methods.
 - d. Requests for coordination information already indicated in the Contract Documents.
 - e. Requests for adjustments in the Contract Time or the Contract Sum.
 - f. Requests for interpretation of Architect's actions on submittals.
 - g. Incomplete RFIs or inaccurately prepared RFIs.
 2. Architect's action may include a request for additional information, in which case Architect's time for response will date from time of receipt of additional information.
 3. Architect's action on RFIs that may result in a change to the Contract Time or the Contract Sum may be eligible for Contractor to submit Change Proposal according to Section 012600 "Contract Modification Procedures."
 - a. If Contractor believes the RFI response warrants change in the Contract Time or the Contract Sum, notify Architect in writing within 10 days of receipt of the RFI response.
- E. RFI Log: Prepare, maintain, and submit a tabular log of RFIs organized by the RFI number. Use Log Form with not less than the following:
1. Project name.
 2. Name and address of Contractor.
 3. Name and address of Architect.
 4. RFI number including RFIs that were returned without action or withdrawn.
 5. RFI description.
 6. Date the RFI was submitted.
 7. Date Architect's response was received.
- F. On receipt of Architect's action, update the RFI log and immediately distribute the RFI response to affected parties. Review response and notify Architect within seven days if Contractor disagrees with response.

1. Identification of related Minor Change in the Work, Construction Change Directive, and Proposal Request, as appropriate.
2. Identification of related Field Order, Work Change Directive, and Proposal Request, as appropriate.

1.7 PROJECT MEETINGS

- A. General: Schedule and conduct meetings and conferences at Project site unless otherwise indicated.
1. Attendees: Inform participants and others involved, and individuals whose presence is required, of date and time of each meeting. Notify Owner and Architect of scheduled meeting dates and times.
 2. Agenda: Prepare the meeting agenda. Distribute the agenda to all invited attendees.
 3. Minutes: Entity responsible for conducting meeting will record significant discussions and agreements achieved. Distribute an electronic copy of the meeting minutes to everyone concerned, including Owner and Architect, within three days of the meeting.
- B. Preconstruction Conference: Schedule and conduct a preconstruction conference before starting construction, at a time convenient to Owner and Architect, but no later than 15 days after execution of the Agreement.
1. Conduct the conference to review responsibilities and personnel assignments.
 2. Attendees: Authorized representatives of Owner Architect, and their consultants; Contractor and its superintendent; major subcontractors; suppliers; and other concerned parties shall attend the conference. Participants at the conference shall be familiar with Project and authorized to conclude matters relating to the Work.
 3. Trades: As required.
 4. Agenda: Discuss items of significance that could affect progress, including the following:
 - a. Tentative construction schedule.
 - b. Phasing.
 - c. Critical work sequencing and long-lead items.
 - d. Designation of key personnel and their duties.
 - e. Lines of communications.
 - f. Procedures for processing field decisions and Change Orders.
 - g. Procedures for RFIs.
 - h. Procedures for testing and inspecting.
 - i. Procedures for processing Applications for Payment.
 - j. Distribution of the Contract Documents.
 - k. Submittal procedures.
 - l. Preparation of record documents.
 - m. Use of the premises and existing building.
 - n. Work restrictions.
 - o. Working hours.
 - p. Owner's occupancy requirements.
 - q. Responsibility for temporary facilities and controls.
 - r. Procedures for moisture and mold control.
 - s. Procedures for disruptions and shutdowns.
 - t. Construction waste management and recycling.
 - u. Parking availability.
 - v. Work, and storage areas.
 - w. Equipment deliveries and priorities.

- x. First aid.
 - y. Security.
 - z. Progress cleaning.
5. Minutes: Entity responsible for conducting meeting will record and distribute meeting minutes.
- C. Progress Meetings: **Conduct progress meetings weekly. Expect daily site visits from the City's assigned project manager for the duration of the project. Architect will attend meetings at project milestones and at the request of the owner.**
- 1. Coordinate dates of meetings with preparation of payment requests.
 - 2. Attendees: In addition to representatives of Owner and Architect, Contractor, subcontractor (at the discretion of the Contractor), and other concerned entities shall be represented at these meetings. All participants at the meeting shall be familiar with Project and authorized to conclude matters relating to the Work.
 - 3. Agenda: Review and correct or approve minutes of previous progress meeting. Review other items of significance that could affect progress. Include topics for discussion as appropriate to status of Project.
 - a. Contractor's Construction Schedule: Review progress since the last meeting. Determine whether each activity is on time, ahead of schedule, or behind schedule, in relation to Contractor's construction schedule. Determine how construction behind schedule will be expedited; secure commitments from parties involved to do so. Discuss whether schedule revisions are required to ensure that current and subsequent activities will be completed within the Contract Time.
 - 1) Review schedule for next period.
 - b. Review present and future needs of each entity present, including the following:
 - 1) Interface requirements.
 - 2) Sequence of operations.
 - 3) Status of submittals.
 - 4) Deliveries.
 - 5) Access.
 - 6) Site utilization.
 - 7) Temporary facilities and controls.
 - 8) Progress cleaning.
 - 9) Quality and work standards.
 - 10) Status of correction of deficient items.
 - 11) Field observations.
 - 12) Status of RFIs.
 - 13) Status of proposal requests.
 - 14) Pending changes.
 - 15) Status of Change Orders.
 - 16) Pending claims and disputes.
 - 17) Documentation of information for payment requests.
 - 4. Minutes: Entity responsible for conducting the meeting will record and distribute the meeting minutes to each party present and to parties requiring information.
 - a. Schedule Updating: Revise monthly Contractor's construction schedule after each progress meeting where revisions to the schedule have been made or recognized. Issue revised schedule concurrently with the report of each meeting.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 013100

SECTION 013200 - CONSTRUCTION PROGRESS DOCUMENTATION

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. Section includes administrative and procedural requirements for documenting the progress of construction during performance of the Work, including the following:
 - 1. Contractor's construction schedule.
 - 2. Construction schedule updating reports.
 - 3. Site condition reports.
 - 4. Special reports.
- B. Related Requirements:
 - 1. Section 013300 "Submittal Procedures" for submitting schedules and reports.

1.3 INFORMATIONAL SUBMITTALS

- A. Format for Submittals: Submit required submittals in the following format:
 - 1. PDF electronic file.
- B. Contractor's Construction Schedule: Initial schedule, of size required to display entire schedule for entire construction period.
 - 1. Submit a PDF electronic copy of schedule.
- C. Construction Schedule Updating Reports: Submit monthly with Applications for Payment.
- D. Daily Logs: Submit at the conclusion of the project, a copy of the log will be turned over to the City's assigned project manager to memorialize the restorative effort.
- E. Site Condition Reports: Submit at time of discovery of differing conditions.
- F. Special Reports: Submit at time of unusual event.

1.4 COORDINATION

- A. Coordinate Contractor's construction schedule with the schedule of values, submittal schedule, progress reports, payment requests, and other required schedules and reports.
 - 1. Secure time commitments for performing critical elements of the Work from entities involved.

2. Coordinate each construction activity in the network with other activities and schedule them in proper sequence.

PART 2 - PRODUCTS

2.1 CONTRACTOR'S CONSTRUCTION SCHEDULE, GENERAL

- A. Time Frame: Extend schedule from date established for the Notice to Proceed to date of final completion.
 1. Contract completion date shall not be changed by submission of a schedule that shows an early completion date, unless specifically authorized by Change Order.
- B. Activities: Treat each story or separate area as a separate numbered activity for each main element of the Work. Comply with the following:
 1. Activity Duration: Define activities by location.
 2. Procurement Activities: Include procurement process activities for the following long lead items and major items, requiring a cycle of more than 60 days, as separate activities in schedule. Procurement cycle activities include, but are not limited to, submittals, approvals, purchasing, fabrication, and delivery.
 3. Submittal Review Time: Include review and resubmittal times indicated in Section 013300 "Submittal Procedures" in schedule. Coordinate submittal review times in Contractor's construction schedule with submittal schedule.
 4. Substantial Completion: Indicate completion in advance of date established for Substantial Completion and allow time for Architect's administrative procedures necessary for certification of Substantial Completion.
 5. Punch List and Final Completion: Include not more than 30 days for completion of punch list items and final completion.
- C. Constraints: Include constraints and work restrictions indicated in the Contract Documents and as follows in schedule and show how the sequence of the Work is affected.
 1. Work Restrictions: Show the effect of the following items on the schedule:
 - a. Limitations of continued occupancies. The site will remain open for the duration of construction.
 - b. Uninterruptible services.
 2. Work Stages: Indicate important stages of construction for each major portion of the Work, including, but not limited to, the following:
 - a. Submittals.
 - b. Mockups.
 - c. Disassembly.
 - d. Installation.
 - e. Tests and inspections.
 - f. Curing.
 3. Construction Areas: Identify each major area of construction for each major portion of the Work. Indicate where each construction activity within a major area must be sequenced or integrated with other construction activities.
- D. Recovery Schedule: When periodic update indicates the Work is 14 or more calendar days behind the current approved schedule, submit a separate recovery schedule indicating means

by which Contractor intends to regain compliance with the schedule. Indicate changes to working hours, working days, crew sizes, and equipment required to achieve compliance, and date by which recovery will be accomplished.

2.2 CONTRACTOR'S CONSTRUCTION SCHEDULE (GANTT CHART)

- A. Gantt-Chart Schedule with Critical Path: Submit a comprehensive, fully developed, horizontal, Gantt-chart-type, Contractor's construction schedule due (5 business days) before restoration work commences. Critical path is required.
- B. Preparation: Indicate each significant construction activity separately. Identify first workday of each week with a continuous vertical line.
 - 1. For construction activities that require three months or longer to complete, indicate an estimated completion percentage in 10 percent increments (by location) within time bar.

2.3 REPORTS

- A. Site Condition Reports: Immediately on discovery of a difference between site conditions and the Contract Documents, prepare and submit a detailed report. Submit with a Request for Information. Include a detailed description of the differing conditions, together with recommendations for changing the Contract Documents.

2.4 SPECIAL REPORTS

- A. General: Submit special reports directly to Owner within one day of an occurrence. Distribute electronic copies of report to parties affected by the occurrence.
- B. Reporting Unusual Events: When an event of an unusual and significant nature occurs at Project site, whether or not related directly to the Work, prepare and submit a special report. List chain of events, persons participating, response by Contractor's personnel, evaluation of results or effects, and similar pertinent information. Advise Owner in advance when these events are known or predictable.

PART 3 - EXECUTION

3.1 CONTRACTOR'S CONSTRUCTION SCHEDULE

- A. Contractor's Construction Schedule Updating: At monthly intervals, update schedule to reflect actual construction progress and activities.
 - 1. Revise schedule immediately after each meeting or other activity where revisions have been recognized or made. Issue updated schedule concurrently with the report of each such meeting.
 - 2. Include a report with updated schedule that indicates every change, including, but not limited to, changes in logic, durations, actual starts and finishes, and activity durations.
 - 3. As the Work progresses, indicate final completion percentage for each activity.

- B. Distribution: Distribute copies of approved schedule to Architect and Owner, separate contractors, testing and inspecting agencies, and other parties identified by Contractor with a need-to-know schedule responsibility.
 - 1. When revisions are made, distribute updated schedules to the same parties. Delete parties from distribution when they have completed their assigned portion of the Work and are no longer involved in performance of construction activities.
- C. At a minimum, reports and schedule to be submitted with pay applications monthly.

END OF SECTION 013200

SECTION 013233 - PHOTOGRAPHIC DOCUMENTATION

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. Section includes administrative and procedural requirements for the following:
 - 1. Preconstruction photographs.
 - 2. Periodic construction photographs.
 - 3. Final Completion construction photographs.
- B. Related Requirements:
 - 1. Section 013300 "Submittal Procedures" for submitting photographic documentation.
 - 2. Section 017700 "Closeout Procedures" for submitting photographic documentation as project record documents at Project closeout.

1.3 INFORMATIONAL SUBMITTALS

- A. Key Plan: Submit key plan in PDF or JPEG format of Project site and building with notation of vantage points marked for location and direction of each photograph. Indicate elevation or story of construction. Include same information as corresponding photographic documentation. Key plan required for preconstruction and final completion construction photographs.
- B. Construction Photographs: Submit images within three days of taking photographs.
 - 1. Digital Camera: Minimum sensor resolution of 8 megapixels.
 - 2. Format: Minimum 3200 by 2400 pixels, in unaltered original files, with same aspect ratio as the sensor, uncropped, date and time stamped, in folder named by date of photograph, accompanied by key plan file.
 - 3. Identification: Name photos based on location and date. Example: "Perimeter Wall – North Elevation_02.16.18"

1.4 COORDINATION

- A. Auxiliary Services: Cooperate with Owner or Architect's photographer and provide auxiliary services requested, including access to Project site and use of temporary facilities, including temporary lighting required to produce clear, well-lit photographs without obscuring shadows.

1.5 USAGE RIGHTS

- A. Obtain and transfer copyright usage rights from photographer to Owner for unlimited reproduction of photographic documentation.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION

3.1 CONSTRUCTION PHOTOGRAPHS

- A. General: Take photographs using the maximum range of depth of field, and that are in focus, to clearly show the Work. Photographs with blurry or out-of-focus areas will not be accepted.
 - 1. Maintain key plan with each set of construction photographs that identifies each photographic location.
- B. Digital Images: Submit digital images exactly as originally recorded in the digital camera, without alteration, manipulation, editing, or modifications using image-editing software.
 - 1. Date: Include date in file name for each image.
- C. Preconstruction Photographs: Before commencement of demolition, take photographs of Project site and surrounding properties, including existing items to remain during construction, from different vantage points, as directed by Architect.
 - 1. Take a minimum of 40 photographs to show existing conditions adjacent to areas of construction before starting the Work.
 - 2. All preconstruction photographs must be submitted and approved by Architect before any work begins.
- D. Periodic Construction Photographs: Take a minimum of 20 digital photographs weekly. Select vantage points to show status of construction and progress since last photographs were taken.
- E. Architect-Directed Construction Photographs: From time to time, Architect will instruct photographer about number and frequency of photographs and general directions on vantage points. Select actual vantage points and take photographs to show the status of construction and progress since last photographs were taken.
- F. Final Completion Construction Photographs: Take 40 color photographs after date of Substantial Completion for submission as project record documents. Vantage points should match preconstruction photographs.
 - 1. Do not include date stamp.
- G. Additional Photographs: Architect and Owner may issue requests for additional photographs, in addition to periodic photographs specified.
 - 1. Three days' notice will be given, where feasible.
 - 2. In emergency situations, take additional photographs within 24 hours of request.

3. Circumstances that could require additional photographs include, but are not limited to, the following:
 - a. Immediate follow-up when on-site events result in construction damage or losses.
 - b. Substantial Completion of a major phase or component of the Work.
 - c. Extra record photographs at time of final acceptance.
 - d. Owner's request for special publicity photographs.

END OF SECTION 013233

SECTION 013300 - SUBMITTAL PROCEDURES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. Section includes requirements for the submittal schedule and administrative and procedural requirements for submitting Shop Drawings, Product Data, Samples, and other submittals.
 - 1. Use online exchange for all project documentation. See Section 013100 "Administrative Requirements".
- B. Related Requirements:
 - 1. Section 012900 "Payment Procedures" for submitting Applications for Payment and the schedule of values.
 - 2. Section 013100 "Administrative Requirements" for submitting submittals.
 - 3. Section 013200 "Construction Progress Documentation" for submitting schedules and reports, including Contractor's construction schedule.
 - 4. Section 017839 "Project Record Documents" for submitting record Drawings, record Specifications, and record Product Data.

1.3 DEFINITIONS

- A. Action Submittals: Written and graphic information and physical samples that require Architect's responsive action. Action submittals are those submittals indicated in individual Specification Sections as "action submittals."
- B. Informational Submittals: Written and graphic information and physical samples that do not require Architect's responsive action. Submittals may be rejected for not complying with requirements. Informational submittals are those submittals indicated in individual Specification Sections as "informational submittals."
- C. Portable Document Format (PDF): An open standard file format licensed by Adobe Systems used for representing documents in a device-independent and display resolution-independent fixed-layout document format.

1.4 SUBMITTAL ADMINISTRATIVE REQUIREMENTS

- A. Architect's Digital Data Files: Upon completion of Architect's release form, electronic digital data files of the Contract Drawings may be provided by Architect for Contractor's use in preparing submittals.

1. Architect will furnish Contractor one set of digital data drawing files of the Contract Drawings for use in preparing Shop Drawings and Project record drawings.
 - a. Architect makes no representations as to the accuracy or completeness of digital data drawing files as they relate to the Contract Drawings.
 - b. Digital Drawing Format: Architect will provide Drawings in PDF format.

- B. Coordination: Coordinate preparation and processing of submittals with performance of construction activities.
 1. Coordinate each submittal with fabrication, purchasing, testing, delivery, other submittals, and related activities that require sequential activity.
 2. Submit all submittal items required for each Specification Section concurrently unless partial submittals for portions of the Work are indicated on approved submittal schedule.
 3. Submit action submittals and informational submittals required by the same Specification Section as separate packages under separate transmittals.
 4. Coordinate transmittal of different types of submittals for related parts of the Work so processing will not be delayed because of need to review submittals concurrently for coordination.
 - a. Architect reserves the right to withhold action on a submittal requiring coordination with other submittals until related submittals are received.

- C. Processing Time: Allow time for submittal review, including time for resubmittals, as follows. Time for review shall commence on Architect's receipt of submittal. No extension of the Contract Time will be authorized because of failure to transmit submittals enough in advance of the Work to permit processing, including resubmittals.
 1. Initial Review: Allow 7 days for initial review of each submittal. Allow additional time if coordination with subsequent submittals is required. Architect will advise Contractor when a submittal being processed must be delayed for coordination.
 2. Resubmittal Review: Allow 7 days for review of each resubmittal.

- D. Electronic Submittals: Identify and incorporate information in each electronic submittal file as follows:
 1. Assemble complete submittal package into a single indexed file incorporating submittal requirements of a single Specification Section and transmittal form with links enabling navigation to each item.
 2. Name file with submittal number or other unique identifier, including revision identifier.
 3. Provide means for insertion to permanently record Contractor's review and approval markings and action taken by Architect.
 4. Transmittal Form for Electronic Submittals: Use electronic form acceptable to Owner, containing the following information:
 - a. Project name.
 - b. Date.
 - c. Name and address of Architect.
 - d. Name of Contractor.
 - e. Name of firm or entity that prepared submittal.
 - f. Names of subcontractor, manufacturer, and supplier.
 - g. Category and type of submittal.
 - h. Submittal purpose and description.
 - i. Specification Section number and title.

- j. Specification paragraph number or drawing designation and generic name for each of multiple items.
 - k. Drawing number and detail references, as appropriate.
 - l. Location(s) where product is to be installed, as appropriate.
 - m. Related physical samples submitted directly.
 - n. Indication of full or partial submittal.
 - o. Transmittal number, numbered consecutively.
 - p. Submittal and transmittal distribution record.
 - q. Other necessary identification.
 - r. Remarks.
- E. Options: Identify options requiring selection by Architect.
- F. Resubmittals: Make resubmittals in same form as initial submittal.
- 1. Note date and content of previous submittal.
 - 2. Note date and content of revision in label or title block and clearly indicate extent of revision.
 - 3. Resubmit submittals until they are marked with approval notation from Architect's action stamp.
- G. Distribution: Furnish copies of final submittals to manufacturers, subcontractors, suppliers, fabricators, installers, authorities having jurisdiction, and others as necessary for performance of construction activities.
- H. Use for Construction: Retain complete copies of submittals on Project site. Use only final action submittals that are marked with approval notation from Architect's action stamp.

PART 2 - PRODUCTS

2.1 SUBMITTAL PROCEDURES

- A. General Submittal Procedure Requirements: Prepare and submit submittals required by individual Specification Sections. Types of submittals are indicated in individual Specification Sections.
- 1. Submit electronic submittals via online exchange as PDF electronic files.
 - a. Architect will return annotated file. Annotate and retain one copy of file as an electronic Project record document file.
 - 2. Action Submittals: Submit one PDF copy of each submittal unless otherwise indicated.
 - 3. Informational Submittals: Submit one PDF copy of each submittal unless otherwise indicated.
 - 4. Certificates and Certifications Submittals: Provide a statement that includes signature of entity responsible for preparing certification. Certificates and certifications shall be signed by an officer or other individual authorized to sign documents on behalf of that entity.
 - a. Provide a digital signature with digital certificate on electronically submitted certificates and certifications where indicated.
 - b. Provide a notarized statement on original paper copy certificates and certifications where indicated.

- B. Product Data: Collect information into a single submittal for each element of construction and type of product or equipment.
1. If information must be specially prepared for submittal because standard published data are not suitable for use, submit as Shop Drawings, not as Product Data.
 2. Mark each copy of each submittal to show which products and options are applicable.
 3. Include the following information, as applicable:
 - a. Manufacturer's catalog cuts.
 - b. Manufacturer's product specifications.
 - c. Standard color charts.
 - d. Statement of compliance with specified referenced standards.
 - e. Testing by recognized testing agency.
 - f. Application of testing agency labels and seals.
 - g. Notation of coordination requirements.
 - h. Availability and delivery time information.
 4. Submit Product Data before or concurrent with Samples.
 5. Submit Product Data in the following format:
 - a. PDF electronic file via online exchange.
 6. Sheet Size: Except for templates, patterns, and similar full-size drawings, submit Shop Drawings on sheets at least 8-1/2 by 11 inches, but no larger than 30 by 42 inches.
- C. Samples: Submit Samples for review of kind, color, pattern, and texture for a check of these characteristics with other elements and for a comparison of these characteristics between submittal and actual component as delivered and installed.
1. Transmit Samples that contain multiple, related components such as accessories together in one submittal package.
 2. Identification: Attach label on unexposed side of Samples that includes the following:
 - a. Generic description of Sample.
 - b. Product name and name of manufacturer.
 - c. Sample source.
 - d. Number and title of applicable Specification Section.
 - e. Specification paragraph number and generic name of each item.
 3. Disposition: Maintain sets of approved Samples at Project site, available for quality-control comparisons throughout the course of construction activity. Sample sets may be used to determine final acceptance of construction associated with each set.
 - a. Samples that may be incorporated into the Work are indicated in individual Specification Sections. Such Samples must be in an undamaged condition at time of use.
 - b. Samples not incorporated into the Work are the property of Owner.
 4. Samples for Initial Selection: Submit manufacturer's color charts consisting of units or sections of units showing the full range of colors, textures, and patterns available.
 - a. Number of Samples: Submit one full set(s) of available choices where color, pattern, texture, or similar characteristics are required to be selected from manufacturer's product line. Architect will return submittal with options selected.

- D. Contractor's Construction Schedule: Comply with requirements specified in Section 013200 "Construction Progress Documentation."
- E. Application for Payment and Schedule of Values: Comply with requirements specified in Section 012900 "Payment Procedures."
- F. Closeout Submittals and Maintenance Material Submittals: Comply with requirements specified in Section 017700 "Closeout Procedures."
- G. Qualification Data: Prepare written information that demonstrates capabilities and experience of firm or person as required in the Contract Documents.
- H. Installer Certificates: Submit written statements on manufacturer's letterhead certifying that Installer complies with requirements in the Contract Documents and, where required, is authorized by manufacturer for this specific Project.
- I. Manufacturer Certificates: Submit written statements on manufacturer's letterhead certifying that manufacturer complies with requirements in the Contract Documents. Include evidence of manufacturing experience where required.
- J. Product Certificates: Submit written statements on manufacturer's letterhead certifying that product complies with requirements in the Contract Documents.
- K. Material Certificates: Submit written statements on manufacturer's letterhead certifying that material complies with requirements in the Contract Documents.
- L. Material Test Reports: Submit reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting test results of material for compliance with requirements in the Contract Documents.
- M. Product Test Reports: Submit written reports indicating that current product produced by manufacturer complies with requirements in the Contract Documents. Base reports on evaluation of tests performed by manufacturer and witnessed by a qualified testing agency, or on comprehensive tests performed by a qualified testing agency.
- N. Field Test Reports: Submit written reports indicating and interpreting results of field tests performed either during installation of product or after product is installed in its final location, for compliance with requirements in the Contract Documents.
 - 1. Include list of codes, loads, and other factors used in performing these services.

PART 3 - EXECUTION

3.1 CONTRACTOR'S REVIEW

- A. Action and Informational Submittals: Review each submittal and check for coordination with other Work of the Contract and for compliance with the Contract Documents. Note corrections and field dimensions. Mark with approval stamp before submitting to Architect.
- B. Project Closeout and Maintenance Material Submittals: See requirements in Section 017700 "Closeout Procedures."

- C. Approval Stamp: Stamp each submittal with a uniform, approval stamp. Include Project name and location, submittal number, Specification Section title and number, name of reviewer, date of Contractor's approval, and statement certifying that submittal has been reviewed, checked, and approved for compliance with the Contract Documents.

3.2 ARCHITECT'S ACTION

- A. Action Submittals: Architect will review each submittal, make marks to indicate corrections or revisions required, and return it. Architect will stamp each submittal with an action stamp and will mark stamp appropriately to indicate action.
- B. Informational Submittals: Architect will review each submittal and will return it, or will not return it if it does not comply with requirements. Architect will forward each submittal to appropriate party.
- C. Partial submittals prepared for a portion of the Work will be reviewed when use of partial submittals has received prior approval from Architect.
- D. Incomplete submittals are unacceptable, will be considered nonresponsive, and will be returned for resubmittal without review.
- E. Submittals not required by the Contract Documents may be returned by the Architect without action.

END OF SECTION 013300

SECTION 013591- HISTORIC TREATMENT PROCEDURES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. This project involves the restoration and repair of historic building materials. Treat the building respectfully. Carefully inspect existing conditions and treat existing materials as irreplaceable. Do not remove, alter or disfigure any existing materials, elements or finishes, unless indicated on the Drawings, specified herein, or directed by the Architect.
- B. Section includes general protection and treatment procedures for designated historic spaces, rooms, areas, and surfaces in the entire Project, including general project guidelines, selected historic preservation resources and the following specific work:
 - 1. General Historic Treatment Procedures.
 - 2. Historic removal and dismantling.
- C. Codes and standards set forth by:
 - 1. All work shall be performed in accordance with the "Secretary of the Interior's Standards for Preservation, "U.S. Department of the Interior, National Park Service, 1995."

1.3 REFERENCES

- A. United States Department of the Interior, Secretary of the Interior's Standards for the Treatment of Historic Properties with Guidelines for Preserving, Rehabilitating, Restoring and Reconstructing Historic Buildings.
- B. United States General Services Administration: Historic Preservation Technical Procedures.

1.4 DEFINITIONS

- A. Consolidate: To strengthen loose or deteriorated materials in place.
- B. Dismantle: To disassemble and detach items by hand from existing construction to the limits indicated, using small hand tools and small one-hand power tools, so as to protect nearby historic surfaces; and legally dispose of dismantled items off-site, unless indicated to be salvaged or reinstalled.
- C. Existing to Remain: Existing items that are not to be removed or dismantled.
- D. Historic: Spaces, areas, rooms, surfaces, materials, finishes, and overall appearance which are important to the successful preservation, conservation, restoration, and reconstruction as

determined by the Owner and Architect. Designated historic spaces, areas, rooms, and surfaces may be indicated on drawings.

- E. Match: To blend with adjacent construction and manifest no apparent difference in material type, species, cut, form, detail, color, grain, texture, or finish; as approved by the Owner or Architect.
- F. Reconstruct: To remove existing item, replicate damaged or missing components, and reinstall in original position.
- G. Refinish: To remove existing finishes to substrate and apply new finish to match original or as otherwise indicated.
- H. Reinstall: To protect removed or dismantled item, repair and clean it as indicated for reuse, and reinstall it in original position, or where indicated.
- I. Remove: Specifically, for historic spaces, areas, rooms, and surfaces, the term means to detach an item from existing construction to the limits indicated, using hand tools and hand-operated power equipment, and legally dispose of it off-site, unless indicated to be salvaged or reinstalled.
- J. Repair: To correct damage and defects, retaining existing materials, features, and finishes while employing as little new material as possible. Includes patching, piecing-in, splicing, consolidating, or otherwise reinforcing or upgrading materials.
- K. Replace: To remove, duplicate, and reinstall entire item with new material. The original item is the pattern for creating duplicates unless otherwise indicated.
- L. Replicate: To reproduce in exact detail, materials, and finish, unless otherwise indicated.
- M. Reproduce: To fabricate a new item, accurate in detail to the original, and in either the same or a similar material as the original, unless otherwise indicated.
- N. Restore: To consolidate, replicate, reproduce, repair, and refinish as required to achieve the indicated results.
- O. Retain: To keep existing items that are not to be removed or dismantled.
- P. Reversible: New construction work, treatments, or processes that can be removed or undone in the future without damaging historic materials, unless otherwise indicated.
- Q. Salvage: To protect removed or dismantled items and deliver them to Owner.
- R. Stabilize: To provide structural reinforcement of unsafe or deteriorated items while maintaining the essential form as it exists at present; also, to reestablish a weather-resistant enclosure or to stabilize loose or detached original material in an effort to halt deterioration or future loss of historic material
- S. Strip: To remove existing finish down to base material, unless otherwise indicated.

1.5 MATERIALS OWNERSHIP

- A. Historic items, relics, and similar objects including, but not limited to, artifacts, commemorative plaques and tablets, antiques, and other items of interest or value to Owner that may be encountered during removal and dismantling work remain Owner's property. Carefully dismantle and salvage each item or object.
- B. Coordinate with Owner's representative, who will establish special procedures for dismantling and salvage.

1.6 SUBMITTALS

- A. Historic Treatment Qualifications: Submit documentation of past project experience that meet the work experience outlined in the RFP and specifications.**

1.7 REGULATORY REQUIREMENTS

- A. Comply with governing EPA notification regulations before beginning removal and dismantling work. Comply with hauling and disposal regulations of authorities having jurisdiction. The required research report and manufacturer's data shall be on site and used for reference.
 - 1. Conform to all safety guidelines
 - 2. For Cleaning: Comply with municipal and Federal regulations governing cleaning, chemical waste disposal, scaffolding and protection of adjacent surfaces.
- B. Standards: Comply with ANSI/ASSE A10.6.
- C. Comply with all OSHA regulations and safety guidelines for scaffolding and protection.

1.8 SITE PROTECTION

- A. Protect persons, surrounding surfaces of building, and building site from harm resulting from historic treatment procedures.
 - 1. Use only proven protection methods, appropriate to each area and surface being protected.
 - 2. Provide barricades, barriers, and temporary directional signage to exclude public from areas where historic treatment work is being performed.
 - 3. Contain dust and debris generated work and prevent it from reaching the public or adjacent surfaces.
 - 4. Protect floors and other surfaces along haul routes from damage, wear, and staining.
 - 5. Provide supplemental sound-control treatment to isolate work from other areas of the building.
 - 6. Provide protection against spreading water at or beyond the work area by sheeting and tarpaulins.
 - 7. Provide masking or covering on adjacent surfaces and permanent equipment. Secure coverings without the use of adhesive type tapes. Impervious sheeting which produces condensation should not be used.
- B. All necessary precautions shall be taken to protect all parts of the historic building not being repaired from the effects of the work, including excessive amounts of water that should not be allowed to pond in any areas.

1.9 PROJECT CONDITIONS

- A. General Size Limitation in Historic Spaces: Materials, products, and equipment used for performing the Work and for transporting debris, materials, and products shall be of sizes that clear surfaces within historic spaces, areas, rooms, and openings, including temporary protection, by 12 inches or more.
- B. Conditions existing at time of inspection for pricing purpose will be maintained by Owner as far as practical.
- C. If unanticipated asbestos is suspected, stop work in the area of potential hazard, shut off fans and other air handlers ventilating the area, and rope off area until the questionable material is identified. Re-assign workers to continue work in unaffected areas. Resume work in the area of concern after safe working conditions are verified.
- D. Do not change sources or brands of materials during the course of the work.
- E. Storage or sale of removed or dismantled items on-site is not permitted unless otherwise indicated.

1.10 GENERAL HISTORIC TREATMENT

- A. The principal aim of any work must be to halt the process of deterioration and stabilize the item's condition. Repair is a second option which becomes necessary only where preservation is not sufficient to ensure mid- to long-term survival. Repair should always be based on the fundamental principal of 'minimal disturbance'. Follow the procedures approved in the historic treatment program.
 - 1. Retain as much existing material as possible; repairing and consolidating rather than replacing.
 - 2. Use additional material or structure to reinforce, strengthen, prop, tie, and/or support existing material or structure.
 - 3. Use reversible processes wherever possible.
 - 4. Use of traditional materials and historically accurate repair and replacement techniques.
- B. Record existing work before each procedure (preconstruction) and progress during the work with digital preconstruction documentation photographs. Comply with requirements in Division 01 Section "Photographic Documentation."
- C. Ensure supervisory personnel are present when historic preservation treatment work begins and during its progress.
- D. Notify Architect of Record and Owner of visible changes in the integrity of material or components whether due to environmental causes including biological attack, UV degradation, freezing, or thawing; or due to structural defects including cracks, movements, or distortion.
- E. Owner's approval is required for any change, addition or removal of historic structural fabric or historic property.
- F. Where missing features are indicated to be repaired or replaced, provide features whose designs are based on accurate duplications rather than conjectural designs subject to the approval of the Owner and Architect.

- G. Where work requires existing features to be removed or dismantled and reinstalled, perform these operations without damage to the material itself, to adjacent materials, or to the substrate.

PART 2 - PRODUCTS

2.1 MATERIALS

- A. General: Comply with requirements specified in other Sections.
- B. In-Place Materials: Use materials for patching identical to in-place materials. For exposed surfaces, use materials that visually match in-place adjacent surfaces to the fullest extent possible.
 - 1. If identical materials are unavailable or cannot be used, use materials that, when installed, will provide a match acceptable to the Architect for the visual and functional performance of in-place materials.

PART 3 - EXECUTION (Not Used)

END OF SECTION 013591

SECTION 015000 - TEMPORARY FACILITIES AND CONTROLS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. Section includes requirements for temporary utilities, support facilities, and security and protection facilities.
- B. Related Requirements:
 - 1. Section 011000 "Summary" for work restrictions and limitations on utility interruptions.

1.3 USE CHARGES

- A. General: Installation and removal of and use charges for temporary facilities shall be included in the Contract Sum unless otherwise indicated. Allow other entities to use temporary services and facilities without cost, including, but not limited to, Architect, occupants of Project, testing agencies, and authorities having jurisdiction.
- B. Water and Sewer Service from Existing System: Water from Owner's existing water system is available for use without metering and without payment of use charges. Provide connections and extensions of services as required for construction operations.
- C. Electric Power Service from Existing System: Electric power from Owner's existing temporary source is available for use without metering and without payment of use charges. Provide connections and extensions of services as required for construction operations.

1.4 QUALITY ASSURANCE

- A. Tests and Inspections: Arrange for authorities having jurisdiction to test and inspect each temporary utility before use. Obtain required certifications and permits.

1.5 PROJECT CONDITIONS

- A. Temporary Use of Permanent Facilities: Engage Installer of each permanent service to assume responsibility for operation, maintenance, and protection of each permanent service during its use as a construction facility before Owner's acceptance, regardless of previously assigned responsibilities.

PART 2 - PRODUCTS

2.1 TEMPORARY FACILITIES

- A. **Field Offices, General:** Field Offices are not allowed on site.
- B. **Dumpster:** Dumpster, no larger than 15 tons is allowed to be placed directly behind the building. Th city does not have space adjacent to the building and will be using a corner of the parking lot owned by the neighboring church. Contractor footprint to remain as small as possible. Construction debris to be cleaned up nightly. Location of dumpster to be coordinated with owner prior to installation.
- C. **Sanitary Facilities:** Contractor to provide portalet. Portalet to be placed adjacent to dumpster. Location of portalet to be coordinated with owner prior to installation.
- D. **Storage:** Storage not available on site. Storage box permitted at 500 Carteret Street parking lot.

2.2 EQUIPMENT

- A. **Fire Extinguishers:** Portable, UL rated; with class and extinguishing agent as required by locations and classes of fire exposures.

PART 3 - EXECUTION

3.1 INSTALLATION, GENERAL

- A. Locate facilities where they will result in minimum interference with day to day operations of the arsenal and performance of the Work. Relocate and modify facilities as required by progress of the Work.

3.2 TEMPORARY UTILITY INSTALLATION

- A. **General:** Install temporary service or connect to existing service.
 - 1. Arrange with utility company, Owner, and existing users for time when service can be interrupted, if necessary, to make connections for temporary services.
- B. **Sewers and Drainage:** Provide temporary utilities to remove effluent lawfully. Provide a method to prevent solids such as stone, mortar, paint, residue from entering the drains and drain lines. Contractor shall be responsible for cleaning out drains and drain lines that become blocked or filled by sand or any other solids because of work performed under this contract.
- C. **Water Service:** Connect to Owner's existing water service facilities. Clean and maintain water service facilities in a condition acceptable to Owner. At Substantial Completion, restore these facilities to condition existing before initial use.
- D. **Sanitary Facilities:** Provide portalet.

- E. Heating and Cooling: Provide temporary heating and cooling required by construction activities for curing or drying of completed installations or for protecting installed construction from adverse effects of low temperatures or high humidity. Select equipment that will not have a harmful effect on completed installations or elements being installed.
- F. Electric Power Service: Connect to Owner's existing electric power service. Maintain equipment in a condition acceptable to Owner.
- G. Lighting: Provide temporary lighting that provides adequate illumination for construction operations, observations, inspections, and traffic conditions.
 - 1. Install and operate temporary lighting that fulfills security and protection requirements without operating entire system.

3.3 SUPPORT FACILITIES INSTALLATION

- A. Parking: 1 parking space provided for construction personnel. Additional parking can be provided in the 500 Carteret Street parking lot.
- B. Waste Disposal Facilities: Provide waste-collection container no larger than 15 tons. Comply with requirements of authorities having jurisdiction. All waste must be removed from site daily.

3.4 SECURITY AND PROTECTION FACILITIES INSTALLATION

- A. Protection of Existing Facilities: Protect existing vegetation, equipment, structures, utilities, and other improvements at Project site and on adjacent properties, except those indicated to be removed or altered. Repair damage to existing facilities.
- B. Environmental Protection: Provide protection, operate temporary facilities, and conduct construction as required to comply with environmental regulations and that minimize possible air, waterway, and subsoil contamination or pollution or other undesirable effects.
 - 1. Comply with work restrictions specified in Section 011000 "Summary."
- C. Barricades, Warning Signs, and Lights: Comply with requirements of authorities having jurisdiction for erecting structurally adequate barricades, including warning signs and lighting.
- D. Temporary Fire Protection:
 - 1. General: Develop and supervise an overall fire-prevention and protection program for personnel at Project site. Instruct personnel in methods and procedures. Post warnings and information.
 - a. Follow fire-prevention plan and the following.
 - b. Retain option Comply with NFPA 241 requirements unless otherwise indicated.
 - c. Remove and keep area free of combustibles including, rubbish, paper, waste, and chemicals, except to the degree necessary for the immediate work.
 - d. Prohibit smoking by all persons within the Project work and staging areas.
 - 2. Heat-Generating Equipment and Combustible Materials: Not allowed on site. Exception: Welding equipment for installation of internal gutters.
 - 3. Fire Extinguishers, Fire Blankets, and Rag Buckets: Maintain fire extinguishers, fire blankets, and rag buckets for disposal of rags with combustible liquids. Maintain each as suitable for the type of fire risk in each work area. Ensure that nearby personnel and the fire watch is trained in fire-extinguisher and blanket operation.

3.5 OPERATION, TERMINATION, AND REMOVAL

- A. Supervision: Enforce strict discipline in use of temporary facilities. To minimize waste and abuse, limit availability of temporary facilities to essential and intended uses.
- B. Maintenance: Maintain facilities in good operating condition until removal.
- C. Termination and Removal: Remove each temporary facility when need for its service has ended, when it has been replaced by authorized use of a permanent facility, or no later than Substantial Completion. Complete or, if necessary, restore permanent construction that may have been delayed because of interference with temporary facility. Repair damaged Work, clean exposed surfaces, and replace construction that cannot be satisfactorily repaired.
 - 1. Materials and facilities that constitute temporary facilities are property of Contractor. Owner reserves right to take possession of Project identification signs.
 - 2. At Substantial Completion, repair, renovate, and clean permanent facilities used during construction period. Comply with final cleaning requirements specified in Section 017700 "Closeout Procedures."

END OF SECTION 015000

SECTION 017700 - CLOSEOUT PROCEDURES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. Section includes administrative and procedural requirements for contract closeout, including, but not limited to, the following:
 - 1. Substantial Completion procedures.
 - 2. Final completion procedures.
 - 3. Warranties.
 - 4. Final cleaning.
 - 5. Repair of the Work.
- B. Related Requirements:
 - 1. Section 013233 "Photographic Documentation" for submitting final completion construction photographic documentation.
 - 2. Section 017839 "Project Record Documents" for submitting record Drawings, record Specifications, and record Product Data.

1.3 ACTION SUBMITTALS

- A. Product Data: For cleaning agents.
- B. Contractor's List of Incomplete Items: Initial submittal at Substantial Completion.
- C. Certified List of Incomplete Items: Final submittal at Final Completion.

1.4 CLOSEOUT SUBMITTALS

- A. Certificates of Release: From authorities having jurisdiction.
- B. Certificate of Insurance: For continuing coverage.

1.5 SUBSTANTIAL COMPLETION PROCEDURES

- A. Contractor's List of Incomplete Items: Prepare and submit a list of items to be completed and corrected (Contractor's punch list), indicating the value of each item on the list and reasons why the Work is incomplete.

- B. Submittals Prior to Substantial Completion: Complete the following a minimum of 10 days prior to requesting inspection for determining date of Substantial Completion. List items below that are incomplete at time of request.
1. Certificates of Release: Obtain and submit releases from authorities having jurisdiction permitting Owner unrestricted use of the Work and access to services and utilities. Include occupancy permits, operating certificates, and similar releases.
 2. Submit closeout submittals specified in other Division 01 Sections, including project record documents, operation and maintenance manuals, final completion construction photographic documentation, damage or settlement surveys, property surveys, and similar final record information.
 3. Submit closeout submittals specified in individual Sections, including specific warranties, workmanship bonds, maintenance service agreements, final certifications, and similar documents.
 4. Submit maintenance material submittals specified in individual Sections, including tools, spare parts, extra materials, and similar items, and deliver to location designated by Architect. Label with manufacturer's name and model number where applicable.
 - a. Schedule of Maintenance Material Items: Prepare and submit schedule of maintenance material submittal items, including name and quantity of each item and name and number of related Specification Section. Obtain Architect's signature for receipt of submittals.
 5. Submit changeover information related to Owner's occupancy, use, operation, and maintenance.
- C. Procedures Prior to Substantial Completion: Complete the following a minimum of 10 days prior to requesting inspection for determining date of Substantial Completion. List items below that are incomplete at time of request.
1. Advise Owner of pending insurance changeover requirements.
 2. Make final changeover of permanent locks and deliver keys to Owner. Advise Owner's personnel of changeover in security provisions.
 3. Complete startup and testing of systems and equipment.
 4. Perform preventive maintenance on equipment used prior to Substantial Completion.
 5. Instruct Owner's personnel in operation, adjustment, and maintenance of products, equipment, and systems.
 6. Advise Owner of changeover in heat and other utilities.
 7. Participate with Owner in conducting inspection and walkthrough with local emergency responders.
 8. Terminate and remove temporary facilities from Project site, along with mockups, construction tools, and similar elements.
 9. Complete final cleaning requirements, including touchup painting.
 10. Touch up and otherwise repair and restore marred exposed finishes to eliminate visual defects.
- D. Inspection: Submit a written request for inspection to determine Substantial Completion a minimum of 10 days prior to date the work will be completed and ready for final inspection and tests. On receipt of request, Architect will either proceed with inspection or notify Contractor of unfulfilled requirements. Architect will prepare the Certificate of Substantial Completion after inspection or will notify Contractor of items, either on Contractor's list or additional items identified by Architect, that must be completed or corrected before certificate will be issued.
1. Reinspection: Request reinspection when the Work identified in previous inspections as incomplete is completed or corrected.
 2. Results of completed inspection will form the basis of requirements for final completion.

1.6 FINAL COMPLETION PROCEDURES

- A. Submittals Prior to Final Completion: Before requesting final inspection for determining final completion, complete the following:
1. Submit a final Application for Payment according to Section 012900 "Payment Procedures." All closeout documents must be submitted before final payment will be processed.
 2. Certified List of Incomplete Items: Submit certified copy of Architect's Substantial Completion inspection list of items to be completed or corrected (punch list), endorsed and dated by Architect. Certified copy of the list shall state that each item has been completed or otherwise resolved for acceptance.
 3. Certificate of Insurance: Submit evidence of final, continuing insurance coverage complying with insurance requirements.
- B. Inspection: Submit a written request for final inspection to determine acceptance a minimum of 10 days prior to date the work will be completed and ready for final inspection and tests. On receipt of request, Architect will either proceed with inspection or notify Contractor of unfulfilled requirements. Architect will prepare a final Certificate for Payment after inspection or will notify Contractor of construction that must be completed or corrected before certificate will be issued.
1. Reinspection: Request reinspection when the Work identified in previous inspections as incomplete is completed or corrected.

1.7 LIST OF INCOMPLETE ITEMS (PUNCH LIST)

- A. Organization of List: Include name and identification of each space and area affected by construction operations for incomplete items and items needing correction including, if necessary, areas disturbed by Contractor that are outside the limits of construction.
1. Organize list of spaces in sequential order, starting with exterior areas first and proceeding from lowest floor to highest floor.
 2. Organize items applying to each space by major element, including categories for ceiling, individual walls, floors, equipment, and building systems.
 3. Include the following information at the top of each page:
 - a. Project name.
 - b. Date.
 - c. Name of Architect.
 - d. Name of Contractor.
 - e. Page number.
 4. Submit list of incomplete items in the following format:
 - a. PDF electronic file via online exchange.

1.8 SUBMITTAL OF PROJECT WARRANTIES

- A. Time of Submittal: Submit written warranties on request of Architect for designated portions of the Work where commencement of warranties other than date of Substantial Completion is indicated, or when delay in submittal of warranties might limit Owner's rights under warranty.
- B. Organize warranty documents into an orderly sequence based on the table of contents of Project Manual.
1. Bind warranties and bonds in heavy-duty, three-ring, vinyl-covered, loose-leaf binders, thickness as necessary to accommodate contents, and sized to receive 8-1/2-by-11-inch paper.
 2. Provide heavy paper dividers with plastic-covered tabs for each separate warranty. Mark tab to identify the product or installation. Provide a typed description of the product or

- installation, including the name of the product and the name, address, and telephone number of Installer.
3. Identify each binder on the front and spine with the typed or printed title "WARRANTIES," Project name, and name of Contractor.
 4. Warranty Electronic File: Scan warranties and bonds and assemble complete warranty and bond submittal package into a single indexed electronic PDF file with links enabling navigation to each item. Provide bookmarked table of contents at beginning of document. Submit via online exchange.

PART 2 - PRODUCTS

2.1 MATERIALS

- A. Cleaning Agents: Use cleaning materials and agents recommended by manufacturer or fabricator of the surface to be cleaned. Do not use cleaning agents that are potentially hazardous to health or property or that might damage finished surfaces.

PART 3 - EXECUTION

3.1 FINAL CLEANING

- A. General: Perform final cleaning. Conduct cleaning and waste-removal operations to comply with local laws and ordinances and Federal and local environmental and antipollution regulations.
- B. Cleaning: Employ experienced workers or professional cleaners for final cleaning. Clean each surface or unit to condition expected in an average commercial building cleaning and maintenance program. Comply with manufacturer's written instructions.
 1. Complete the following cleaning operations before requesting inspection for certification of Substantial Completion for entire Project or for a designated portion of Project:
 - a. Clean Project site, yard, and grounds, in areas disturbed by construction activities, including landscape development areas, of rubbish, waste material, litter, and other foreign substances.
 - b. Sweep paved areas broom clean. Remove petrochemical spills, stains, and other foreign deposits.
 - c. Remove tools, construction equipment, machinery, and surplus material from Project site.
 - d. Clean exposed exterior and interior hard-surfaced finishes to a dirt-free condition, free of stains, films, and similar foreign substances. Avoid disturbing natural weathering of exterior surfaces. Restore reflective surfaces to their original condition.
 - e. Remove debris and surface dust from limited access spaces, including roofs, plenums, shafts, trenches, equipment vaults, manholes, attics, and similar spaces.
 - f. Sweep concrete floors broom clean in unoccupied spaces.
 - g. Clean transparent materials, including glass in doors and windows. Remove glazing compounds and other noticeable, vision-obscuring materials. Polish glass, taking care not to scratch surfaces.
 - h. Remove labels that are not permanent.
 - i. Wipe surfaces of mechanical and electrical equipment and similar equipment. Remove excess lubrication, paint and mortar droppings, and other foreign substances.

- j. Clean light fixtures, lamps, globes, and reflectors to function with full efficiency.
- k. Leave Project clean and ready for occupancy.

3.2 REPAIR OF THE WORK

- A. Complete repair and restoration operations before requesting inspection for determination of Substantial Completion.
- B. Repair or remove and replace defective construction. Repairing includes replacing defective parts, refinishing damaged surfaces, touching up with matching materials, and properly adjusting operating equipment. Where damaged or worn items cannot be repaired or restored, provide replacements. Remove and replace operating components that cannot be repaired. Restore damaged construction and permanent facilities used during construction to specified condition.
 - 1. Touch up and otherwise repair and restore marred or exposed finishes and surfaces. Replace finishes and surfaces that that already show evidence of repair or restoration.

END OF SECTION 017700

SECTION 017839 - PROJECT RECORD DOCUMENTS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. Section includes administrative and procedural requirements for project record documents, including the following:
 - 1. Record Drawings.
 - 2. Record Specifications.
 - 3. Record Product Data.
 - 4. Miscellaneous record submittals.
- B. Related Requirements:
 - 1. Section 017700 "Closeout Procedures" for general closeout procedures.

1.3 CLOSEOUT SUBMITTALS

- A. Record Drawings: Comply with the following:
 - 1. Number of Copies: Submit copies of record Drawings as follows:
 - a. Initial Submittal:
 - 1) Submit PDF electronic files of scanned record prints.
 - 2) Architect will indicate whether general scope of changes, additional information recorded, and quality of drafting are acceptable.
 - b. Final Submittal:
 - 1) **Submit PDF electronic files of scanned record prints on thumb drive and two set(s) of prints.**
 - 2) Print each drawing, whether or not changes and additional information were recorded.
- B. 3-Ring binder with tabbed divisions Including the following:
 - 1. Record Specifications: **Submit annotated PDF electronic files of Project's Specifications, including addenda and contract modifications on thumb drive. Provide one printed copy for Owner.**
 - 2. Record Product Data: **Submit annotated PDF electronic files and directories of each submittal on thumb drive. Provide one printed copy for Owner.**

3. Miscellaneous Record Submittals: See other Specification Sections for miscellaneous record-keeping requirements and submittals in connection with various construction activities. **Submit annotated PDF electronic files and directories of each submittal on thumb drive. Provide one printed copy for Owner.**

PART 2 - PRODUCTS

2.1 RECORD DRAWINGS

- A. Record Prints: Maintain one set of marked-up paper copies of the Contract Drawings and Shop Drawings, incorporating new and revised drawings as modifications are issued.
 1. Preparation: Mark record prints to show the actual installation where installation varies from that shown originally. Require individual or entity who obtained record data, whether individual or entity is Installer, subcontractor, or similar entity, to provide information for preparation of corresponding marked-up record prints.
 - a. Give particular attention to information on concealed elements that would be difficult to identify or measure and record later.
 - b. Accurately record information in an acceptable drawing technique.
 - c. Record data as soon as possible after obtaining it.
 - d. Record and check the markup before enclosing concealed installations.
 - e. Cross-reference record prints to corresponding archive photographic documentation.
 2. Content: Types of items requiring marking include, but are not limited to, the following:
 - a. Dimensional changes to Drawings.
 - b. Revisions to details shown on Drawings.
 - c. Revisions to routing of piping and conduits.
 - d. Actual equipment locations.
 - e. Locations of concealed internal utilities.
 - f. Changes made by Change Order or Change Directive.
 - g. Details not on the original Contract Drawings.
 - h. Field records for variable and concealed conditions.
 - i. Record information on the Work that is shown only schematically.
 3. Mark the Contract Drawings and Shop Drawings completely and accurately. Use personnel proficient at recording graphic information in production of marked-up record prints.
 4. Mark record sets with red-colored pen. Use other colors to distinguish between changes for different categories of the Work at same location.
 5. Mark important additional information that was either shown schematically or omitted from original Drawings.
 6. Note Construction Change Directive numbers, alternate numbers, Change Order numbers, and similar identification, where applicable.
- B. Record Digital Data Files: Immediately before inspection for Certificate of Substantial Completion, review marked-up record prints with Architect. When authorized, scan a full set of record prints of the Contract Drawings, as follows:

1. Format: PDF electronic file with comment function enabled via email for initial review submittal.
- C. Format: Identify and date each record Drawing; include the designation "PROJECT RECORD DRAWING" in a prominent location.
1. Record Prints: Organize record prints and newly prepared record Drawings into manageable sets. Bind each set with durable paper cover sheets. Include identification on cover sheets.
 2. Format: Annotated PDF electronic file with comment function enabled via email. Provide **two** printed copies for Owner.
 3. Record Files: Organize digital data information into separate electronic files that correspond to each sheet of the Contract Drawings. Name each file with the sheet identification. Include identification in each digital data file.
 4. Identification: As follows:
 - a. Project name.
 - b. Date.
 - c. Designation "PROJECT RECORD DRAWINGS."
 - d. Name of Architect.
 - e. Name of Contractor.

2.2 RECORD SPECIFICATIONS

- A. Preparation: Mark Specifications to indicate the actual product installation where installation varies from that indicated in Specifications, addenda, and contract modifications.
1. Give particular attention to information on concealed products and installations that cannot be readily identified and recorded later.
 2. Mark copy with the proprietary name and model number of products, materials, and equipment furnished, including substitutions and product options selected.
 3. Record the name of manufacturer, supplier, Installer, and other information necessary to provide a record of selections made.
 4. For each principal product, indicate whether record Product Data has been submitted in operation and maintenance manuals instead of submitted as record Product Data.
 5. Note related Change Orders, record Product Data, and record Drawings where applicable.
- B. Format: Submit record Specifications as annotated PDF electronic file on thumb drive. Provide one printed copy for Owner.

2.3 RECORD PRODUCT DATA

- A. Preparation: Mark Product Data to indicate the actual product installation where installation varies substantially from that indicated in Product Data submittal.
1. Give particular attention to information on concealed products and installations that cannot be readily identified and recorded later.
 2. Include significant changes in the product delivered to Project site and changes in manufacturer's written instructions for installation.
 3. Note related Change Orders, record Specifications, and record Drawings where applicable.

- B. Format: Submit record Product Data as annotated PDF electronic file on thumb drive. Provide one printed copy for Owner.
- C. Include record Product Data directory organized by Specification Section number and title, electronically linked to each item of record Product Data.

2.4 MISCELLANEOUS RECORD SUBMITTALS

- A. Assemble miscellaneous records required by other Specification Sections for miscellaneous record keeping and submittal in connection with actual performance of the Work. Bind or file miscellaneous records and identify each, ready for continued use and reference.
- B. Format: Submit miscellaneous record submittals as PDF electronic file on thumb drive. Provide one printed copy for Owner.
 - 1. Include miscellaneous record submittals directory organized by Specification Section number and title, electronically linked to each item of miscellaneous record submittals.

PART 3 - EXECUTION

3.1 RECORDING AND MAINTENANCE

- A. Recording: Maintain one copy of each submittal during the construction period for project record document purposes. Post changes and revisions to project record documents as they occur; do not wait until end of Project.
- B. Maintenance of Record Documents and Samples: Store record documents and Samples in the apart from the Contract Documents used for construction. Do not use project record documents for construction purposes. Maintain record documents in good order and in a clean, dry, legible condition, protected from deterioration and loss. Provide access to project record documents for Architect's reference during normal working hours.

END OF SECTION 017839

SECTION 040513 – MORTARS FOR STRUCTURAL REPAIRS AND REPOINTING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.
- B. Section 013591: Historic Treatment Procedures
- C. Codes and Standards set forth by:
 - 1. Preservation Brief #1, "The Cleaning and Waterproof Coating of Masonry Buildings" as published by the US National Park Service.
 - 2. Preservation Brief #2, "Repointing Mortar Joints in Historic Buildings" as published by the U. S. National Park Service.
 - 3. Brick Institute of America Applied Standards

1.2 SUMMARY

- A. Work includes, all labor, materials, equipment, and services necessary to complete the work of repointing mortars as shown in the Drawings, and as specified herein, and as may be required by conditions and authorities having jurisdiction, including, but is not necessarily limited to, the following:
 - 1. Repointing of historic brick masonry substrate adjacent to new flashings and to provide watertight assembly at all roofs.
 - a. Contactor is responsible for repairing brick and mortar damage caused by contractor during the process of work.
 - 2. Repoint brick and cast stone as required to stop leak at rear elevation (leak at conference room wall).
 - 3. Repoint brick and cast stone as required in all areas of work. Masonry in areas of work to be repointed where missing or damaged.
- B. Related Sections:
 - 1. Section 013591 "Historic Treatment Procedures".

1.3 SCOPE

- A. Provide all labor and materials to repair and restore masonry elements as specified herein and as detailed on the Drawings.

1.4 SUBMITTALS

- 1. Contractor Qualifications: Submit documentation of contractor's past project experience that meets the work experience outlined in the specification. Provide references for a minimum of two (2) projects completed in the last five years, including contact names and phone numbers.

2. Supervisor and Lead Tradesman Qualifications: Submit resume for supervisor/lead mason. Must have a minimum of five (5) years demonstrated experience repointing historic structures.
3. Product Data: For each type of product indicated, include material descriptions and all product labels for each product used. Include all MSDS and Material Specifications for all products used.
4. Contractor to mark areas of wall requiring mortar replacement and obtain Owner and Architect approval prior to starting work.

1.5 PROJECT CONDITIONS

- A. The Contractor is responsible for protecting existing adjacent materials and surfaces during the execution of the work and shall provide all necessary protection and follow all necessary work procedures to avoid damage to existing material assemblies not a part of the work in the Section.
- B. The Contractor shall provide visible barriers and / or warning tape around the perimeter of the work area for visitor protection and shall also provide that nearby vehicles and adjacent structures will be protected from damage during the course of the work.
- C. The Contractor shall coordinate masonry repointing with the other trades involved in exterior restoration work.

1.6 ENVIRONMENTAL CONDITIONS

- A. General: Perform work only when temperature of products being used, and air temperature and humidity comply with the manufacturer's requirements and requirements of this Section. In case of conflict, the most stringent requirements shall govern.
- B. Take precautionary measures necessary to assure that excessive temperature changes do not occur.
- C. General Weather Limitations: If masonry work must be done when ambient temperature is freezing, or below, all masonry material must be at temperature between 50 degrees Fahrenheit and 85 degrees Fahrenheit, and the mortar, when used, shall have a temperature between 60- and 80-degrees Fahrenheit. In addition, all masonry shall be protected from temperatures below 40 degrees Fahrenheit for at least 24 hours after being laid. Heat for heating materials and heated temporary enclosures will be provided by Contractor.
- D. Hot Weather Limitations: Protect fresh mortar from rapid drying when temperature, humidity, and wind conditions might cause rapid drying of mortar.
 1. If ambient the air temperature exceeds 85 deg F or exceeds 80 deg F with a wind velocity greater than 8mph, flush mixer, transport container, and boards with cool water before they come into contact with the mortar ingredients. Maintain temperature of mortar below 120 deg F and use fresh mortar within the open time outlined by the manufacturer.
 2. Limit spread of beds to 4ft when temperatures exceeds 85 deg F or exceeds 80 deg F with a wind velocity greater than 8mph
- E. Antifreeze admixtures will not be allowed in the mortar. No frozen work shall be built upon. No masonry unit having a film of frost on its surface shall be installed in the work. Any completed work found to be affected by frost shall be taken down and rebuilt.

1.7 QUALITY ASSURANCE

- A. This structure is an historic building. The mortar work on this project is critical to the satisfactory execution of the work.
 - 1. Work Experience:
 - a. Contractor must have a minimum of five (5) years demonstrated experience working on projects of similar scope. Contractor to have a working knowledge of the Secretary of the Interior's Standards for Treatment of Historic Properties.
 - b. Supervisor and/or lead mason must have a minimum of five (5) years demonstrated experience repointing historic structures.
 - 1) Experience only in new mortar work is insufficient experience for work.
 - 2) Site supervisor and/or lead mason cannot be changed without approval by the Owner and Architect.
- B. Source of materials: The Contractor shall not change sources or manufacturers of mortar materials during the course of the work.

1.8 DELIVERY, STORAGE, AND HANDLING

- A. Deliver materials to site and store in manufacturer's original unopened containers and packaging, bearing labels as to type and names of products and manufacturers, and which shall show grade, batch, and production data.
- B. Deliver, store, and handle all products and materials to prevent damage, deterioration, or degradation and intrusion of foreign materials.
- C. Storage and Protection: All materials must be protected from rainwater and ground moisture, and from staining or intermixture with earth or other types of materials.
 - 1. Sand
 - a. Maintain sand at constant moisture content.
 - b. Cover pile when not in use
 - c. Arrange pile for free drainage.
 - d. Do not use bottom portion of pile (wet or in contact with earth) in mortar
 - 2. Lime
 - a. Do not tarp or wrap materials so as to trap moisture or permit condensation to form
 - b. Allow air to circulate freely around units.
 - c. Do not use bags that have been broken or exposed to moisture.
 - 3. Discard and remove from site deteriorated, contaminated materials, and products that have exceeded their restoration dates. Replace with fresh materials.
 - 4. The contractor becomes responsible for the product at the time it is received.
- D. Laws, Codes, and Regulations: Work of this Section shall comply with all applicable federal, state, and local laws, codes, and regulations.

PART 2 - PRODUCTS

2.1 MATERIALS, GENERAL

- A. Brick: Replacement brick shall match existing in size, shape, color, and texture. Replacement brick shall be approved by Owner and Architect.

- B. Grade and Quality: Lime and aggregate shall conform to the requirements of this Section and shall be new, free from defects and of recent manufacture in date.
- C. Prohibited materials: the following materials are strictly prohibited in all mortar specified in this section.
 - 1. Antifreeze compounds or other admixtures
 - 2. Air entraining agents
- D. Portland Based Mortar
 - 1. Portland Cement: ASTM C 150, Type 1
 - 2. Lime: Shall conform to ASTM C207, Type S hydrated lime.
 - 3. Aggregate: Shall be a variable graded (coarse to fine) washed sand matching the texture and range of sizes found in the original mortar. Natural or manufactured sharp sand, with at least four grades of sand forming a substantial part of the sand and no more than 1% of the particles smaller than grade 200. Clean, well-graded, sharp, angular crushed aggregate complying with the requirements for deleterious substances and soundness of ASTM C 144. Sand aggregate shall have a nominal top size of 2.38mm (No. 8 US sieve) with over 75% of the material having a diameter between 1mm (No. 16 US sieve) and 0.297mm (No. 50 US sieve).
 - 4. Water: Shall be clean and free of acids, Alkalis or organic materials. If water must be transported or stored in a container, the container must not impart any chemicals to the water.

2.2 MORTAR MIXES

- A. Repointing Mortar
 - 1. Option 1
 - a. 1 Part portland cement
 - b. 1/2 Part lime
 - c. 4-4 1/2 Parts aggregate
 - 2. Option 2
 - a. Type S Masonry Cement mixed with sand according to the manufacturer's recommendations.

PART 3 - EXECUTION

3.1 PREPARATION

- A. Contractor to mark areas of wall requiring mortar replacement and obtain Owner and Architect approval prior to starting work.
- B. On exposed masonry, remove all deteriorated mortar by hand with a chisel and mallet. Do not use power tools unless approved by Owner and Architect. Chisels are to be the appropriate size to fit cleanly into mortar joints without damage to surrounding surfaces.
 - 1. Rake joints to a depth of 1.5 times the mortar joint width or to sound mortar.
- C. Brush, vacuum, or flush joints to remove all dirt and loose debris. Loose or disintegrated mortar beyond the minimum depth shall be removed.

- D. Removal of the mortar shall be done in a manner that does not score, chip, or otherwise damage masonry units or adjacent elements. Mortar should be removed cleanly from the masonry units, leaving square corners at the back of the cut.
- E. Use a hand chisel to finish joints adjacent to wood to avoid damage to frames and trim.
- F. Provide temporary support where necessary to prevent displacement during repointing and until mortar has achieved sufficient strength.

3.2 MIXING

- A. All ingredients shall be measured by volume using pre-established uniform measure, rather than a less uniform measure such as a shovel.
- B. Dry mix all dry materials
- C. Mortar shall be mixed in an approved power operated batch mixer. Mixing time shall be such as to produce a homogenous plastic mortar but shall not be less than five minutes; approximately two minutes of which shall be for mixing the dry materials and not less than three minutes for continuing the mixing after water has been added.
- D. A minimum amount of water shall be used to produce a workable consistency for the mortar's intended purpose.
- E. Mortar for repointing shall be as dry a consistency as will produce a mortar sufficiently plastic to be worked into the joints and to hang onto a trowel. Record the amount of water used so that it may serve as a guide for future batches.
- F. Mortar shall be placed in final position within the open time outlined by the manufacturer. Non-factory bagged mortars shall be placed in final position within 2 ½ hours. Re-tempering of hardened material shall not be permitted.

3.3 INSTALLATION

- A. Repointing of Exterior Walls & Repair of Cracks in Mortar Joints
 1. Use only clean tools and equipment, free from hardened or partially hardened materials.
 2. Dampen masonry prior to repointing to reduce suction of water from the mortar and shrinkage cracks. Do not fully saturate masonry.
 3. Maintain hand mister bottles or a garden sprayer with clean, clear, potable water immediately available to masons at all times during the repointing process. A very low-pressure spray (garden hose with nozzle adjusted to a fine, low-volume mist) may be used over large areas providing erosion of joints is prevented.
 4. Pack joints with new mortar leaving no voids. Match existing depth of sound mortar. Care shall be taken not to over pack joints.
 5. Use and place mortar in final position within the open time outlined in section 3.2. Do not re-temper or use material that has partially set, is caked or is lumpy.
 6. Finish joints uniformly. Do not overwork. Leave the surface of the masonry clean.
 7. New mortar shall match the color and texture of the original mortar as close as practical. Match aggregate to the original in content, color and gradation. The color of the new mortar ideally should be achieved through the color and texture of the sand only.

8. Remove any portion of the work that does not comply with the specification and replace with proper materials and install in compliance with these specifications at no additional cost to the Owner and Architect.

3.4 CURING

- A. Curing:
 1. Protect completed work from adverse weather, heavy rainfall, freezing, and drying by direct sunlight and winds until cured.
 2. If ambient the air temperature exceeds 100 deg F or exceeds 90 deg F with a wind velocity greater than 8mph, fog spray all newly applied mortar until damp, a minimum of three times a day for 1 day following application.
 3. Shield from direct sun and drying winds for the first 24 hours after installation.

3.5 CLEAN UP

- A. Maintain clean surfaces on the face, sills, ledges, and projections of masonry on a daily basis.
- B. With a trowel, strike off minor dabs of adherent mortar from face of masonry.
- C. Remove minor mortar marks from masonry by misting with water and brushing with a small, stiff-bristle brush.

SECTION 061000 - ROUGH CARPENTRY

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

This Section includes the following:

1. Wood blocking, cants, and nailers.
2. Roof sheathing material.
3. Miscellaneous wood.

1.3 RELATED SECTIONS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.
- B. Section 070150.19 "Preparation for Reroofing".

1.4 REFERENCES

- A. PS 1 - Construction and Industrial Plywood; National Institute of Standards and Technology (Department of Commerce); 2007.
- B. PS 20 American Softwood Lumber Standard; National Institute of Standards and Technology (Department of Commerce); 1994.
- C. SPIB (GR) – Standard Grading Rules for Southern Pine Lumber; Southern Pine Inspection Bureau, Inc.; 1994.
- D. APA PRP-108 - Performance Standards and Policies for Structural-Use Panels; 2002.

1.5 DEFINITIONS

- A. Dimension Lumber: Lumber of 2 inches nominal or greater.
- B. Lumber grading agencies, and the abbreviations used to reference them, include the following:
 1. NeLMA: Northeastern Lumber Manufacturers' Association.
 2. NLGA: National Lumber Grades Authority.
 3. SPIB: The Southern Pine Inspection Bureau.
 4. WCLIB: West Coast Lumber Inspection Bureau.
 5. WWPAA: Western Wood Products Association.

- C. Rough Carpentry: Carpentry work not specified in other Sections and not exposed, unless otherwise specified.

1.6 SUBMITTALS

- A. Product Data: For each type of process and factory-fabricated product. Indicate component materials and dimensions and include construction and application details.

1.7 QUALITY ASSURANCE

- A. Quality of Materials and Workmanship: Provide woodwork that complies with requirements of "Architectural Woodwork Quality Standards," published by Architectural Woodwork Institute (AWI) (hereinafter referred to as "woodworking standard").
- B. Where contract documents indicate deviations from the woodworking standard, the contract documents shall govern.
- C. Installer:
 - 1. Maintain throughout duration of the work a crew who is fully qualified to satisfy requirements of the specifications.
 - 2. Maintain throughout the duration of the work a qualified superintendent.
- D. Lumber: Comply with PS 20 and approved grading rules and inspection agencies.
 - 1. Acceptable Inspection Agencies: SPIB - Southern Pine Inspection Bureau.

1.8 DELIVERY, STORAGE, AND HANDLING

- A. Protect wood against moisture and dimensional changes. Support stacks at several uniformly spaced points to prevent deformation. Store stacks raised above ground. Cover to protect from rain and snow. Select and arrange cover to allow air circulation under and all around stacks to prevent condensation. Remove from the site any wood products that have been subjected to moisture or that do not comply with the specified moisture requirements. Stack lumber, plywood, and other panels.
 - 1. Protect all lumber from rain, fog, snow, dew, and all other forms of moisture that may alter moisture content above specified requirements. The moisture content of lumber and plywood may be checked in the field with a reliable moisture meter.
 - 2. For lumber and plywood pressure treated with waterborne chemicals, place spacers between each bundle to provide air circulation.

1.9 PROJECT CONDITIONS

- A. Fit woodwork to actual construction. Take field measurements before fabricating woodwork.
- B. Coordinate installation of woodwork with other work to avoid damage.

PART 2 - PRODUCTS

2.1 WOOD PRODUCTS, GENERAL

- A. Lumber: Comply with DOC PS 20, "American Softwood Lumber Standard." and with applicable rules of inspection grading agencies certified by ALSC's Board of Review.
1. Where nominal sizes are indicated, provide actual sizes required by DOC PS 20 for moisture content specified. Where actual sizes are indicated, they are minimum dressed sizes for dry lumber.
 2. Provide dressed lumber, S4S, unless otherwise indicated.
 3. Maximum moisture content: Provide kiln-dried lumber with a maximum moisture content between 6 and 11 percent. Maintain temperature and relative humidity during fabrication, storage and finishing operation so that moisture content values for wood at the time of installation do not exceed the above range.
 4. Additional Restriction: Free of heart centers.
 5. Texture: Smooth, flat, tight grain surface that will not telegraph grain through painted finish. Solid lumber stock, finger joints not acceptable. All wood and lumber shall be sound, properly seasoned, and dry and be straight, flat and true, free of twists, warps, bends, racking, knots, sap, splinters, cracks, nicks, gouges, and bark. Edges and sides shall be uniform in dimension and shape with no signs of bark removal.
 6. Grade Stamps:
 - a. Provide lumber with each piece factory marked with grade stamp of inspection agency evidencing compliance with grading rule requirements and identifying grading agency, grade, species, moisture content at time of surfacing, and mill.
 - b. For exposed lumber, furnish pieces with grade stamps applied to ends or back of each piece, or omit grade stamps and provide grade-compliance certificates issued by inspection agency.

2.2 DIMENSION LUMBER

- A. General: Provide dimension lumber of grades indicated according to the ALSC National Grading Rule (NGR) provisions of the inspection agency indicated.
- B. For items of dimension lumber size, provide grade lumber of the following species for locations indicated on the structural drawings:
1. Species: Southern pine; SPIB.
 2. Grade: Non-Dense Select Structural, Select Structural or Dense Select Structural, No. 1 grade for locations as indicated on the drawings.
 3. Maximum moisture content for untreated lumber: 6 to 11 percent.
 4. Additional Restriction: Free of heart centers.

2.3 MISCELLANEOUS LUMBER

- A. General:
1. Provide lumber of grades indicated according to the ALSC National Grading Rule (NGR) provisions of the inspection agency indicated.
 2. Provide lumber for support or attachment of other construction, including cant strips, bucks, nailers, blocking, furring, grounds, stripping, and similar members.
 3. Fabricate miscellaneous lumber from dimension lumber of sizes indicated and into shapes shown.

- B. For items miscellaneous, provide grade lumber of the following species:
 - 1. Species: Southern pine; SPIB.
 - 2. Grade: Non-Dense Select Structural, Select Structural or Dense Select Structural, No. 1 grade for locations as indicated on the drawings.
 - 3. Maximum moisture content for untreated lumber: 6 to 11 percent.
 - 4. Additional Restriction: Free of heart centers.

2.4 WOOD PRESERVATIVE-TREATED LUMBER

- A. Preservative Treatment by Pressure Process: AWWPA U1; Use Category UC2 for interior construction not in contact with the ground or masonry, Use Category UC3b for exterior construction not in contact with the ground or masonry, and Use Category UC4a for items in contact with the ground or masonry.
 - 1. Preservative Chemicals: Acceptable to authorities having jurisdiction and containing no arsenic or chromium.
- B. Drying requirements:
 - 1. Prior to sizing and pressure treating lumber, dry to 19 percent.
 - 2. After treatment, kiln-dry lumber and plywood to a maximum moisture content, as follows:
 - a. Lumber: 19 percent
 - b. Plywood: 15 percent.
 - 3. Do not use material that is warped or that does not comply with requirements for untreated material. Use in locations as indicated on the drawings.
- C. Mark lumber with treatment quality mark of an inspection agency approved by the ALSC Board of Review.
- D. Obtain lumber only from true lumber yards that specialize in lumber and wood building materials and that are capable of kiln-drying lumber that meets these drying requirements or can provide such lumber.
- E. Application: Treat items indicated on Drawings, and the following:
 - 1. Wood cants, nailers, curbs, equipment support bases, blocking, stripping, and similar members in connection with roofing, flashing, vapor barriers, and waterproofing.
 - 2. Wood sills, sleepers, blocking, furring, stripping, framing, supporting members, and similar concealed members in contact with masonry or concrete.
 - 3. Wood supporting members used in the construction of suspended decks or porch decks, moist or humid air, or enclosed construction that is exterior to the building envelope.
 - 4. Wood framing members less than 40 inches above grade.
 - 5. Wood floor plates that are installed over concrete slabs directly in contact with earth.
- F. Retention Rates
 - 1. for lumber treated with ACQ: 0.40 pcf
 - 2. for lumber treated with CA-B: 0.21 pcf
 - 3. for lumber treated with CBA-A: 0.41 pcf
 - 4. for lumber treated with CA-C: 0.15 pcf
 - 5. for lumber treated with μ CA-C: 0.15 pcf

- G. Complete fabrication of treated items before treatment, where possible. If cut, drilled, or scratched, or otherwise abraded after treatment, apply field treatment complying with AWWA M4 to cut surfaces. Inspect each piece of lumber or plywood after drying and discard damaged or defective pieces.

2.5 PLYWOOD, GENERAL

- A. Structural composite lumber made from wood veneers with grain primarily parallel to member lengths, evaluated and monitored according to ASTM D5456 and manufactured with an exterior-type adhesive complying with ASTM D2559 and containing no urea formaldehyde.
- B. Provide plywood panels complying with DOC PS 1, "U.S. Product Standard for Construction and Industrial Plywood," where plywood is indicated. Factory mark structural-use panels with APA trademark evidencing compliance with grade requirements. Certification: Provide certification that plywood, untreated with fire-retardant, meets Standard Building Code Congress requirements for a flame spread of 200 or less (Class C) when tested in accordance with ASTM E84.

2.6 WOOD SHEATHING

- A. Roof Sheathing (existing main roof):
 - 1. Existing Decking: 1 x pine boards of varying widths
 - 2. Thickness: 1 inch actual
- B. Roof Sheathing (existing addition roof):
 - 1. APA rated sheathing, Exposure: 1. Comply with PS1.
 - 2. Span Rating: 48/24 minimum span rating.
 - 3. Thickness: $\frac{3}{4}$ " (unconfirmed)
- C. Thicknesses: Where nominal thicknesses are indicated, provide actual thickness to match existing, providing other project requirements such as grade, span rating, exposure, etc., are met:
 - 1. 1/2 inch nominal: 7/16, 15/32, or 1/2 inch actual.
 - 2. 5/8 inch nominal: 19/32, 5/8, or 21/32 inch actual.
 - 3. 3/4 inch nominal: 11/16 or 3/4 actual.
 - 4. 1 inch nominal: 1 inch actual.
 - 5. 1-1/8 inch nominal: 1-1/8 inch actual.
 - 6. 1-1/4 inch nominal: 1-1/4 inch actual.

2.7 FASTENERS

- A. General:
 - 1. All wood fastenings shall be per IBC Table 2304.9.1 "Fastening Schedule" unless noted otherwise.
 - 2. Provide fasteners of size and type indicated that comply with requirements specified in this Article for material and manufacture for locations indicated on drawings.
 - 3. Where rough carpentry is exposed to weather, in ground contact, or in area of high relative humidity, provide stainless steel fasteners of Type 304, 304L, 316 or 316L, unless otherwise indicated.
 - 4. All steel fasteners in contact with pressure-preservative treated wood shall be stainless steel Type 304, 304L, 316 or 316L, unless otherwise indicated.

- B. Nails, Wire, Brads, and Staples: ASTM F 1667. Nails shall be of the thickness required to penetrate 2/3 of the substrate.
- C. Power-Driven Fasteners: NES NER-272.
- D. Wood Screws: ANSI/ASME B18.6.1 and shall be of sufficient length to penetrate backing material a minimum of one inch.
- E. Bolts and Nuts: Shall meet ASTM A307, grade A, with, ASTM A563 with hex nuts, where indicated on drawings, flat washers.
- F. Lag Bolts: ANSI/ASME B18.2.1.
- G. Machine Screws: ANSI/ASME B18.6.3.
- H. Plain Washers: Round, carbon steel, ANSI/ASME B18.22.1.
- I. Lock Washers: Helical, spring type, carbon steel, ANSI/ASME B18.21.1.
- J. Toggle Bolts: FS FF-B-588, tumble-wing type, class and style as required.
- K. Spacing: See Drawings.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Verification of Conditions:
 - 1. Thoroughly examine and document existing conditions prior to beginning successive phases of Work.
 - 2. Note locations on drawings where examination of members and confirmation of deterioration by Engineer or Architect is required before replacement.

3.2 DISASSEMBLY

- A. Disassemble all associated elements as required.
- B. Remove architectural millwork by cutting through shaft of nail fasteners. Do not pull nails through; this will damage millwork. Use hacksaw blades mounted on handles intended for that purpose.

3.3 INSTALLATION, GENERAL

- A. Remove miscellaneous hardware, nails, etc., from all existing woodwork.
- B. Set rough carpentry to required levels and lines, with members plumb, true to line, cut, and fitted.
- C. Apply field treatment complying with AWWPA M4 to cut or abraded surfaces of preservative-treated lumber and plywood.

- D. Fit rough carpentry to other construction; scribe and cope as needed for accurate fit. Locate nailers, blocking, and similar supports to comply with requirements for attaching other construction.
- E. Provide blocking and framing as indicated and as required to support facing materials, fixtures, specialty items, and trim
- F. Framing Standard: Comply with AF&PA's WCD 1, "Details for Conventional Wood Frame Construction," unless otherwise indicated.
- G. Sort and select lumber so that natural characteristics will not interfere with installation or with fastening other materials to lumber. Do not use materials with defects that interfere with function of member or pieces that are too small to use with minimum number of joints or optimum joint arrangement.
- H. Discard units of material with defects that impair quality of rough carpentry and that are too small to use with minimum number of joints or optimum joint arrangement.
- I. Comply with AWWA M4 for applying field treatment to cut surfaces of preservative treated lumber.
 - 1. Use inorganic boron for items that are continuously protected from liquid water.
 - 2. Use copper naphthenate for items not continuously protected from liquid.
- J. Securely attach rough carpentry work to substrate by anchoring and fastening as indicated on drawings, if not otherwise noted comply with the following:
 - 1. Table 2304.9.1, "Fastening Schedule," in ICC's International Building Code.
- K. Use common wire nails, unless otherwise indicated. Select fasteners of size that will not fully penetrate members where opposite side will be exposed to view or will receive finish materials. Make tight connections between members. Install fasteners without splitting wood; do not countersink nail heads, unless otherwise indicated.
- L. Countersink nail heads on exposed carpentry work and fill holes with wood filler.
- M. For exposed work, arrange fasteners in straight rows parallel with edges of members, with fasteners evenly spaced, and with adjacent rows staggered.
 - 1. Comply with indicated or approved fastener patterns where applicable. Before fastening, mark fastener locations, using a template made of sheet metal, plastic, or cardboard.
 - 2. Use finishing nails, unless otherwise indicated. Countersink nail heads and fill holes with wood filler. Indicate locations of other fasteners, such as wood screws, bolts, and lag screws, on Drawings.
- N. Pre-drill members when necessary to avoid splitting wood.
- O. Back Priming: For all wood materials scheduled to be painted, including treated wood, back prime, including all edges and concealed surfaces, prior to installation. Apply primer to the same specifications as for the exposed surfaces. Treat all cut edges, end cuts, and disturbed surfaces the same way. Wood items shall be completely encapsulated with primer. Installed items not back-primed shall be removed, properly primed, and reinstalled at the Contractor's expense. Damaged materials shall be replaced. This provision applies to both interior and exterior installations.

3.4 WOOD STRUCTURAL PANEL INSTALLATION

- A. General: Comply with applicable recommendations in APA Form No. E30, "Engineered Wood Construction Guide," for types of structural-use panels and applications indicated.
- B. Fastening Methods: Fasten panels as indicated below:
 - 1. Roof Sheathing:
 - a. Nail to wood framing. Apply a continuous bead of glue to framing members at edges of wall sheathing panels (where framing is exposed).
 - b. Space panels 1/8 inch apart at edges and ends.

END OF SECTION 061000

SECTION 062000 – EXTERIOR FINISH CARPENTRY

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.
- B. Section 013959: Historic Treatment Procedures.
- C. Section 099000: Architectural Coatings.
- D. Codes and standards set forth by:
 - 1. Quality Standard: Architectural Woodwork Institute's "Architectural Woodwork Quality Standards."
 - 2. Preservation Brief #45 "Preserving Historic Wooden Porches" as published by the U.S. National Park Service
 - 3. Architectural Woodwork Institute: AWI Quality Standards Illustrated

1.2 SUMMARY

- A. This project involves the rehabilitation of an historic building. Treat the building respectfully. Carefully inspect existing conditions and treat existing materials as irreplaceable. Do not remove, alter or disfigure any existing materials, elements or finishes, unless indicated on the Drawings, specified herein, or directed by the Architect.
- B. Work includes, but is not necessarily limited to, the following:
 - 1. All exterior finish carpentry to be restored.
 - a. Repair of deteriorated wooden elements.
 - b. Sealing of penetrations.
 - c. Replacement of specified features as chosen by the Architect.
 - d. Exterior wood trim.
 - e. Exterior cornice and entablature.
 - f. Soffit at cornice.

1.3 SCOPE

- A. Provide finish carpentry items as illustrated in drawings, as specified, or as required to support finished work.

1.4 PROJECT CONDITIONS

- A. Keep carpentry materials dry during delivery. Store lumber and plywood in stacks with provision for air condition through stacks. Protect bottom of stacks against contact with damp or wet surfaces. Protect exposed materials against weather.
- B. Do not store dressed or treated lumber or plywood outdoors. Store materials for which a maximum moisture content is specified, only in areas where relative humidity has been reduced

to a level where specified moisture content can be maintained with a tolerance of plus or minus 1%.

- C. Protect installed work from damage by work of other trades until Architect's acceptance of work. Adhere to required protection procedures.

- 1. Presence of mildew or dry rot on any wood surface will be grounds for rejection

1.5 ENVIRONMENTAL CONDITIONS

- A. Weather Limitations for Exterior Work: Proceed with installation of exterior wood trim only when existing and forecasted weather conditions permit work to be performed and at least one coat of specified finish to be applied without exposure to rain, snow, or dampness.

1.6 QUALITY ASSURANCE

- A. For installation of architectural woodwork and finished carpentry items, employ only tradesmen with a minimum of five years of experience in the fabrication and installation of architectural woodwork.

- B. Action Submittals:

- 1. Product Data: For each type of process and factory-fabricated product. Indicate component materials and dimensions and include construction and application details.

1.7 DELIVERY, STORAGE, AND HANDLING

- A. It is the joint responsibility of the woodwork manufacturer and the Contractor to make certain that woodwork is not delivered until the building and storage areas are sufficiently dry and complete so that the woodwork will not be damaged. The Contractor will replace defective or damaged materials at no cost to the Own
- B. Stack lumber flat with spacers beneath and between each bundle to provide air circulation. Protect lumber from weather by covering with waterproof sheeting, securely anchored. Provide for air circulation around stacks and under coverings.
- C. Protect all finished surfaces after installation and finishing from damage and soiling. Maintain protection during subsequent work operations and remove same upon Architect's acceptance or when instructed by Architect.

PART 2 - PRODUCTS

2.1 MATERIALS, GENERAL

- A. Use lumber bearing the official trademark and grade of the manufacturer's association or inspection bureau under which it was manufactured and graded, except as specified otherwise herein. Use seasoned lumber, surfaced four sides and kiln or air dried to moisture content specified in association's rules, except that moisture content is limited to a maximum of 11 percent.

- B. STANDARDS: American Softwood Lumber Standard PS20 American Plywood Association, American Wood Preservers Bureau Standards. AWI Architectural Woodwork Quality Standards.
- C. Lumber: DOC PS 20 and the following grading rules:
 1. NeLMA: Northeastern Lumber Manufacturers' Association, "Standard Grading Rules for Northeastern Lumber."
 2. NLGA: National Lumber Grades Authority, "Standard Grading Rules for Canadian Lumber."
 3. SPIB: The Southern Pine Inspection Bureau, "Standard Grading Rules for Southern Pine Lumber."
- D. Factory mark each piece of lumber with grade stamp of inspection agency indicating grade, species, moisture content at time of surfacing, and mill.
 1. For exposed lumber, mark grade stamp on end or back of each piece, or omit grade stamp and provide certificates of grade compliance issued by inspection agency.
- E. Reclaimed & Salvaged Historic Elements: Located on-site in the stored material.

2.2 WOOD-PRESERVATIVE TREATED MATERIALS

- A. Water-Repellent Preservative Treatment by Non-pressure Process: AWWA N1; dip, spray, flood, or vacuum-pressure treatment.
 1. Preservative Chemicals: 3-iodo-2-propynyl butyl carbamate (IPBC).
 2. Use chemical formulations that do not bleed through or otherwise adversely affect finishes. Do not use colorants in solution to distinguish treated material from untreated material.
 3. Application: Exterior trim and wood siding.
- B. Preservative Treatment by Pressure Process: AWWA U1; Use Category UC3b.
 1. Kiln dry lumber and plywood after treatment to a maximum moisture content of 19 and 18 percent respectively.
 2. Preservative Chemicals: Acceptable to authorities having jurisdiction and containing no arsenic or chromium.
 3. For exposed items indicated to receive transparent finish, do not use chemical formulations that contain colorants or that bleed through or otherwise adversely affect finishes.
 4. Do not use material that is warped or does not comply with requirements for untreated material.
 5. Mark lumber with treatment-quality mark of an inspection agency approved by the American Lumber Standard Committee's Board of Review.
 - a. For exposed lumber indicated to receive a stained or natural finish, mark end or back of each piece.
 6. Mark plywood with appropriate classification marking of an inspection agency acceptable to authorities having jurisdiction.
 - a. For exposed plywood indicated to receive a stained or natural finish, mark back of each piece.
 7. Application: Where indicated.

2.3 EXTERIOR FINISH CARPENTRY

- A. Sound pieces of original trim to be restored. New trim to be only installed if historic trim is either missing or too deteriorated to be reused.
- B. Cornice Soffit

1. Material: Extra Exterior Grade MDF
2. Size and Dimensions: ¾" thickness

C. Cornice, Entablature, and Fascia Shaped Trim

1. Material: Sapele
2. Size and Dimensions: As indicated in the Drawings.

2.1 MISCELLANEOUS MATERIALS

A. Flashing: Comply with requirements in Section 076200 "Sheet Metal Flashing and Trim" for flashing materials installed in exterior finish carpentry.

B. Joint Sealants: Comply with requirements in Section 079200 "Joint Sealants" for joint sealants installed in exterior finish carpentry.

C. Wood Filler/Consolidant

1. Use a Bisphenol A based low viscosity liquid epoxy resin with appropriate hardener that cures to a high strength plastic solid under room temperatures.
2. Epoxy to hardener ratio shall not exceed 5:1
3. Product shall be specifically designed to bond with historic wood fiber and must be able to be sanded and shaped when cured.
 - a. West System
 - b. Or Approved Equal

D. Fasteners for Exterior Finish Carpentry: All exterior fasteners shall be stainless steel grade 304 or better.

PART 3 - EXECUTION

3.1 PREPARATION

A. Examine substrates, with Installer present, for compliance with requirements for installation tolerances and other conditions affecting performance.

B. Verify adequacy of backing and support framing

C. Examine finish carpentry materials before installation. Reject materials that are wet, moisture damaged, and mold damaged.

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

E. Clean substrates of projections and substances detrimental to application.

F. Prime lumber and moldings to be painted, including both faces and edges, unless factory primed. Cut to required lengths and prime ends. Comply with requirements in Section 099000 "Architectural Coatings."

3.2 FABRICATION

A. Match existing detailing.

B. In kind replacement: Except as specifically indicated otherwise, provide replacement elements with configurations, profiles, dimensions and joinery exactly matching those of existing

elements.

- C. Machining and Surfacing: Machine and surface all new and replacement wood elements to provide smooth even surfaces without saw marks or plane marks. Wood with surface irregularities, including but not limited to scratches, saw marks, and plane knife marks, visible after finish has been applied will be rejected and shall be replaced with properly finished wood elements at no additional cost

3.3 INSTALLATION, GENERAL

- A. Install woodwork to comply with referenced quality standard for grade specified.
- B. Replace and repair woodwork as specified by Drawings.
- C. Remove all extraneous exterior finish carpentry and restore to original configuration where possible.
- D. Do not use materials that are unsound, warped, improperly treated or finished, inadequately seasoned, or too small to fabricate with proper jointing arrangements.
 - 1. Do not use manufactured units with defective surfaces, sizes, or patterns.
- E. Provide all wood blocking and framing required to support items of finish carpentry. Use fastening materials of types appropriate for the conditions encountered, including wood to wood, wood to masonry, and wood to metal stud framing. Counterbore holes for nuts and bolt heads, and countersink for screws. Use concealed fasteners in exposed surfaces of finish carpentry.
- F. Install exterior finish carpentry level, plumb, true, and aligned with adjacent materials. Use concealed shims where necessary for alignment.
 - 1. Scribe and cut woodwork to fit adjoining work and refinish cut surfaces or repair damaged finish at cuts.
 - 2. Install to tolerance of 1/8 inch in 96 inches (3 mm in 2438 mm) for level and plumb. Install adjoining exterior finish carpentry with 1/32-inch (0.8-mm) maximum offset for flush installation and 1/16-inch (1.5-mm) maximum offset for reveal installation.
 - 3. Install woodwork true and straight with no distortions. Shim as required with concealed shims. Install level and plumb to a tolerance of 1/8 inch in 96 inches (3 mm in 2400 mm).
 - 4. Coordinate exterior finish carpentry with materials and systems in or adjacent to it. Provide cutouts for mechanical and electrical items that penetrate exterior finish carpentry.
- G. Dutchman Repairs
 - 1. Dutchman repairs shall be undertaken using the same material as the original. Species and grain to match. Match existing detailing.
 - 2. Substitutions in material must be approved by Architect. Sapele is preapproved for use when reclaimed heart pine is unavailable.

3.4 STANDING AND RUNNING TRIM INSTALLATION

- A. Install with minimum number of joints possible, using full-length pieces (from maximum length of lumber available) to greatest extent possible. Do not use pieces less than 60 inches (900 mm) long, except where shorter single-length pieces are necessary. Scarf running joints and stagger joints in adjacent and related trim. Cope at returns and miter at corners.

- B. Timely delivery and installation of carpentry work to avoid delaying other trades whose work is dependent on or affected by the carpentry work, and to comply with protection and storage requirements.
- C. Examine all parts of the supporting structure and the conditions under which the carpentry work is to be installed, and notify the Architect, in writing of any conditions detrimental to the proper and timely completion of the work. Do not proceed with the installation until unsatisfactory conditions have been corrected in a manner acceptable to the installer.

3.5 ADJUSTING

- A. Replace exterior finish carpentry that is damaged or does not comply with requirements. Exterior finish carpentry shall be repaired or refinished if work does not comply with requirements and shows no evidence of repair or refinishing. Adjust joinery for uniform appearance.

3.6 PROTECTION

- A. Protect installed products from damage from weather and other causes during construction.
- B. Remove and replace finish carpentry materials that are wet, moisture damaged, and mold damaged.
 - 1. Indications that materials are wet or moisture damaged include, but are not limited to, discoloration, sagging, or irregular shape.

3.7 Indications that materials are mold damaged include, but are not limited to, fuzzy or splotchy surface contamination and discoloration.

- A. Clean interior and exterior finish carpentry on exposed and semi-exposed surfaces. Touch up finishes to restore damaged or soiled areas.
- B. Remove and replace finish carpentry materials that are wet, moisture damaged, and mold damaged as indicated by the Architect.
 - 1. Indications that materials are wet or moisture damaged include, but are not limited to, discoloration, sagging, or irregular shape.
 - 2. Indications that materials are mold damaged include, but are not limited to, fuzzy or splotchy surface contamination and discoloration.

END OF SECTION 062000

SECTION 070150.19 - PREPARATION FOR REROOFING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. Section Includes:

- 1. Addition Roof
 - a. Full tear-off of entire roof.
 - b. Removal of base flashings.
 - c. Refasten deck where required.
- 2. Main Roof
 - a. Limited tear-off of roof to access areas to install new flashing and address leaking.
 - b. Refasten deck where required.

- B. Related Requirements:

- 1. Section 075419 "Polyvinyl-Chloride (PVC) Roofing" for addition roofing materials.
- 2. Section 073213 "Clay Roof Tiles" for main roof, roofing materials.

1.3 DEFINITIONS

- A. Roofing Terminology: Definitions in ASTM D 1079 and glossary of NRCA's "The NRCA Roofing and Waterproofing Manual" apply to work of this Section.
- B. Roof Re-Cover Preparation: Existing roofing system is to remain and be prepared for new roof to be installed over it.
- C. Full Roof Tear-Off: Removal of existing roofing system from deck.

1.4 SUBMITTALS

- A. Photographs: Show existing conditions of adjoining construction and site improvements, including exterior and interior finish surfaces, that might be misconstrued as having been damaged by reroofing operations. Submit before Work begins.

1.5 QUALITY ASSURANCE

- A. Regulatory Requirements: Comply with governing EPA notification regulations before beginning roofing removal. Comply with hauling and disposal regulations of authorities having jurisdiction.

- B. Reroofing Conference: Conduct conference at Project site.
1. Meet with Owner; Architect; Owner's insurer if applicable; testing and inspecting agency representative; roofing system manufacturer's representative; roofing Installer, including project manager, superintendent, and foreman; and installers whose work interfaces with or affects reroofing, including installers of roof deck, roof accessories, and roof-mounted equipment.
 2. Review methods and procedures related to roofing system tear-off and replacement, including, but not limited to, the following:
 - a. Reroofing preparation, including roofing system manufacturer's written instructions.
 - b. Temporary protection requirements for existing roofing system components that are to remain.
 - c. Existing roof drains and roof drainage during each stage of reroofing, and roof-drain plugging and plug removal.
 - d. Construction schedule and availability of materials, Installer's personnel, equipment, and facilities needed to avoid delays.
 - e. Existing roof deck conditions requiring notification of Architect.
 - f. Existing roof deck removal procedures and Owner notifications.
 - g. Condition and acceptance of existing roof deck and base flashing substrate for reuse.
 - h. Structural loading limitations of roof deck during reroofing.
 - i. Base flashings, special roofing details, drainage, penetrations, equipment curbs, and condition of other construction that affect reroofing.
 - j. HVAC shutdown and sealing of air intakes.
 - k. Shutdown of fire-suppression, -protection, and -alarm and -detection systems.
 - l. Asbestos removal and discovery of asbestos-containing materials.
 - m. Governing regulations and requirements for insurance and certificates if applicable.
 - n. Existing conditions that may require notification of Architect before proceeding.

1.6 FIELD CONDITIONS

- A. Existing Roofing System: Built-up Roofing (Addition) and Terracotta Roof (Main).
- B. Owner will occupy portions of building immediately below reroofing area. Conduct roofing work so Owner's operations are not disrupted. Provide Owner with not less than 72 hours' notice of activities that may affect Owner's operations.
1. Coordinate work activities daily with Owner so Owner can place protective dust and water-leakage covers over sensitive equipment and furnishings, shut down HVAC and fire-alarm or -detection equipment if needed, and evacuate occupants from below work area.
 2. Before working over structurally impaired areas of deck, notify Owner to evacuate occupants from below affected area. Verify that occupants below work area have been evacuated before proceeding with work over impaired deck area.
- C. Protect building to be reroofed, adjacent buildings, walkways, site improvements, exterior plantings, and landscaping from damage or soiling from reroofing operations.
- D. Maintain access to existing walkways, corridors, and other adjacent occupied or used facilities.
- E. Conditions existing at time of inspection for bidding are maintained by Owner as far as practical.

- F. Limit construction loads on roof as directed by Structural Engineer for rooftop equipment wheel loads and uniformly distributed loads.
- G. Weather Limitations: Proceed with reroofing preparation only when existing and forecasted weather conditions permit Work to proceed without water entering existing roofing system or building.
 - 1. Remove only as much roofing in one day as can be made watertight in the same day.

PART 2 - PRODUCTS

2.1 AUXILIARY REROOFING MATERIALS

- A. General: Use auxiliary reroofing preparation materials recommended by roofing system manufacturer for intended use and compatible with components of new roofing system.

PART 3 - EXECUTION

3.1 PREPARATION

- A. Shut off rooftop utilities and service piping before beginning the Work.
- B. Test existing roof drains to verify that they are not blocked or restricted. Immediately notify Architect of any blockages or restrictions.
- C. Coordinate with Owner to shut down air-intake equipment in the vicinity of the Work. Cover air-intake louvers before proceeding with reroofing work that could affect indoor air quality or activate smoke detectors in the ductwork.
- D. During removal operations, have sufficient and suitable materials on-site to facilitate rapid installation of temporary protection in the event of unexpected rain.
- E. Maintain roof drains in functioning condition to ensure roof drainage at end of each workday. Prevent debris from entering or blocking roof drains and conductors. Use roof-drain plugs specifically designed for this purpose. Remove roof-drain plugs at end of each workday, when no work is taking place, or when rain is forecast.
 - 1. If roof drains are temporarily blocked or unserviceable due to roofing system removal or partial installation of new roofing system, provide alternative drainage method to remove water and eliminate ponding. Do not permit water to enter into or under existing roofing system components that are to remain.

3.2 ROOF TEAR-OFF

- A. General: Notify Owner each day of extent of roof tear-off proposed for that day.
- B. Remove flashings, accessories, and copings complete from roofing.

- C. Full Roof Tear-Off: Remove existing roofing and other roofing system components down to the deck.
 - 1. Remove built-up roofing.
 - 2. Remove roof insulation and cover board if present.
 - 3. Remove wood blocking, curbs, and nailers.
 - 4. Remove liquid applied systems, including in areas where liquid applied system has been applied at transition between roof and masonry.
 - 5. Remove damaged, corroded, and backed-out fasteners from deck. Re-secure complete with stainless steel fasteners.

3.3 DECK PREPARATION

- A. Inspect deck after tear-off of roofing system.
- B. If broken or loose fasteners that secure deck panels to one another or to structure are observed, or if deck appears or feels inadequately attached, immediately notify Architect. Do not proceed with installation until directed by Architect.
- C. If deck surface is unsuitable for receiving new roofing or if structural integrity of deck is suspect, immediately notify Architect. Do not proceed with installation until directed by Architect.
- D. Provide additional deck securement as required.
- E. Replace deck as directed by Architect. Deck replacement will be paid for by adjusting the Contract Sum according to unit prices included in the Contract Documents. Some decking replacement has been included in the base bid scope of work. See drawings.

3.4 INFILL MATERIALS INSTALLATION

- A. Immediately after roof tear-off, repair, if needed, deck. Fill in tear-off areas to match existing roofing system construction.

3.5 BASE FLASHING REMOVAL

- A. Remove existing base flashings. Clean substrates of contaminants, such as asphalt, tar, sheet materials, dirt, and debris.
- B. Do not damage metal counter-flashings that are to remain. Replace metal counter-flashings damaged during removal with counter-flashings of same metal, weight or thickness, and finish.
- C. Inspect parapet sheathing, wood blocking, curbs, and nailers for deterioration and damage. If parapet sheathing, wood blocking, curbs, or nailers have deteriorated, immediately notify Architect.

3.6 DISPOSAL

- A. Collect demolished materials and place in containers. Promptly dispose of demolished materials. Do not allow demolished materials to accumulate on-site.

1. Storage or sale of demolished items or materials on-site is not permitted.
- B. Transport and legally dispose of demolished materials off Owner's property.

END OF SECTION 070150.19

SECTION 075419 - POLYVINYL-CHLORIDE (PVC) ROOFING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. Section Includes:
 - 1. Adhered polyvinyl-chloride (PVC) roofing system.
 - a. Membrane to be installed with no seams.
 - 2. Tapered and rigid board insulation.
- B. Related Sections:
 - 1. Section 070150.19 "Preparation for Reroofing" for roof removal.
 - 2. Section 076200 "Sheet Metal Flashing and Trim" for roof flashings and counter-flashings.
 - 3. Section 077123 "Gutters and Downspouts" for metal built-in-gutters and downspouts.

1.3 DEFINITIONS

- A. Roofing Terminology: Definitions in ASTM D 1079 and glossary in NRCA's "The NRCA Roofing and Waterproofing Manual" apply to work of this Section.

1.4 PREINSTALLATION MEETINGS

- A. Preinstallation Roofing Conference: Conduct conference at Project site.
 - 1. Meet with Owner, Architect, Owner's insurer if applicable, testing and inspecting agency representative, roofing Installer, roofing system manufacturer's representative, deck Installer, and installers whose work interfaces with or affects roofing, including installers of roof accessories and roof-mounted equipment.
 - 2. Review methods and procedures related to roofing installation, including manufacturer's written instructions.
 - 3. Review and finalize construction schedule, and verify availability of materials, Installer's personnel, equipment, and facilities needed to make progress and avoid delays.
 - 4. Examine deck substrate conditions and finishes for compliance with requirements, including flatness and fastening.
 - 5. Review structural loading limitations of roof deck during and after roofing.
 - 6. Review base flashings, special roofing details, roof drainage, roof penetrations, equipment curbs, and condition of other construction that affects roofing system.
 - 7. Review governing regulations and requirements for insurance and certificates if applicable.
 - 8. Review temporary protection requirements for roofing system during and after installation.
 - 9. Review roof observation and repair procedures after roofing installation.

1.5 ACTION SUBMITTALS

- A. Product Data: For each type of product. Submit data on product characteristics, performance criteria, and limitations, including installation instructions.
- B. Shop Drawings: For roofing system. Include plans, elevations, sections, details, and attachments to other work, including:
 - 1. Base flashings and membrane terminations.
 - 2. Tapered insulation, including slopes.
 - 3. Roof plan showing orientation of deck, fastening spacings, and patterns for mechanically fastened roofing.
 - 4. Insulation fastening patterns for corner, perimeter, and field-of-roof locations.

1.6 CLOSEOUT SUBMITTALS

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

1.7 QUALITY ASSURANCE

- A. Installer Qualifications: A qualified firm that is approved, authorized, or licensed by roofing system manufacturer to install manufacturer's product and that is eligible to receive manufacturer's special warranty.

1.8 DELIVERY, STORAGE, AND HANDLING

- A. Deliver roofing materials to Project site in original containers with seals unbroken and labeled with manufacturer's name, product brand name and type, date of manufacture, approval or listing agency markings, and directions for storing and mixing with other components.
- B. Store liquid materials in their original undamaged containers in a clean, dry, protected location and within the temperature range required by roofing system manufacturer. Protect stored liquid material from direct sunlight.
 - 1. Discard and legally dispose of liquid material that cannot be applied within its stated shelf life.
- C. Protect roof insulation materials from physical damage and from deterioration by sunlight, moisture, soiling, and other sources. Store in a dry location. Comply with insulation manufacturer's written instructions for handling, storing, and protecting during installation.
- D. Handle and store roofing materials, and place equipment in a manner to avoid permanent deflection of deck.

1.9 FIELD CONDITIONS

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

1.10 WARRANTY

- A. Special Warranty: Manufacturer agrees to repair or replace components of roofing system that fail in materials or workmanship within specified warranty period.
 - 1. Special warranty includes membrane roofing, base flashings, roof insulation, cover boards, roofing accessories, and other components of roofing system.
 - 2. Warranty Period: 10 years from date of Substantial Completion.
- B. Special Project Warranty: Submit roofing Installer's warranty, on warranty form at end of this Section, signed by Installer, covering the Work of this Section, including all components of roofing system such as membrane roofing, base flashing, roof insulation, fasteners, cover boards, substrate boards, vapor retarders, roof pavers, and walkway products, for the following warranty period:
 - 1. Warranty Period: Two years from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Source Limitations: Obtain components including roof insulation for roofing system from same manufacturer as membrane roofing or manufacturer approved by membrane roofing manufacturer.

2.2 PERFORMANCE REQUIREMENTS

- A. General Performance: Installed roofing and base flashings shall withstand specified uplift pressures, thermally induced movement, and exposure to weather without failure due to defective manufacture, fabrication, installation, or other defects in construction. Roofing and base flashings shall remain watertight.
 - 1. Accelerated Weathering: Roofing system shall withstand 2000 hours of exposure when tested according to ASTM G 152, ASTM G 154, or ASTM G 155.
 - 2. Impact Resistance: Roofing system shall resist impact damage when tested according to ASTM D 3746 or ASTM D 4272.
- B. Material Compatibility: Roofing materials shall be compatible with one another and adjacent materials under conditions of service and application required, as demonstrated by roofing manufacturer based on testing and field experience.
- C. Roofing System Design: Tested by a qualified testing agency to resist pressures as indicated on Drawings.

2.3 PVC ROOFING

- A. PVC Sheet: ASTM D 4434/D 4434M, Type III, fabric reinforced.
 - 1. Basis-of-Design Product: Subject to compliance with requirements, provide **PVC Roofing System by Johns Manville** or comparable product by one of the following:
 - a. Carlisle SynTec Incorporated.
 - b. GAF Materials Corporation.
 - c. GenFlex Roofing Systems.

- d. Versico, Inc.
- e. Sika Sarnafil.
- 2. Thickness: 60 mils, nominal.
- 3. Exposed Face Color: White.

2.4 AUXILIARY ROOFING MATERIALS

- A. General: Auxiliary materials recommended by roofing system manufacturer for intended use and compatible with roofing.
- B. Sheet Flashing: Manufacturer's standard sheet flashing of same material, type, reinforcement, thickness, and color as PVC sheet to be used except at counterflashing. Counterflashing to be copper.
- C. Bonding Adhesive: Manufacturer's standard.
- D. Slip Sheet: Manufacturer's standard, of thickness required for application.
- E. Fasteners: All exposed fasteners to be stainless steel of Type 304, 304L, 316 or 316L, unless otherwise indicated.
- F. Metal Termination Bars: Manufacturer's standard, predrilled stainless-steel bars, approximately 1 by 1/8 inch thick; with anchors.
- G. Miscellaneous Accessories: Provide pourable sealers, preformed cone and vent sheet flashings, preformed inside and outside corner sheet flashings, T-joint covers, lap sealants, termination reglets, and other accessories.
- H. 3" round specially coated galvalume plate with a recessed center and raised flat bonding surface to be used for insulation and membrane fastening plates. Use with compatible extra high load fasteners.

2.5 ROOF INSULATION

- A. General: Preformed roof insulation boards manufactured or approved by PVC roofing manufacturer, selected from manufacturer's standard sizes suitable for application, of thicknesses indicated.
- B. Polyisocyanurate Board Insulation: ASTM C 1289, Type II, Class 1, Grade 2, felt or glass-fiber mat facer on both major surfaces.
- C. Tapered Insulation (Extruded Polystyrene Board (XPS) Insulation): Provide factory-tapered insulation boards fabricated to slope of 1/4 inch per 12 inches unless otherwise indicated. Comply with ASTM C 578, Type IV.
- D. Provide preformed saddles, crickets, tapered edge strips, and other insulation shapes where indicated for sloping to drain. Fabricate to slopes indicated.

2.6 INSULATION ACCESSORIES

- A. General: Roof insulation accessories recommended by insulation manufacturer for intended use and compatibility with roofing.
- B. Fasteners: Factory-coated steel fasteners and metal plates complying with corrosion-resistance provisions in FM Global 4470, designed for fastening roof insulation and cover boards to substrate, and acceptable to roofing system manufacturer. All copper and stainless-steel metal should be fastened with non-corrosive fasteners. See Sections 07600 Sheet Metal Flashing and Trim for requirements.
- C. Insulation Adhesive: Insulation manufacturer's recommended adhesive formulated to attach roof insulation to substrate or to another insulation layer.
- D. Cover Board: ASTM C 1177/C 1177M, glass-mat, water-resistant gypsum substrate, 1/4 inch thick, factory primed.
 - 1. Products: Subject to compliance with requirements, provide one of the following:
 - a. CertainTeed Corporation; GlasRoc Sheathing.
 - b. Georgia-Pacific Corporation; Dens Deck Prime.
 - c. National Gypsum Company; Gold Bond eXP Extended Exposure Sheathing.
 - d. USG Corporation; Securock Glass Mat Roof Board.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine substrates, areas, and conditions, with Installer present, for compliance with requirements and other conditions affecting performance of the Work:
 - 1. Verify that roof openings and penetrations are in place, curbs are set and braced, and roof-drain bodies are securely clamped in place.
 - 2. Verify that wood blocking, curbs, and nailers are securely anchored to roof deck at penetrations and terminations and that nailers match thicknesses of insulation.
- B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

- A. Clean substrate of dust, debris, moisture, and other substances detrimental to roofing installation according to roofing system manufacturer's written instructions. Remove sharp projections.
- B. Prevent materials from entering and clogging roof drains and conductors and from spilling or migrating onto surfaces of other construction. Remove roof-drain plugs when no work is taking place or when rain is forecast.

3.3 ROOFING INSTALLATION, GENERAL

- A. Install roofing system according to roofing system manufacturer's written instructions.

- B. Complete terminations and base flashings and provide temporary seals to prevent water from entering completed sections of roofing system at end of workday or when rain is forecast. Remove and discard temporary seals before beginning work on adjoining roofing.
- C. Install roofing and auxiliary materials to tie in to existing roofing to maintain weathertightness of transition and to not void warranty for existing roofing system.

3.4 INSULATION INSTALLATION

- A. Coordinate installing roofing system components, so insulation is not exposed to precipitation or left exposed at the end of the workday.
- B. Comply with roofing system and insulation manufacturer's written instructions for installing roof insulation.
- C. Install tapered insulation under area of roofing to conform to slopes indicated.
- D. Install insulation under area of roofing to achieve required thickness. Where overall insulation thickness is 2.7 inches or greater, install two or more layers with joints of each succeeding layer staggered from joints of previous layer a minimum of 6 inches in each direction.
- E. Trim surface of insulation where necessary at roof drains so completed surface is flush and does not restrict flow of water.
- F. Install insulation with long joints of insulation in a continuous straight line with end joints staggered between rows, abutting edges and ends between boards. Fill gaps exceeding 1/4 inch with insulation.
 - 1. Cut and fit insulation within 1/4 inch of nailers, projections, and penetrations.
- G. Mechanically Fastened Insulation: Install each layer of insulation and secure to deck using mechanical fasteners specifically designed and sized for fastening specified board-type roof insulation to deck type.
 - 1. Fasten insulation to resist uplift pressure at corners, perimeter, and field of roof.
- H. Install cover boards over insulation with long joints in continuous straight lines with end joints staggered between rows. Offset joints of insulation below a minimum of 6 inches in each direction. Loosely butt cover boards together and fasten to roof deck.
 - 1. Fasten cover boards to resist uplift pressure at corners, perimeter, and field of roof.

3.5 ADHERED ROOFING INSTALLATION

- A. Adhere roofing over area to receive roofing according to roofing system manufacturer's written instructions. Unroll roofing and allow to relax before retaining.
 - 1. Install sheet according to ASTM D 5036.
 - 2. **Membrane to be installed with no seams.**
- B. Start installation of roofing in presence of roofing system manufacturer's technical personnel.
- C. Accurately align roofing and maintain uniform side and end laps of minimum dimensions required by manufacturer. Stagger end laps.

- D. Bonding Adhesive: Apply to substrate and underside of roofing at rate required by manufacturer and allow to partially dry before installing roofing. Do not apply to splice area of roofing.
- E. In addition to adhering, mechanically fasten roofing securely at terminations, penetrations, and perimeter of roofing.
- F. Apply roofing with side laps shingled with slope of roof deck where possible.
- G. Seams: Clean seam areas, overlap roofing, and hot-air weld side and end laps of roofing and sheet flashings according to manufacturer's written instructions, to ensure a watertight seam installation.
 - 1. Test lap edges with probe to verify seam weld continuity. Apply lap sealant to seal cut edges of sheet.
 - 2. Verify field strength of seams a minimum of twice daily, and repair seam sample areas.
 - 3. Repair tears, voids, and lapped seams in roofing that do not comply with requirements.
- H. Spread sealant bed over deck-drain flange at roof drains, and securely seal roofing in place with clamping ring.

3.6 BASE FLASHING INSTALLATION

- A. Install sheet flashings and preformed flashing accessories and adhere to substrates according to roofing system manufacturer's written instructions.
- B. Apply bonding adhesive to substrate and underside of sheet flashing at required rate and allow to partially dry. Do not apply to seam area of flashing.
- C. Flash penetrations and field-formed inside and outside corners with cured or uncured sheet flashing.
- D. Clean seam areas, overlap, and firmly roll sheet flashings into the adhesive. Hot-air weld side and end laps to ensure a watertight seam installation.
- E. Terminate and seal top of sheet flashings and mechanically anchor to substrate through termination bars.

3.7 FIELD QUALITY CONTROL

- A. Testing Agency: Engage a qualified testing agency to inspect substrate conditions, surface preparation, membrane application, flashings, protection, and drainage components, and to furnish reports to Architect.
- B. Flood Testing: Flood test each roofing area for leaks, according to recommendations in ASTM D 5957, after completing roofing and flashing but before overlying construction is placed. Install temporary containment assemblies, plug or dam drains, and flood with potable water.
 - 1. Flood to an average depth of 2-1/2 inches with a minimum depth of 1 inch and not exceeding a depth of 4 inches. Maintain 2 inches of clearance from top of base flashing.
 - 2. Flood each area for 48 hours.
 - 3. After flood testing, repair leaks, repeat flood tests, and make further repairs until roofing and flashing installations are watertight.

- C. Final Roof Inspection: Arrange for roofing system manufacturer's technical personnel to inspect roofing installation on completion.
- D. Repair or remove and replace components of roofing system where inspections indicate that they do not comply with specified requirements.
- E. Additional testing and inspecting, at Contractor's expense, will be performed to determine if replaced or additional work complies with specified requirements.

3.8 PROTECTING AND CLEANING

- A. Protect roofing system from damage and wear during remainder of construction period. When remaining construction does not affect or endanger roofing, inspect roofing for deterioration and damage, describing its nature and extent in a written report, with copies to Architect and Owner.
- B. Correct deficiencies in or remove roofing system that does not comply with requirements, repair substrates, and repair or reinstall roofing system to a condition free of damage and deterioration at time of Substantial Completion and according to warranty requirements.

END OF SECTION 075419

SECTION 076200 – SHEET METAL FLASHING AND TRIM

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.
- B. Section 013591: Historic Treatment Procedures
- C. Section 079200: Joint Sealants
- D. Codes and standards set forth by:
 - 1. Preservation Brief #4, "Roofing for Historic Buildings" as published by the U. S. National Park Service.
 - 2. Sheet Metal Roofing Standard: Comply with SMACNA's "Architectural Sheet Metal Manual" unless more stringent requirements are specified or shown on Drawings.
 - 3. Sheet Metal Standard for Flashing and Trim: Comply with NRCA's "The NRCA Roofing Manual" and SMACNA's "Architectural Sheet Metal Manual" requirements for dimensions and profiles shown unless more stringent requirements are indicated.
 - 4. Sheet Metal Standard for Copper: Comply with Revere's "Copper and Common Sense." Conform to dimensions and profiles shown unless more stringent requirements are indicated.

1.2 SUMMARY

- A. Section includes:
 - 1. Installation of new copper roof flashing and counter-flashing.
 - a. Main Roof
 - b. Addition Roof

1.3 SCOPE

- A. General: Provide all labor, materials, equipment, and services required to complete sheet metal flashing repair as specified herein, and required by existing conditions and authorities having jurisdiction.

1.4 SUBMITTALS

- A. Product Data: Submit complete product data for all products used in this Section.

1.5 PROJECT CONDITIONS

- A. Historic roofing craftsmanship characteristic of the structure are to be treated with sensitivity, to be preserved and followed.

- B. Replacement and repair work shall be equal to original workmanship. Sheet metal work shall match prototype exposure, size, pattern, and material. Reinstall compatible fastenings.

1.6 ENVIRONMENTAL CONDITIONS

- A. Do not perform work on metal roof in misty or rainy weather.
- B. At the end of the work day, provide building protection for any exterior roofing element removed for repair or replacement
- C. Remove only a quantity of sheet metal, which may be repaired on the same day. At the end of the day use 15 pound roofing felt or polyethylene sheeting to drape over missing roofing and insert under roof unit or temporarily secure areas of existing roofing and roof as required to make roof watertight and windproof.
- D. Contractor is responsible for prevent damage and protecting building envelope and interior during completion of work.

1.7 QUALITY ASSURANCE

- A. Sheet Metal Flashing Fabricator and Installer Qualifications: Employs skilled workers who have (5) years' experience and custom fabricate sheet metal flashing and trim similar to that required for this Project and whose products have a record of successful in-service performance.
- B. Uniform Wind Load Capacity: Design, size and install components to withstand positive and negative wind loading pressures in accordance with International Building Code and as verified by Structural Engineer.

1.8 DELIVERY, STORAGE, AND HANDLING

- A. Do not store sheet metal flashing and trim materials in contact with other materials that might cause staining, denting, or other surface damage. Store sheet metal flashing and trim materials away from uncured concrete and masonry.
- B. Protect products and accessories against damage and discoloration. Inside dry storage is required to prevent condensation from forming between sheets and components. Protect strippable protective covering on sheet metal flashing and trim from exposure to sunlight and high humidity, except to extent necessary for period of sheet metal flashing and trim installation.
- C. Do not overload roof with stored materials or permit excessive traffic on completed roof surfaces.

1.9 WARRANTY

- A. Special Warranty on Finishes: Manufacturer agrees to repair, finish, or replace sheet metal flashing and trim that shows evidence of deterioration of factory-applied finishes within specified warranty period.
 - 1. Finish Warranty Period: 5 years from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

- A. General: Sheet metal flashing and trim assemblies shall withstand wind loads, structural movement, thermally induced movement, and exposure to weather without failure due to defective manufacture, fabrication, installation, or other defects in construction. Completed sheet metal flashing and trim shall not rattle, leak, or loosen, and shall remain watertight.
- B. Sheet Metal Standard for Flashing and Trim: SMACNA's "Architectural Sheet Metal Manual" requirements for dimensions and profiles shown unless more stringent requirements are indicated.
- C. Sheet Metal Standard for Copper: Comply with Revere's "Copper and Common Sense." Conform to dimensions and profiles shown unless more stringent requirements are indicated.
- D. SPRI Wind Design Standard: Manufacture and install copings and roof edge flashings tested according to SPRI ES-1 and capable of resisting the following design pressure as required by local building codes.
- E. Thermal Movements: Allow for thermal movements from ambient and surface temperature changes to prevent buckling, opening of joints, overstressing of components, failure of joint sealants, failure of connections, and other detrimental effects.
 - 1. Temperature Change: 120 deg F, ambient; 180 deg F, material surfaces.

2.2 SHEET METAL FLASHING MATERIALS

- A. General: Protect mechanical and other finishes on exposed surfaces from damage by applying strippable, temporary protective film before shipping.
- B. Copper Sheet: ASTM B 370, cold-rolled copper sheet, H00 or H01 temper.
 - 1. 20 oz/sq. ft.
 - 2. Non-patinated exposed finish: Mill
 - 3. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - a. Hussey Copper Ltd.
 - b. Revere Copper Products, Inc.
 - c. Canadian Brass

2.3 MISCELLANEOUS MATERIALS

- A. General: Provide materials and types of fasteners, solder, protective coatings, sealants, and other miscellaneous items as required for complete sheet metal flashing and trim installation and as recommended by manufacturer of primary sheet metal unless otherwise indicated.
- B. Fasteners: Use fasteners designed to withstand design loads and recommended by manufacturer of primary sheet metal.
 - 1. General: All fasteners must be compatible with base material on which they are used. Use copper rivets with non-ferrous mandrels.
 - 2. Fasteners for Copper Sheet: Copper or passivated Series 300 stainless steel.
 - a. No aluminum fasteners shall be used with copper sheet.
 - 3. Use copper rivets with non-ferrous, brass mandrels.

- C. Solder (Copper): ASTM B 32, Grade Sn50, 50 percent tin and 50 percent lead with maximum lead content of 0.05 percent.
 - 1. Muriatic acid neutralized with zinc or approved brand of soldering flux.
 - a. Flux: La-Co Soldering Flux
- D. Caulk: Reference Section 079200 "Joint Sealants"

PART 3 - EXECUTION

3.1 GENERAL

- A. The installed work of this Section shall not be used as a storage space for other materials.
- B. Do not permit unnecessary walking on the repaired sections of finished roof and sheet metal flashing. Require all personnel to wear rubber-soled shoes when installing or walking on a finished roof.

3.2 EXAMINATION

- A. Before commencement of work, carefully examine all surfaces to receive work and notify the Architect in writing of any conditions detrimental to the performance of this work. Do not proceed until unsatisfactory or deteriorated conditions have been inspected, corrected and are acceptable to the Architect and the applicator. Commencement of work will be construed as the applicator's acceptance of all surfaces. Commencement of the work prior to the Architect's inspection and acceptance is done at the applicator's risk.
- B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.3 INSTALLATION

- A. Remove all extraneous fasteners installed in the face of the flashing. Solder holes.
- B. Soldered Joints: Clean surfaces to be soldered, removing oils and foreign matter.
 - 1. Do not use torches for soldering.
 - 2. Heat surfaces to receive solder and flow solder into joint. Fill joint completely. Completely remove flux and spatter from exposed surfaces.

3.4 CLEANING AND PROTECTION

- A. Clean exposed metal surfaces of substances that interfere with uniform oxidation and weathering.
- B. Clean and neutralize flux materials. Clean off excess solder.
- C. Clean off excess sealants.

END OF SECTION 076200

SECTION 077123 –GUTTERS AND DOWNSPOUTS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Documents and general provisions of the Contract, including the General and Supplementary Conditions and Division 01 Specifications Sections, apply to this section.
- B. Codes and standards set forth by:
 - 1. Preservation Brief #4, "Roofing for Historic Buildings" as published by the U. S. National Park Service.
 - 2. Sheet Metal Roofing Standard: Comply with SMACNA's "Architectural Sheet Metal Manual" unless more stringent requirements are specified or shown on Drawings.
 - 3. Sheet Metal Standard for Flashing and Trim: Comply with NRCA's "The NRCA Roofing Manual" and SMACNA's "Architectural Sheet Metal Manual" requirements for dimensions and profiles shown unless more stringent requirements are indicated.
 - 4. Sheet Metal Standard for Copper: Comply with Revere's "Copper and Common Sense." Conform to dimensions and profiles shown unless more stringent requirements are indicated.

1.2 SUMMARY

- A. Repair of existing downspouts. Replace all missing brackets and fasteners.
- B. Installation of new downspout boots at all downspout locations.
- C. Alternate: Replace existing downspouts with copper downspouts of the same dimensions.
- D. Repair of existing lead-coated copper built-in-gutter.
 - 1. Solder holes in existing built-in-gutter.
 - 2. Survey joints between sheets of flashing at built-in-gutter. Joints that are no longer watertight to be repaired with solder.
 - 3. Adjusting and repair existing built-in-gutter that has been bent.

1.3 SUBMITTALS

- A. Qualifications: Submit documentation of installers past project experience that meet the work experience outlined in the specification. Provide references for a minimum of two (2) projects completed in the last five years, including contact names and phone numbers.
- B. Product Data: Catalog sheets, specifications, and installation instructions for each material specified.
- C. Provide shop drawings of all details including but not limited to expansion joint locations, gutter lengths to each downspout inlet, gutter pan section with dimensions, and associated flashing. Provide field measurements of gutter to confirm thickness of copper required.
- D. Sample downspout bracket.

1.4 PROJECT CONDITIONS

- A. General: Install gutter and downspouts to withstand structural movement, thermally induced movement, and exposure to weather without failing, rattling, leaking, and fastener disengagement.
- B. Performance Requirements
 - 1. Installation Requirements: Installation contractor is responsible for installing system, including anchorage to substrate and necessary modifications to meet specified and drawn requirements and maintain visual design concepts in accordance with Contract Documents and following installation methods as stipulated by the manufacturer.
 - 2. Drawings are diagrammatic and are intended to establish basic dimension of units, sight lines, and profiles of units.
 - a. Make modifications only to meet field conditions and to ensure fitting of system components.
 - b. Obtain Architect's approval of modifications.
 - c. Provide concealed fastening wherever possible.
 - d. Attachment considerations: Account for site peculiarities and expansion and contraction movements so there is no possibility of loosening, weakening and fracturing connection between units and building structure or between components themselves.
 - e. Obtain Architect's approval for connections to building elements at locations other than indicated in Drawings.
 - f. Accommodate building structure deflections in system connections to structure.
 - 3. System shall accommodate movement of components without buckling, failure of joint seals, undue stress on fasteners, or other detrimental effects when subjected to seasonal temperature changes and live loads.
 - 4. Thermal Movements: Provide exterior metal fabrications that allow for thermal movements resulting from the following maximum change (range) in ambient and surface temperatures by preventing buckling, opening of joints, overstressing of components, failure of connections, and other detrimental effects. Base engineering calculation on surface temperatures of materials due to both solar heat gain and nighttime-sky heat loss.

1.5 ENVIRONMENTAL ISSUES

- A. Do not apply gutter or downspout materials during inclement weather.

1.6 QUALITY ASSURANCE

- A. Perform work per SMACNA Architectural Sheet Metal Manual and NRCA Roofing and Waterproofing Manual.
- B. Installer: A firm with a minimum of five (5) years of successful experience with installation of copper gutter and downspout work of type and scope equivalent to Work of this Section.

1.7 DELIVERY STORAGE AND HANDLING

- A. Packing, Shipping, Handling, and Unloading: Protect finish metal faces.

- B. Acceptance at Site: Examine each component and accessory as delivered and confirm that material and finish is undamaged. Do not accept or install damaged materials.
- C. Storage and Protection
 - 1. Stack pre-formed material to prevent twisting, bending, and abrasions.
 - 2. Provide ventilation.
 - 3. Prevent contact with materials which may cause discoloration or staining.

1.8 WARRANTY

- A. Special Warranty: Installer agrees to repair built-in-gutter where failure is evident during specified warranty period.
 - 1. Warranty Period: 10 years from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 MATERIALS, GENERAL

- A. Downspouts (Alternate)
 - 1. Downspouts: 16 oz. per sq. ft. (0.0216-inch thick) except as otherwise indicated.
 - 2. Match existing size.
- B. Offsets and Elbows
 - 1. Match existing.
- C. Downspout Brackets
 - 1. Match existing.
 - 2. Fasten downspouts to hangers with stainless steel sheet metal screws.
 - 3. Secure hangers to masonry walls with stainless steel machine bolts in lead shields.
- D. Cast Iron Downspout Boots
 - 1. Downspout Boots: Provide impact-resistant cast iron downspout boots to protect metal downspouts at ground level and efficiently direct roof drainage into storm water system. Interior profile of downspout boot must have a hydraulic design that promotes uniform flow rates without obstruction.
 - 2. Basis-of-Design Product: Subject to compliance with requirements, provide J.R. Hoe and Sons, Inc.
 - 3. Material: Cast iron; ASTM A 48/A 48M, Class 30.
 - 4. Interior Profile: Interior profile of Downspout Boot should not contain boxed corners or areas of reduced volume that may restrict hydraulic flow.
 - a. Casting height, inlet size, and configuration to suit building downspouts.
 - b. Minimum casting thickness not less than 3/8 inch.
 - 5. Design per J.R. Hoe and Sons.
 - 6. Finish: Manufacturer's Primer Coat

2.2 MISCELLANEOUS MATERIALS

- A. General: Provide materials and types of fasteners, solder, protective coatings, sealants, and other miscellaneous items as required for complete installation and as recommended by manufacturer unless otherwise indicated.
- B. Alternate Fasteners: Use fasteners designed to withstand design loads and recommended by manufacturer of primary sheet metal.
 - 1. General: All fasteners must be compatible with base material on which they are used.
 - 2. Fasteners for Copper Sheet: Copper or passivated Series 300 stainless steel.
 - a. No aluminum fasteners shall be used with copper sheet.
 - 3. Use copper rivets with non-ferrous mandrels.
 - a. Pop Rivets: 1/8-inch to 3/16-inch diameter, with solid brass mandrels.
 - b. Provide solid copper rivet (tinner's rivets) where structural integrity of seam is required.
- C. Fasteners: Use fasteners designed to withstand design loads and recommended by manufacturer of primary sheet metal.
 - 1. General: All fasteners must be compatible with base material on which they are used. Non-ferrous fasteners to be used.
- D. Solder (Lead Coated Copper): ASTM B 32, Grade Sn60, 60 percent tin and 40 percent lead.
 - 1. Muriatic acid neutralized with zinc or approved brand of soldering flux.
 - a. Flux: La-Co Soldering Flux
- E. Caulk (metal to masonry): Single part linear polyurethane polymer as indicated in Section 079200 "Joint Sealants".

2.3 FABRICATION

- A. Fabricate gutters, downspouts, and fittings to the shape and profile indicated on the Drawings. When fabrication details are not indicated follow the applicable requirements of the Architectural Sheet Metal Manual of the Sheet Metal And Air Conditioning Contractors National Association, Inc.
- B. Solder for Copper:
 - 1. Solder metal joints except those indicated or required to be movement type joints in accordance with the "Copper in Architecture" handbook published by the Copper Development Association Inc. (CDA).
 - 2. Tin edges of copper sheets and cleats at soldered joints.
 - 3. Upon completion of each area of soldering, carefully remove flux and other residue from surfaces. Neutralize acid flux by washing with baking soda solution, and then flushing with clear water. Use special care to neutralize and clean crevices.

PART 3 - EXECUTION

3.1 PREPARATION

- A. Verify that substrates are in place and ready for installation of gutters and downspouts.

- B. Do not install the Work of this Section unless all necessary nailers, blocking and other supporting components have been provided.
 - 1. Coordinate installation of roof perimeter flashing with installation of gutter system.
- C. Confirm that substrate system is even, smooth, sound, clean, dry, and free from defects.

3.2 GENERAL

- A. All downspouts, boots, and gutter drains must be securely attached to the structure.
- B. Installation, General.
 - 1. General: Except as otherwise indicated, comply with Architects installation instructions and recommendations and with cited industry standards. Anchor units of work securely in place by methods indicated, providing for thermal expansion of units; conceal fasteners where possible, and set units true to line and level as indicated. Install work with laps, joints, and seams that will be permanently watertight and weatherproof
 - a. Install units plumb, level, square, and free from warp or twist while maintaining dimensional tolerances and alignment with surrounding construction.
 - b. Fit gutters to downspouts and flashings for watertight connections. Make corners square, surfaces true and straight in planes, and lines accurate to profiles.
 - c. Miter, lap seam and close corner joints with solder. Seal seams and joints watertight with solder
 - d. Install expansion joints at frequency recommended by the cited industry standards. Do not fasten moving seams such that movement is restricted.
 - e. Coordinate with installation of roofing system and roof accessories.
- C. Cutting, Fitting, and Placement: Perform cutting, drilling, and fitting required for installing metal fabrications. Set metal fabrications accurately in location, alignment, and elevation; with edges and surfaces level, plumb, true, and free of rack; and measured from established lines and levels.
- D. Downspouts shall have the minimum cross section dimensions as shown on the drawings.
- E. The opening in the gutter into the downspout shall equal the minimum downspout size shown on the drawings.

3.3 DOWNSPOUT INSTALLATION

- A. Connection to Existing Construction
 - 1. Tie the items of work in with the existing work to obtain watertight installation.
 - 2. Match the existing installation as much as practicable, unless otherwise specified.
 - 3. Repair and dress adjacent existing components as required to make secure and neat connections with new items.
- B. Installation of Downspouts:
 - 1. Locate downspouts as illustrated in Drawings.
 - 2. Join the downspout sections with end joints that telescope at least 1-1/2 inches.
 - 3. Install necessary offsets and elbows.
 - 4. Secure downspout with hangers at top and bottom and 5'x 0" o.c. with a minimum of 2 hangers at each downspout section. Form hangers to keep downspouts 1 inch away from wall.
 - 5. Fasten downspouts to hangers with stainless steel sheet metal screws.

6. Secure hangers to masonry and concrete walls with stainless steel machine bolts in lead shields.
7. Connection to Underground Drains: Fit the downspout neatly into the drainpipe or boot. Caulk the joint with lead wool and seal with sealant.

C. Installation of Boots: Install downspout boots where indicated.

3.4 GUTTER

A. Connection to Existing Construction

1. Tie the items of work in with the existing work to obtain watertight installation.
2. Match the existing installation as much as practicable, unless otherwise specified.
3. Repair and dress adjacent existing components as required to make secure and neat connections with new items.
4. Repair all holes and damage to form watertight installation.
5. Adjust and straighten metal where bent.

3.5 CLEAN UP

- A. Remove damaged, defective or improperly installed materials. Replace with new materials installed per requirements of this section.
- B. Clean finished surfaces according to manufacturer's written instructions; maintain clean condition until Final Completion.

END OF SECTION 077123

SECTION 079200 - JOINT SEALANTS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. Section Includes:

- 1. Joint sealants.

1.3 ACTION SUBMITTALS

- A. Product Data & MSDS Sheets: For each joint-sealant product indicated.
- B. Joint-Sealant Schedule: Include the following information:
 - 1. Joint-sealant application, joint location, and designation.
 - 2. Joint-sealant manufacturer and product name.
 - 3. Joint-sealant formulation.
 - 4. Joint-sealant color.
- C. Warranties: Sample of special warranties.

1.4 QUALITY ASSURANCE

- A. Source Limitations: Obtain each kind of joint sealant from single source from single manufacturer.
- B. Product Testing: Test joint sealants using a qualified testing agency.
 - 1. Testing Agency Qualifications: An independent testing agency qualified according to ASTM C 1021 to conduct the testing indicated.
 - 2. Test according to SWRI's Sealant Validation Program for compliance with requirements specified by reference to ASTM C 920 for adhesion and cohesion under cyclic movement, adhesion-in-peel, and indentation hardness.

1.5 PROJECT CONDITIONS

- A. Do not proceed with installation of joint sealants under the following conditions:
 - 1. When ambient and substrate temperature conditions are outside limits permitted by joint-sealant manufacturer or are below 40 deg F.

2. When joint substrates are wet.
3. Where joint widths are less than those allowed by joint-sealant manufacturer for applications indicated.
4. Where contaminants capable of interfering with adhesion have not yet been removed from joint substrates.

1.6 WARRANTY

- A. Special Installer's Warranty: Manufacturer's standard form in which Installer agrees to repair or replace joint sealants that do not comply with performance and other requirements specified in this Section within specified warranty period.
 1. Warranty Period: Two years from date of Substantial Completion.
- B. Special Manufacturer's Warranty: Manufacturer's standard form in which joint-sealant manufacturer agrees to furnish joint sealants to repair or replace those that do not comply with performance and other requirements specified in this Section within specified warranty period.
 1. Warranty Period for Urethane Sealants: 5 years from date of Substantial Completion.
 2. Warranty Period for Silicone Sealants: 20 years from date of Substantial Completion.
- C. Special warranties specified in this article exclude deterioration or failure of joint sealants from the following:
 1. Movement of the structure caused by structural settlement or errors attributable to design or construction resulting in stresses on the sealant exceeding sealant manufacturer's written specifications for sealant elongation and compression.
 2. Disintegration of joint substrates from natural causes exceeding design specifications.
 3. Mechanical damage caused by individuals, tools, or other outside agents.
 4. Changes in sealant appearance caused by accumulation of dirt or other atmospheric contaminants.

PART 2 - PRODUCTS

2.1 MATERIALS, GENERAL

- A. Compatibility: Provide joint sealants, backings, and other related materials that are compatible with one another and with joint substrates under conditions of service and application, as demonstrated by joint-sealant manufacturer, based on testing and field experience.

2.2 MATERIALS, GENERAL

- A. Compatibility: Provide joint sealants, backings, and other related materials that are compatible with one another and with joint substrates under conditions of service and application, as demonstrated by joint-sealant manufacturer, based on testing and field experience.
- B. Liquid-Applied Joint Sealants: Comply with ASTM C 920 and other requirements indicated for each liquid-applied joint sealant specified, including those referencing ASTM C 920 classifications for type, grade, class, and uses related to exposure and joint substrates.

- C. Stain-Test-Response Characteristics: Where sealants are specified to be non-staining to porous substrates, provide products that have undergone testing according to ASTM C 1248 and have not stained porous joint substrates indicated for Project.
- D. Colors of Exposed Joint Sealants: As selected by Architect from manufacturer's full range.

2.3 ELASTOMERIC JOINT SEALANTS

- A. Elastomeric Sealants: Comply with ASTM C 920 and other requirements indicated for each liquid-applied chemically curing sealant specified, including those referencing ASTM C 920 classifications for type, grade, class, and uses related to exposure and joint substrates.
- B. Joint Sealant Material (Wood to Wood): Sealant to be paintable.
 - 1. Exterior
 - a. Sashco Big Stretch Sealant
 - b. An approved equal

NOTE: Sealants must be primed

2.4 URETHANE JOINT SEALANTS

- A. Joint Sealant Material (Wood to Metal) (Metal to Masonry)(Wood to Masonry):
 - 1. Exterior
 - a. Single-Component, Nonsag, Urethane Joint Sealant: ASTM C 920, Type S, Grade NS, Class 25, for Use NT.
 - 1) Sika Corporation, Inc.; Sikaflex - 1a
 - 2) BASF Building Systems; Sonolastic NP1.
 - 3) Tremco; Vulkem 116.

2.5 JOINT-SEALANT BACKING

- A. General: Provide sealant backings of material and type that are non-staining; are compatible with joint substrates, sealants, primers, and other joint fillers; and are approved for applications indicated by sealant manufacturer based on field experience and laboratory testing.
- B. Cylindrical Sealant Backings: ASTM C 1330, Type C (closed-cell material with a surface skin) or other type, as approved in writing by joint-sealant manufacturer for joint application indicated, and of size and density to control sealant depth and otherwise contribute to producing optimum sealant performance:
- C. Bond-Breaker Tape: Polyethylene tape or other plastic tape recommended by sealant manufacturer for preventing sealant from adhering to rigid, inflexible joint-filler materials or joint surfaces at back of joint where such adhesion would result in sealant failure. Provide self-adhesive tape where applicable.

2.6 MISCELLANEOUS MATERIALS

- A. Primer: Material recommended by joint-sealant manufacturer where required for adhesion of sealant to joint substrates indicated, as determined from preconstruction joint-sealant-substrate tests and field tests. Prime all joint substrates unless indicated otherwise in writing by the Architect.

- B. Cleaners for Nonporous Surfaces: Chemical cleaners acceptable to manufacturers of sealants and sealant backing materials, free of oily residues or other substances capable of staining or harming joint substrates and adjacent nonporous surfaces in any way, and formulated to promote optimum adhesion of sealants to joint substrates.
- C. Cylindrical Sealant Backings: ASTM C 1330, Type C (closed-cell material with a surface skin) or other type, as approved in writing by joint-sealant manufacturer for joint application indicated, and of size and density to control sealant depth and otherwise contribute to producing optimum sealant performance:
- D. Bond-Breaker Tape: Polyethylene tape or other plastic tape recommended by sealant manufacturer for preventing sealant from adhering to rigid, inflexible joint-filler materials or joint surfaces at back of joint where such adhesion would result in sealant failure. Provide self-adhesive tape where applicable.
- E. Masking Tape: Non-staining, nonabsorbent material compatible with joint sealants and surfaces adjacent to joints.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine joints indicated to receive joint sealants, with Installer present, for compliance with requirements for joint configuration, installation tolerances, and other conditions affecting joint-sealant performance.
- B. Proceed with installation only after unsatisfactory conditions have been corrected.
- C. Before commencement of work, carefully examine all surfaces to receive work and notify the Architect in writing of any conditions detrimental to the performance of this work. Do not proceed until unsatisfactory or deteriorated conditions have been inspected, corrected and are acceptable to the Architect and the applicator. Commencement of work will be construed as the applicator's acceptance of all surfaces. Commencement of the work prior to the Architect's inspection and acceptance is done at the applicator's risk.

3.2 PREPARATION

- A. Surface Cleaning of Joints: Clean out joints immediately before installing joint sealants to comply with joint-sealant manufacturer's written instructions and the following requirements:
 - 1. Remove all foreign material from joint substrates that could interfere with adhesion of joint sealant, including dust, paints (except for permanent, protective coatings tested and approved for sealant adhesion and compatibility by sealant manufacturer), old joint sealants, oil, grease, waterproofing, water repellents, water, surface dirt, and frost.
 - 2. Clean porous joint substrate surfaces by brushing, grinding, mechanical abrading, or a combination of these methods to produce a clean, sound substrate capable of developing optimum bond with joint sealants. Remove loose particles remaining after cleaning operations above by vacuuming or blowing out joints with oil-free compressed air.
 - 3. Remove laitance and form-release agents from concrete.

4. Clean nonporous joint substrate surfaces with chemical cleaners or other means that do not stain, harm substrates, or leave residues capable of interfering with adhesion of joint sealants.
- B. Joint Priming: Prime joint substrates where recommended by joint-sealant manufacturer or as indicated by preconstruction joint-sealant-substrate tests or prior experience. Apply primer to comply with joint-sealant manufacturer's written instructions. Confine primers to areas of joint-sealant bond; do not allow spillage or migration onto adjoining surfaces.
- C. Masking Tape: Use masking tape where required to prevent contact of sealant or primer with adjoining surfaces that otherwise would be permanently stained or damaged by such contact or by cleaning methods required to remove sealant smears. Remove tape immediately after tooling without disturbing joint seal.

3.3 INSTALLATION OF JOINT SEALANTS

- A. General: Comply with joint-sealant manufacturer's written installation instructions for products and applications indicated, unless more stringent requirements apply.
- B. Sealant Installation Standard: Comply with recommendations in ASTM C 1193 for use of joint sealants as applicable to materials, applications, and conditions indicated.
- C. Install sealant backings of kind indicated to support sealants during application and at position required to produce cross-sectional shapes and depths of installed sealants relative to joint widths that allow optimum sealant movement capability.
 1. Do not leave gaps between ends of sealant backings.
 2. Do not stretch, twist, puncture, or tear sealant backings.
 3. Remove absorbent sealant backings that have become wet before sealant application and replace them with dry materials.
- D. Install sealants using proven techniques that comply with the following and at the same time backings are installed:
 1. Place sealants so they directly contact and fully wet joint substrates.
 2. Completely fill recesses in each joint configuration.
 3. Produce uniform, cross-sectional shapes and depths relative to joint widths that allow optimum sealant movement capability.
- E. Tooling of Non-sag Sealants: Immediately after sealant application and before skinning or curing begins, tool sealants according to requirements specified in subparagraphs below to form smooth, uniform beads of configuration indicated; to eliminate air pockets; and to ensure contact and adhesion of sealant with sides of joint.
 1. Remove excess sealant from surfaces adjacent to joints.
 2. Use tooling agents that are approved in writing by sealant manufacturer and that do not discolor sealants or adjacent surfaces.
 3. Provide concave joint profile per Figure 8A in ASTM C 1193, unless otherwise indicated.
 - a. Use masking tape to protect surfaces adjacent to recessed tooled joints.
- F. Installation of Preformed Foam Sealants: Install each length of sealant immediately after removing protective wrapping. Do not pull or stretch material. Produce seal continuity at ends,

turns, and intersections of joints. For applications at low ambient temperatures, apply heat to sealant in compliance with sealant manufacturer's written instructions.

3.4 CLEANING

- A. Clean off excess sealant or sealant smears adjacent to joints as the Work progresses by methods and with cleaning materials approved in writing by manufacturers of joint sealants and of products in which joints occur.

3.5 PROTECTION

- A. Protect joint sealants during and after curing period from contact with contaminating substances and from damage resulting from construction operations or other causes so sealants are without deterioration or damage at time of Substantial Completion. If, despite such protection, damage or deterioration occurs, cut out and remove damaged or deteriorated joint sealants immediately so installations with repaired areas are indistinguishable from original work.

END OF SECTION

SECTION 090120 – MAINTENANCE OF PLASTER

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.
- B. Codes and standards set forth by:
 - 1. ASTM C 841 - Standard Specification For Installation Of Interior Lathing And Furring
 - 2. ASTM C 842 - Standard Specification For Application Of Interior Gypsum Plaster
 - 3. ASTM C 847 - Standard Specification For Metal Lath
 - 4. ASTM C 28 - Standard Specification For Gypsum Plasters
 - 5. ASTM C 631-81 - Standard Specification For Bonding Compounds For Interior Plastering
 - 6. ASTM C 35 - Standard Specification For Inorganic Aggregates For Use In Gypsum Plaster
 - 7. ASTM C 206 - Standard Specification For Finishing Hydrated Lime

1.2 SUMMARY

- A. This project involves the rehabilitation of an historic building. Treat the building respectfully. Carefully respect existing conditions and treat existing materials as irreplaceable. Do not remove, alter or disfigure any existing materials, elements or finishes, unless indicated on the Drawings, specified herein, or directed by the Architect.
- B. This Section includes the following:
 - 1. Patching and restoration of existing plasterwork; both flat and ornamental.
 - a. Scope is limited to the conference room.
 - 2. Repair of cracks, holes, chips and gouges in flat plaster surfaces.
 - 3. Patching of existing plasterwork where entire sections need to be replaced.

1.3 SCOPE

- A. General: Provide all labor, materials, equipment, and services required to complete the plaster patching work as specified herein, and required by existing conditions and authorities having jurisdiction.
 - 1. Contractor shall survey all areas where existing plaster is shown to remain and to be repaired, in order to verify extent of patch or repair.
 - 2. Cutting out and removing existing interior plaster surfaces where needed to repair existing gypsum plaster.
 - 3. Cutting out and removing existing plaster on walls and ceilings as required for installation of new work.
 - 4. Repair and patching cracks, spalls, delamination, breaks, losses, chips, holes or other defects in gypsum plaster surfaces.
 - 5. Providing new plaster to align with existing plaster at existing walls and ceilings.

6. Plaster patching and new plaster ceilings to match historic conditions of plaster on wire lath.
7. Cleaning and removal of biogrowth for all existing plasterwork on the walls and ceilings of the existing building within the room included in the scope of work.

1.4 SUBMITTALS:

- A. Verification of Quantities. Prior to start of work, Contractor shall verify the conditions shown on the drawings and the quantities of work called out for repair. Notify the Architect if a discrepancy exists between the quantities shown on the drawings and actual field conditions. Do not proceed with plaster repair until verification of quantities document is submitted, reviewed and resolved. Start of work of this section constitutes acceptance of scope of work and quantities as noted in the drawings.
- B. Product Data. Submit manufacturer's product data for all materials proposed for use.
- C. Field Mock-up. For each type of plaster repair Contractor shall prepare mock-up panel on-site for Architects review and approval. Prepare samples after product data has been submitted and approved.
 1. Prepare field samples for restoration methods to demonstrate aesthetic effects and quality of materials and execution. Use materials and methods proposed for completed Work and prepare samples under same conditions to be expected during remainder of Work.
 2. Locate mockups within the building where directed by Architect.
 3. The Contractor shall prepare sample installations for each of the plaster repair type indicated. Panels should be chosen in discrete locations to represent the conditions of the building as a whole. Sample installations will serve to determine the time required for project completion and the suitability of materials used. Architect shall approve locations of test panels for each type of finish and surface.
 4. Sample installations shall be installed by person(s) scheduled to perform the Work. If personnel changes during the progress of the Work, new sample installations shall be prepared by the responsible person(s).
 5. The final appearance of remainder of Work shall match approved Installations. Maintain mockups in an undisturbed condition during construction as a standard for judging the completed Work.
 6. Approved Sample Installations will become part of the Work, and serve as the quality standard for similar type work on this project. Additional sample installations, up to a maximum of 3 for each type of installation, shall be prepared if necessary to obtain satisfactory results at no additional cost to the Client.

1.5 PROJECT CONDITIONS

- A. Contractor to protect adjacent plaster surfaces with original ornamental finishes from plaster repair activities.
- B. It is critical that new and repaired plaster areas are completely cured and dry prior to the start of ornamental leafing and other finish activities. Allow ample time in the schedule coordinate these critical activities.

1.6 ENVIRONMENTAL CONDITIONS

- A. Environmental Requirements, General: Comply with requirements of referenced plaster application standards and recommendations of plaster manufacturer for environmental conditions before, during, and after application of plaster.
- B. The work of this Section shall be executed only when the air and surface temperatures are 40 degrees Fahrenheit and rising or less than 90 degrees F and falling. Minimum temperature for cleaning shall be 50 degrees F and above for at least two hours after completion and above freezing for at least 24 hours after completion.
- C. Ventilation: Ventilate building spaces in compliance with ASTM C 842 and as required to remove water in excess of that required for hydration of plaster. Begin ventilation immediately after plaster is applied and continue until it sets.
- D. Protection
 - 1. Restoration of existing plaster shall be done in such manner as not to cause damage to contiguous work.

1.7 QUALITY ASSURANCE

- A. Qualification: Qualifications: All work to be performed by skilled subcontractor having successful experience in comparable plaster restoration projects including work on at least three (3) projects similar in scope and scale to this Project in the last five years.
 - 1. Only skilled plasters that are familiar and experienced with the specified methods are to be used for the work.
 - 2. One skilled plasterer shall be present at all times during the direction and execution of the work.
 - 3. If personnel changes during the progress of the work, new sample installations may be required to be prepared by person(s) doing the work at the discretion of the Architect.
- B. Allowable Tolerances: All plaster repairs shall be keyed and feathered to exactly match and continue edges and contours of existing plaster work. Repairs shall be true and flat in connections with adjacent surfaces when checked with an 8 ft. straight edge; do not exceed 1/8 inch variation in 8 ft. for bow, warp, plumb, or level for flat and curved surfaces.
- C. Defects
 - 1. Plastering with defects of such character as will mar the appearance of finished Work, or which is otherwise defective, shall be rejected, removed and replaced at the Contractor's expense.
 - 2. All ridges, ledges and visual irregularities shall be rejected, removed and plaster replaced at the Contractor's expense.
 - 3. Any defects or irregularities of plaster restoration work telegraphing through paint shall be cause for rejection of the Work. The Contractor shall remove any subsequent work, remove and replace the defective or irregular plaster restoration work and have the subsequent work replaced by skilled workman in the appropriate trades, to the satisfaction of the Architect, at the Contractor's expense.

- D. Pre-Installation Meeting: Pre-Installation Meeting. Following Contractor survey of existing conditions, Contractor to hold pre-installation meeting to review methods and procedures and to confirm repair quantities.

1.8 DELIVERY, STORAGE, AND HANDLING

- A. Deliver materials in original packages, containers or bundles bearing brand name and identification of manufacturer.
- B. Deliver materials to the job ready for use. Delivered materials shall be identical to reviewed shop drawings and samples.
- C. Store materials inside, under cover and in manner to keep them dry, protected from weather, direct sunlight, surface contamination, aging, corrosion, and damage from construction traffic and other causes.

PART 2 - PRODUCTS

2.1 MATERIALS

- A. Gypsum Plaster: ASTM C28. Neat plaster for hand application of scratch coat over metal lath, concrete and terra cotta shall contain not less than 0.01 percent by weight of synthetic or vegetable fibers or not less than 0.02 percent by weight of mineral fibers.
- B. Special Finishing Hydrated Lime: ASTM C-206. Lime putty shall be made from special finishing hydrated lime, machine mixed with water to form a putty and allowed to stand for at least 15 minutes before using. Approved measures shall be taken to protect the putty from sun and to prevent excessive evaporation when stored.
- C. Sand: ASTM C35. Graduation of natural or manufactured sand for plaster shall be as determined by Architect.
- D. Water for cleaning: Clean, potable, pH neutral, free of oils, acids, alkalis, salts, organic matter and contaminants.
 - 1. Where water has high iron or other metal content, pre-treat with complexing agents before use to reduce risk of staining.
- E. Metal Accessories: Grounds and casing corner beads shall be zinc-coated sheet steel, 26 ga. or heavier, with expanded or perforated flanges or clips so shaped and fabricated as to permit complete embedment in the plaster.
- F. Wire Lath: ASTM C847 3.4 lb/sq. yd. Expanded metal, galvanized finish, self-furring type.
- G. Wood Lath for Repairs: Reuse undamaged historic lath. If unavailable match existing wood lath.
- H. Plaster washers: Perforated metal washers as approved by Architect.
- I. Bonding Compound for Existing Surfaces: meet requirements of MIL-B-19235.

2.2 MIXING OF PLASTER

- A. Mix and apply plaster in accordance with the directions of the manufacturer.
- B. Texture of finishing coat shall match existing plaster.

PART 3 - EXECUTION

3.1 INSPECTION

- A. Examine the areas and conditions where plaster work is to be installed and correct any conditions detrimental to the proper and timely completion of the work. Do not proceed with the work until unsatisfactory conditions have been corrected by the Contractor in a manner acceptable to the Architect.

3.2 GENERAL

- A. Sequence plaster installation properly with the installation and protection of other work, so that neither will be damaged by the installation of others work.
- B. Cut out and replace all unbonded spots. Build in the work in others and do all cutting and patching of plaster in this connection. Where abutting other built-in materials, plaster shall be finished tightly against them and neatly trimmed unless otherwise indicated.
- C. Plaster thicknesses indicated shall be considered as a minimum; plaster shall be of such thickness required to plumb and square wall surfaces so that plaster is flush with adjacent surfaces.
- D. Replicate, repair and restore flat wall and ceiling plaster as indicated.
- E. Plaster repairs shall be executed edge to edge in long strips or large areas for each separate coat. Where breaks are necessary lap new work over adjoining work.
- F. Bring finished surfaces of plaster to true planes and when complete surface shall be clean, free from blisters, pits, discoloration, cracks or other defects. In all cases the plastering throughout is to be delivered clean and perfect in every respect.

3.3 PREPARATION

- A. Scrub all walls and ceilings to remove dirt, soot, dust, oils, and stains.
- B. Use a mild detergent solution and a soft bristle scrub brush to scrub all walls and ceilings. Rinse and dry walls and ceilings with a squeegee.
- C. Minimize water usage to avoid excessively wetting work area. Use towels or drop cloths to prevent water accumulation on floors. Dry floors with towels immediately if water gets on floor surfaces. Dry surfaces immediately after rinsing.

- D. Remove all loose and flaking paint, wallpaper, spalled plaster, insect nests, spider webs and other foreign substances.
- E. Use scrapers to remove all loose and flaking paint on all walls and ceilings. Remove all painted finishes where the condition of the existing painted surface is unsuitable for receiving finishes by scraping or stripping. Do not damage existing sound plaster.
- F. Scrape off all other foreign materials down to sound plaster.
- G. Do not gouge walls or ceiling while scraping. Keep scraper blade flat and almost normal to the surface.

3.4 MIXING

- A. Mix and proportion plaster in accordance with the requirements of the specified types of plaster.
 - 1. Mix ready-mixed materials in accordance with the manufacturer's instructions. Mechanically mix materials, do not hand mix, except where small amounts are needed. Provide waterproof protection under mixing equipment if mixing is done inside the building. Do not exceed specified aggregate ratios.
 - 2. Mix each batch of plaster separately and only in the quantity which will be used before the plaster starts to set.
 - 3. Discard plaster that has started to set; do not retemper.
 - 4. Do not use materials that are caked and lumpy or which are dirty or contaminated by foreign materials.
 - 5. Clean tools and equipment before mixing next batch of plaster.

3.5 EXECUTION

- A. Carefully remove existing damaged plaster not removed under demolition.
- B. Verify attachment of lath (where existing) to masonry substrate or wood framing. Inspect wood lath in all existing plaster walls and partitions.
- C. Refasten and replace deteriorated lath as required.
- D. Remove damaged plaster carefully without breaking or damaging wood lath. When lath is exposed and specified to be removed, remove lath intact without pry marks, splitting or other damage. Do not damage the substrate or assembly to which lath is attached. Remove fasteners from lath and substrate. Carefully extract fasteners to avoid splitting. Clean and salvage all lath, removing all residue of plaster.
- E. Use chisels or other cutting tool to clean and shape surface defects edges to a minimum 1/16 inch depth. Widen holes and cracks to permit adequate patching plaster penetration to sufficiently bond. Scrape off loose or spalling plaster to sound plaster substrate. Shape edges of gouges and dents to receive patching plaster of sufficient thickness (minimum 1/16 inch deep) without feathering.
- F. All preparation shall be done with compatible materials and methods that will not compromise the integrity of the plasters, and will not telegraph through finished surfaces.

- G. At completion of work, all new and historic plaster should be well adhered to substrate.

3.6 APPLICATION, General

- A. Prepare existing plaster surfaces for bonded base coats and use bonding compound or agent.
- B. Tolerances: Do not deviate more than 1/8 inch in 10'-0" from a true plane in finished plaster surfaces, as measured by a 10'-0" straightedge placed at any location on surface.
- C. Sequence plaster application with the installation and protection of other work so that neither will be damaged by the installation of the other.
- D. Plaster flush with existing surfaces.
- E. Apply thicknesses and number of coats of plaster as required by the depth of the defect to the surface.

3.7 GYPSUM PLASTER APPLICATION ON METAL LATH

- A. For Metal Lath Apply in Three (3) Coats: Scratch Coat, brown coat and finish coat.
- B. Scratch Coats: Apply with sufficient material and pressure to form full bond with solid base materials. Scratch the surface to form a bond for the brown coat.
 - 1. Apply scratch coat firmly over lath with sufficient force to form good keys. Crosshatch evenly scratch coat.
- C. Brown Coats: Do not apply brown coat until after the scratch coat has hardened, and not less than 24 hours after application of the scratch coat. All joints in brown coat plaster shall be lap joints. After drying, all shrinkage cracks shall be cut out and filled with scratch coat plaster.
- D. Mix scratch and brown coats shall be mixed in the proportions of 100 lbs. gypsum neat plaster to 2-1/2 cu. ft. of sand. Scratch and brown coats of fibered gypsum plaster shall be mixed in the proportions of 100 lbs. fibered gypsum plaster to one cu. ft. of sand.
- E. Finish Coats: Gypsum gauging plaster finish. Mix in the proportion of one part calcined gypsum, to 3 parts of lime putty by volume. Apply bonding compound to existing base coat and then apply finish coat over base coat of gypsum plaster. The finish shall be allowed to draw a few minutes and then shall be well troweled with water to a smooth finish, free from blemishes. The thickness of finish coat shall be from 1/16" to 1/8" and total thickness of gypsum plaster shall be as indicated but no less than 5/8".

3.8 CRACK REPAIR, REPAIR OF SMALL AREAS

- A. Cracks:
 - 1. Rout out crack as required back to sound material.
 - 2. Fill crack with gypsum plaster flush with adjacent surfaces.
 - 3. Recreate profile, if extant.
 - 4. Sand smooth.

- B. Chips and gouges greater than 1/8" deep:
 - 1. Remove all loose material as required back to sound material.
 - 2. Infill with finish coat plaster flush with adjacent surfaces.
 - 3. Recreate profile, if extant.
 - 4. Sand smooth.

- C. Small chips and gouges
 - 1. Repair with finish coat plaster.
 - 2. Recreate profile, if extant.
 - 3. Sand smooth

3.9 FINISHING

- A. Cut, patch, point-up and repair plaster as necessary to restore shrinkage cracks, dents and imperfections. Repair or replace work to eliminate blisters, buckles, excessive crazing and check cracking, dry-outs, efflorescence, sweat-outs and similar defects, and where bond to the substrate has failed. Patched surfaces in existing plaster surfaces shall be imperceptible.
- B. Sand smooth-troweled finishes lightly to remove trowel marks.
- C. Remove temporary protection and enclosure of other work. Remove plaster from other surfaces which are not to be plastered. Repair floors, walls and other surfaces which have been stained, marred or otherwise damaged during the plastering work. When plastering work is completed, remove unused materials, containers and equipment and clean floors of plaster debris.
- D. Provide final protection and maintain conditions, in a manner suitable to Installer, which ensures plaster work being without damage or deterioration at time of substantial completion.
- E. See Section 099000 "Architectural Coatings" for preparation and application methods of plaster architectural coatings.

3.10 CLEAN UP

- A. Collect and dispose of waste material, packaging, debris, and effluent associated with the cleaning work in accordance with local, state, and federal environmental regulations.
- B. Upon completion of work, remove all protective coverings and coatings, and clean window glass and other spattered surfaces.
- C. Rinse treated areas to clean and remove all biological growth and chemicals.

END OF SECTION 090120

SECTION 090170.52 - PAINT REMOVAL

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. Section includes removal of existing coatings.
 - 1. Exterior entablature and soffit at main roof.
 - 2. Exterior entablature trim at addition roof (select trim scheduled to be removed).
- B. Related Sections:
 - 1. Section 099000 "Architectural Coatings".

1.3 DEFINITIONS

- A. Low-Pressure Spray; 100-500 psi, 4-6 gpm.

1.4 ACTION SUBMITTALS

- A. Product Data: For each type of product.
 - 1. Include material descriptions, and manufacturer's application instructions.
 - 2. Manufacturer's technical data sheets for each product indicated including chemical analysis.
 - 3. Manufacturer's certifications.

1.5 QUALITY ASSURANCE

- A. Supervision: Provide at least one person on site at all times during execution of the Work who is thoroughly familiar with the specified requirements and the methods and materials needed for their execution to direct all work performed under this Section.

1.6 PRECONSTRUCTION TESTING

- A. Mockups: Prepare test panels to determine product, thickness, the concentration of chemicals, dwell times, and methods employed to effectively remove the existing elastomeric coating and to set quality standards for materials and execution.
 - 1. Designate area, not less than one square foot, but no more than 5 sf, for each substrate. As the work progresses additional test panels may be required to take into account prior repairs, type and thickness of existing coatings, temperature, humidity and sun exposure.
 - 2. Label, chart, and photograph test panels.
 - 3. Approval of mockups does not constitute approval of deviations from the Contract Documents contained in mockups unless Architect specifically approves such deviations in writing.
 - 4. Subject to compliance with requirements, approved mockups may become part of the completed Work if undisturbed at time of Substantial Completion.

1.7 FIELD CONDITIONS

- A. Weather Limitations: Proceed with paint removal only when existing and forecasted weather conditions are within the environmental limits set by each manufacturer's written instructions and specified requirements.
- B. **Lead-based paint is present on historic woodwork.**

PART 2 - PRODUCTS

2.1 HEAVY-DUTY STRIPPER

- A. Heavy-Duty Stripper: Water-based, non-toxic stripper effective in removing industrial coatings, such as urethanes, two-component epoxies, alkyd paints, varnish, and latex coatings. Product shall be free of flammable solvents and fumes and caustics.
 - 1. Products: Subject to compliance with requirements, provide the following:
 - a. Cathedral Stone; CSP Heavy Duty Stripper.
 - b. Dumond; Smart Strip.
 - c. Dumond; Smart Strip Pro.
 - d. Dumond Peel Away 1.
 - e. Approved Equal.

- B. Moisture-Retaining Covering: To retain moisture during dwell time of stripper.
 - 1. Products: Subject to compliance with requirements, provide the following:
 - a. Dumond Chemicals; Laminated Paper.

2.2 EQUIPMENT

- A. Provide equipment as recommended by manufacturer of chemical stripper and found to be effective on sample panels. The following tools may be used:
 - 1. Stiff Natural bristle brushes.
 - 2. Soft clean rags.
 - 3. Potable water.
 - 4. Putty knives, paint scrapers, plastic.
 - 5. Wire Brush on metal surfaces only, to remove rust bloom.
- B. Spray Equipment: Use spray equipment that provides controlled application at volume and pressure indicated, measured at nozzle. Adjust pressure and volume to ensure that spray methods do not damage surfaces.
 - 1. Equip units with pressure gages.
- C. Airless spray equipment: Adjustable pressure between 100-500 psi with a 0.19 inch or larger fan tip, with chemical resistant packing.
 - 1. Product: Titan 640i or larger.
- D. Standard Pressure washer with tip pressures no greater than 300 psi at the tip.
 - 1. For water-spray application, use fan-shaped spray tip that disperses water at an angle of 25 to 50 degrees.

PART 3 – EXECUTION

3.1 EXAMINATION

- A. Examine substrates and conditions, with Applicator present, for compliance with requirements and conditions affecting performance of the Work.

3.2 PROTECTION

- A. Protect adjacent surfaces with paper, drop cloths, and other means. Special protection should be applied to window, stone elements, and other historic material.
- B. Comply with each manufacturer's written instructions for protecting building and other surfaces against damage from exposure to its products. Prevent chemical solutions from coming into contact with people, motor vehicles, landscaping, buildings, and other surfaces that could be harmed by such contact.

1. Cover adjacent surfaces with materials that are proven to resist chemical solutions being used unless the solutions will not damage adjacent surfaces. Use protective materials that are UV resistant and waterproof. Apply masking agents to comply with manufacturer's written instructions. Do not apply liquid masking agent to painted or porous surfaces. When no longer needed, promptly remove masking to prevent adhesive staining.
 2. Do not apply chemical solutions during winds of sufficient force to spread them to unprotected surfaces.
- C. Do not proceed with surface preparation until proper protection has been installed for adjacent materials.

3.3 PAINT REMOVAL, GENERAL

- A. Do not begin paint removal until methods and materials as determined by test panels are approved by the Architect. Repeat test panels as required for differing conditions.
- B. Rely on information from test panels to determine which chemical products to use and at what concentration and thickness. Follow manufacturers' instructions for application of strippers.
1. Plan to remove paint in sections that can easily be applied in one working shift.
 2. Clearly mark or identify time of application and dwell time. Remove paint stripper in the same sequence of sections in which it was applied.
 3. Apply materials to all surfaces, corners, contours, and interstices, to provide a uniform final appearance without streaks.
- C. Monitor paint removal and do not continue if methods and materials employed result in any permanent damage to surfaces. Modify treatment and mockup additional test panels to determine safe methods and materials. Have those panels approved by Architect before proceeding.
- D. Monitor the process at the end of the dwell time cycle and be prepared with adequate workers to remove the paint stripper. Do not leave chemicals on the building past their designated dwell time.

3.4 PAINT REMOVAL

- A. Apply a thick, even layer of stripper onto the coating to be removed by means of low-pressure spray. Pressure washing shall be at a pressure, which will not damage the surface, yet provide effective removal. Apply stripper 30-50 percent thicker than coating to be removed, but not less than 15 mils wet film thickness. For coatings greater than 30 mils, apply in two layers. Allow to dwell, without agitation, for minimum time determined by test panels. In hot or dry conditions, a moisture-retaining covering may be used.
1. Unless otherwise indicated, hold spray nozzle at least 6 inches from surface and apply material in horizontal, back-and-forth sweeping motion, overlapping previous strokes to produce uniform coverage.
- B. In hot dry conditions if stripper begins to dry prematurely reapply a light coating of stripper. Do not allow stripper to dry on the wall.
- C. Apply moisture retaining covering to prevent stripper from drying out during dwell time of stripper.

- D. Remove lifted paint by scraper, squeegee, wet/dry vacuum or pressure wash. If necessary, apply second application of stripper to lift layers of coating still adhered to substrate. Collect and dispose of residue in accordance with state and local regulations and approved removal plan. Neutralize and collect alkaline and acid wastes before disposal.
- E. Rinse surface with pressure washer and surfactant cleaner to remove all chemical residue, working from bottom to top. Do not exceed 300 PSI.
 - 1. Dispose of runoff from operations by legal means and in a manner that prevents soil erosion, undermining of paving and foundations, damage to landscaping, and water penetration into building interiors.
- F. Where location does not permit pressure washing, clean surfaces with clean rags saturated in denatured alcohol, changing rags often.
 - 1. Dispose of rags in accordance with state and local regulations.
- G. Paint contains lead.
 - 1. Dispose of paint in approved containers.
 - 2. Analyze waste using the toxicity characteristics leaching procedure (TCLP), a representative sample of the waste must be tested by an accredited testing laboratory. If the waste contains more than the amount allowable for standard nonhazardous disposal, the contractor is responsible for disposing of the material as hazardous waste.

3.5 CLEANING AND PROTECTION

- A. At end of each workday, remove rubbish, empty cans, rags, and other discarded materials from Project site.
- B. Upon completion of work, remove all protective coverings and coatings. Clean window glass and other spattered surfaces by methods recommended by manufacturer, using care not to scratch or damage adjacent finished surfaces.

END OF SECTION 090170.52

SECTION 097200 - WALL COVERINGS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. Section Includes:
 - 1. Removal of existing wall covering.
 - 2. Installation of new wall covering.

1.3 SUBMITTALS

- A. Product Data: For each type of product indicated.

1.4 PROJECT CONDITIONS

- A. Environmental Limitations: Do not deliver or install wall coverings until spaces are enclosed and weathertight, wet work in spaces is complete and dry, work above ceilings is complete, and temporary HVAC system is operating and maintaining ambient temperature and humidity conditions at occupancy levels during the remainder of the construction period.
- B. Lighting: Do not install wall covering until a permanent level of lighting is provided on the surfaces to receive wall covering.
- C. Ventilation: Provide continuous ventilation during installation and for not less than the time recommended by wall-covering manufacturer for full drying or curing.

PART 2 - PRODUCTS

2.1 MATERIALS

- A. Wall Liner: Nonwoven, synthetic underlayment and adhesive.
 - 1. Basis-of-Design Product: L-1 Heavy Duty Wall Liner by Norwall Group.
 - 2. Size: 20.5 inch by 33 feet.
- B. Wallpaper Stripper: "DIF" by William Zinsser & Co.Inc., or approved equal; mixed in accordance with manufacturer's instructions.
- C. Scoring Tool: "PaperTiger" by William Zinsser & Co., Inc., or approved equal..

- D. Wall Primer: "Bull's Eye Water Based Primer" by William Zinsser & Co.Inc., or approved equal; applied prior to installation of liner paper.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine substrates and conditions, with Installer present, to assess type and condition of existing materials, and other conditions affecting performance of the Work. Determine appropriate strategy for removal of wall covering materials.

3.2 PREPARATION

- A. Cover floor with newspapers or dropcloths. Protect carpeted areas with waterproof drop cloths.
- B. Remove hardware and hardware accessories, electrical plates and covers, light fixture trims, and similar items.

3.3 REMOVAL OF EXISTING WALL COVERING

- A. Dry strip as much of the wall covering as possible. Start at a top corner and work down along the vertical seams while peeling back the paper.
- B. Lightly score remaining wall covering using 20-grit sandpaper, or use a perforating/scoring tool.
- C. Apply a 50/50 solution of vinegar and hot water using a hand-held spray bottle and scrub the surface with a 3M scrubbing pad.
- D. If wall covering still remains, apply an enzyme wallpaper stripper in accordance with manufacturer's instructions.
- E. Once the paper has been successfully removed, remove residual paste by scrubbing the surface with a blue 3M scrubbing pad, water and a sponge.
- F. Rinse walls thoroughly with clean clear water and allow to dry at least 24 to 48 hours.
- G. Clean plaster wall surfaces and remove loose paint. Make plaster repairs as required in accordance with Section 090120 "Maintenance of Plaster."
- H. Notify Architect if condition of plaster is significantly compromised following removal of overlying paper.

3.4 INSTALLATION OF WALL LINER

- A. General: Comply with wall liner manufacturers' written installation instructions applicable to products and applications indicated except where more stringent requirements apply.
- B. Apply paint primer on all wall covering surfaces.

- C. Install seams vertical and plumb at least 6 inches from outside corners and 6 inches from inside corners unless a change of pattern or color exists at corner. No horizontal seams are permitted.
- D. Fully bond wall liner to substrate. Remove air bubbles, wrinkles, blisters, and other defects.
- E. Trim edges and seams for color uniformity, pattern match, and tight closure. Butt seams without any overlay or spacing between strips.

3.5 CLEANING

- A. Remove excess adhesive at finished seams, perimeter edges, and adjacent surfaces.
- B. Use cleaning methods recommended in writing by manufacturer.
- C. Reinstall hardware and hardware accessories, electrical plates and covers, light fixture trims, and similar items.

END OF SECTION 097200

SECTION 099000 – ARCHITECTURAL COATINGS FOR HISTORIC SUBSTRATES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.
- B. Section 013959: Historic Treatment Procedures
- C. Codes and standards set forth by:
 - 1. "Standard (Type 1)" as defined by the Painting and Decorating Contractors of America in their "Modern Guide to Paint Specifications", current edition.
 - 2. MPI Standards:
 - a. Products: Complying with MPI standards indicated and listed in "MPI Approved Products List."
 - b. Preparation and Workmanship: Comply with requirements in "MPI Architectural Painting Specification Manual" for products and paint systems indicated.
 - 3. ASTM D16-03 "Standard Terminology for Paint, Related Coatings, Materials, and Applications"
 - 4. **In addition to complying with all pertinent codes and standards, it shall be assumed that the existing painted surfaces are lead based. Painting contractor shall be responsible for complying with all EPA, DHEC and OSHA standards concerning the safe removal, disposal and cleanup of any lead-based paint and the safety of the workers and people outside the work areas. All dust, debris and residue shall be contained within the work area. Painting contractor shall be certified by the EPA.**

1.2 SUMMARY

- A. This project involves the rehabilitation of an historic building. Treat the building respectfully. Carefully inspect existing conditions and treat existing materials as irreplaceable. Do not remove, alter or disfigure any existing materials, elements or finishes, unless indicated on the Drawings, specified herein, or directed by the Architect.
- B. Paint building exterior in locations indicated on the Drawings. Locations include but are not limited to all entablatures, all soffits, all downspouts, and touch up of surfaces disturbed during course of work. Scope of work includes the following:
 - 1. Preparing substrates.
 - 2. Plain painting of exterior historic surfaces.
 - 3. Plain painting of exterior modern surfaces.
- C. Paint building interior in locations indicated on the Drawings. Locations include but are not limited to the conference room, basement addition, and touch up of surfaces disturbed during course of work. Scope of work includes the following:
 - 1. Preparing substrates.
 - 2. Plain painting of interior historic surfaces.
 - 3. Plain painting of interior modern surfaces.

1.3 DEFINITIONS

- A. "Paint" includes coating systems materials, primers, emulsions, enamels, stains, sealers and fillers, and other applied materials whether used as prime, intermediate, or finish coats.

1.4 SCOPE

- A. This Section includes all labor, materials, equipment, and services required to furnish and apply all of the painting materials indicated on the Drawings and as specified herein.
 - 1. Different colors shall be utilized as specified by Architect and illustrated in Drawings.
- B. It is the intent of this Specification to require that all exposed surfaces, unless otherwise specified or indicated to receive a factory finish shall receive the painter's finish as outlined herein.

1.5 SUBMITTALS

- A. Product Data: For each paint system indicated. Include block fillers and primers.
 - 1. Provide manufacturers' technical information, label analysis, and application instructions for each material proposed for use.
- B. Product List: For each product indicated, include the following:
 - 1. Cross-reference to paint system and locations of application areas. Use same designations indicated on Drawings and in schedules.
- C. Qualifications: Submit documentation of painters past project experience that meet the work experience outlined in the specification. Provide references for a minimum of two (2) historic projects completed in the last five years, including contact names and phone numbers. Submit documentation of required Lead Awareness Training.
- D. Samples. Provide samples of each color and material to be applied, with texture to simulate actual conditions, on representative samples of the actual substrate.
 - 1. Define each separate coat, including block fillers and primers. Use representative colors when preparing samples for review. Resubmit until required sheen, color, and texture is achieved.
 - 2. Provide a list of materials and application for each coat of each sample. Label each sample as to location and application.
- E. Closeout Documentation: Contractor shall leave one can of each product used appropriately marked with details of location on the building. Provide list of color names, numbers, and formulas.

1.6 QUALITY ASSURANCE

- 1. Work Experience: A qualified painting specialist with five years' expertise in matching and touching up existing paint on an historic structure. Experience only in new painting work is insufficient experience for work. **For manual lead paint disturbance, the painting specialist is required to have completed initial and annual OSHA compliant Lead**

Awareness Training. For mechanical lead paint disturbance, the painting specialist is required to have completed Renovation, Repair, and Painting Training.

- B. Mockups: Prepare mockups for each type of coating system and substrate indicated and each color and finish required to demonstrate aesthetic effects and to set quality standards for materials and execution. Duplicate appearance of approved Sample submittals.
 - 1. Surface-preparation mockups using applicable specified methods of cleaning and other surface preparation.
 - 2. Coating mockups to represent surfaces and conditions for application of each type of coating system.
- C. Lead Based Paint: The areas to be prepared for repainting may contain paint from early twentieth century. Based on coatings of similar age, there will be lead in the existing paint when encountered:
 - 1. Take all necessary actions and precautions to assure safety of the public, property and the environment, and workers in scraping, sanding, removing and disposing of any existing paint.
 - 2. Comply with applicable health, safety and environmental regulations of the government agencies having jurisdiction.

1.7 PROJECT CONDITIONS

- A. The Contractor is responsible for protecting existing adjacent materials and surfaces during the execution of the work and shall provide all necessary protection and follow all necessary work procedures to avoid damage to existing material assemblies not a part of the work in the Section.
- B. The Contractor shall provide visible barriers and / or warning tape around the perimeter of the work area for visitor protection and shall also provide that nearby vehicles and adjacent structures will be protected from damage during the course of the work.

1.8 ENVIRONMENTAL CONDITIONS

- A. The coating manufacturer's requirements for ambient temperature, humidity, and ventilation during painting operations, and temperature of surfaces to receive a coating shall be strictly followed.
- B. Comply with the manufacturer's recommendations as to environmental conditions under which the coating systems may be applied.
- C. Do not paint exterior when temperature is below 50° F when the surface is damp, or when temperature is likely to drop freezing within 24 hours. Avoid painting when surface is exposed to hot sun or early morning dew.
 - 1. Painting may continue during inclement weather if surfaces and areas to be painted are enclosed and heated within temperature limits specified by manufacturer during application and drying periods.
- D. Do not apply paint in areas where dust is being generated.
- E. VOC Content: Provide materials that comply with VOC limits of authorities having jurisdiction.

1.9 DELIVERY, STORAGE, AND HANDLING

- A. Deliver all coating materials to site and store in manufacturer's original unopened containers and packaging, bearing manufacturer's name and label and the following information:
 - 1. Product name or title of material
 - 2. Product description (generic classification or binder type).
 - 3. Manufacturer's stock number and date of manufacture.
 - 4. Contents by volume, for pigment and vehicle constituents.
 - 5. Thinning instructions.
 - 6. Application instructions.
 - 7. Color name and number.

- B. Protection
 - 1. Store only the approved materials on the job site and store only in a suitable and designated area restricted to the storage of paint materials. Space shall comply with the paint manufacturer's requirements for storage temperature. Protect from freezing.
 - 2. Use all means necessary to ensure the safe storage and use of paint materials and the prompt and safe disposal of waste.
 - 3. Use all means necessary to protect paint materials before, during, and after application and to protect the installed work and materials of all other Trades.
 - 4. Keep storage area neat and orderly. Remove oily rags and waste daily.

- C. Replacements: In the event of damage to the products, immediately make all repairs and replacements necessary to the approval of the Architect and at no additional cost to the Owner.
 - 1. Order replacement materials at the earliest possible date, to avoid delaying completion of the Work.

PART 2 - PRODUCTS

2.1 MATERIALS, GENERAL

- A. Material Compatibility:
 - 1. Provide materials for use within each paint system that are compatible with one another and substrates indicated, under conditions of service and application as demonstrated by manufacturer, based on testing and field experience.
 - 2. For each coat in a paint system, provide products recommended in writing by manufacturers of topcoat for use in paint system and on substrate indicated.

2.2 MODERN PAINT MATERIALS, GENERAL

- A. Transition Coat: Paint manufacturer's recommended coating for use where a residual existing coating is incompatible with the paint system.

- B. Products listed below represent materials that will likely be used for painting elements. This section assures quality of Work by listing regulatory language and by setting standards of quality for materials. Information from the testing shall guide product selection.

2.3 MANUFACTURERS

- A. Manufactures: Provide best quality grade of paint as regularly manufactured by specified manufacturer. Primer coats must be produced by the same manufacturer as the topcoats unless otherwise specified. Subject to compliance with requirements, provide products by one of the following or equivalent MPI listed manufacturer:
 - 1. Sherwin-Williams Co.
 - 2. Benjamin Moore & Co.
 - 3. PPG Industries, Inc.
- B. Substitutions must be approved by Architect.

2.4 PREPARATORY MATERIALS

- A. Pigments, thinners, and solvents used with any coating material shall be as recommended by the paint manufacturer for the particular product.

2.5 PAINT MATERIALS, GENERAL

- A. Material Compatibility:
 - 1. All paint and finishing materials shall be lead free.
 - 2. Provide materials for use within each paint system that are compatible with one another and substrates indicated, under conditions of service and application as demonstrated by manufacturer, based on testing and field experience.
 - 3. For each coat in a paint system, provide products recommended in writing by manufactures of topcoat for use in paint system and on substrate indicated.
 - 4. Colors: As selected by Architect from manufacture's full range.

2.6 EXTERIOR METAL PRIMER & PAINT (Downspouts and Accessories)

- A. Rust Inhibitor
 - 1. Ospho Rust Treatment
 - 2. Or an Approved Equal
- B. Exterior Metal Primer (1 coat)
 - 1. Sherwin Williams All Surface Enamel Latex Primer
 - 2. Or an Approved Equal
- C. Exterior Metal Paint (2 coats)
 - 1. Sherwin Williams Emerald Urethane Trim Enamel, Semi-gloss
 - 2. Or an Approved Equal

2.7 EXTERIOR MASONRY PAINT

- A. Existing paint system is latex-based. Touch-up paint to match existing.
- B. Exterior Primer [if necessary] (1 coat)
 - 1. Loxon Conditioner
 - 2. Or an Approved Equal.

- C. Exterior Wood Paint (2 coats)
 - 1. Sherwin Williams Emerald Rain Refresh Latex Paint, Match existing sheen.
 - 2. Or an Approved Equal

2.8 EXTERIOR WOOD PRIMER & PAINT

- A. Exterior Wood Primer [bare wood] (1 coat)
 - 1. Sherwin Williams Exterior Oil Based Penetrating Primer
 - 2. Or an Approved Equal.
- B. Exterior Wood Primer [over all exterior wood surfaces] (1 coat)
 - 1. Sherwin Williams Exterior Oil Based Wood Primer
 - 2. Or an Approved Equal.
- C. Exterior Wood Paint (2 coats)
 - 1. Sherwin Williams Emerald Urethane Trim Enamel, Semi-gloss
 - 2. Or an Approved Equal

2.9 INTERIOR WOOD PAINT (CASINGS, TRIM, DOORS, WINDOWS)

- A. Interior Wood Primer (1 coat)
 - 1. Sherwin Williams Premium Wall and Wood Primer
- B. Interior Wood Paint (2 coats)
 - 1. Sherwin Williams Emerald Urethane Trim Enamel, Semi-gloss
 - 2. Or an Approved Equal.

2.10 INTERIOR PAINT (WALLS)

- A. Plaster Primer (applied under liner paper)
 - 1. "Bull's Eye Water Based Primer" by William Zinsser & Co.Inc. applied prior to installation of liner paper.
- B. Interior Primer (1 coat)
 - 1. Sherwin Williams Premium Wall and Wood Primer
- C. Interior Paint (2 coats)
 - 1. Sherwin Williams Emerald Interior Latex, Match existing sheen.
 - 2. Or an Approved Equal.

PART 3 - EXECUTION

3.1 PAINTING, GENERAL

- A. Execution of the Work:
 - 1. Remove failed coatings and corrosion and repaint.
 - 2. Verify that substrate surface conditions are suitable for painting.
 - 3. Allow other trades to repair items in place and retain as much original material as possible before repainting.

4. Install temporary protective measures to protect historic painted surfaces that shall be treated later.
- B. Matching Existing Painted Surfaces:
 1. Color match existing painted surfaces to ensure new painting visually matches the existing coatings in color and sheen.
 - C. Mechanical Abrasion: Where mechanical abrasion is needed for the work, use only the gentlest mechanical methods, such as scraping and lightly hand sanding, that will not abrade softer substrates, reducing clarity of detail. Do not use abrasive methods such as rotary sanding, rotary wire brushing, or power tools except as indicated as part of the historic treatment program and as approved by Architect.
 - D. Heat Processes: Do not use torches, heat guns, or heat plates.
- 3.2 EXAMINATION:
- A. Before commencement of work, carefully examine all surfaces to be painted and notify the Architect in writing of any conditions detrimental to the performance of this work. Do not proceed until unsatisfactory or deteriorated conditions have been inspected, corrected and are acceptable to the Architect and the applicator. Commencement of work will be construed as the applicator's acceptance of all surfaces. Commencement of the work prior to the Architect's inspection and acceptance is done at the applicator's risk.
 - B. Maximum Moisture Content of Substrates: Do not begin application of coatings unless moisture content of exposed surface is below the maximum value recommended in writing by paint manufacturer and not greater than the following maximum values when measured with an electronic moisture meter appropriate to the substrate material:
 1. Masonry (Clay and CMU): 12 percent.
- 3.3 INSPECTION:
- A. Prior to all work of this Section, carefully inspect the installed work of all other Trades and verify that all such work is complete to the point where this installation may properly commence.
 - B. Verify that paint finishes may be applied in strict accordance with all pertinent codes and regulations and the requirements of these Specifications.
- 3.4 DISCREPANCIES
- A. In the event of discrepancy, immediately notify the Architect.
 - B. Do not proceed with installation in areas of discrepancy until all such discrepancies have been fully resolved. Commencement of work shall be construed as acceptance of the surfaces and, therefore, the Contractor shall be fully responsible for satisfactory work as required herein.

3.5 SURFACE PREPARATION

- A. General: For application of approved removal products, use only such equipment as is recommended for application of the paint removal product by the manufacturer, and as approved by the Architect.
 - 1. General: Use only the gentlest, appropriate method necessary to clean surfaces in preparation for painting. Clean all surfaces, corners, contours, and interstices.
- B. Compatibility: Prior to actual use of the application equipment, use all means necessary to verify that the proposed equipment is actually compatible with the material to be applied and that the integrity of the finish will not be jeopardized by use of the proposed application equipment. Contractor to coordinate with manufacturer's representatives on appropriate tools and equipment.
- C. Prior to all surface preparation and paint operations, completely mask, remove, or otherwise adequately protect all hardware, accessories, machined surfaces, plates, lighting fixtures, and similar items in contact with painted surfaces but not scheduled to receive paint.
- D. Clean substrates of substances that could impair bond of paints, including dirt, oil, grease and incompatible paint and encapsulates.
 - 1. Remove incompatible primers and reprime substrate with compatible primers or apply tie coat as required to produce paint systems indicated.
- E. Do not proceed with treatment until proper protection has been installed for adjacent materials.
- F. Detergent Cleaning: Wash surfaces by hand using clean rags, sponges, and bristle brushes. Scrub surface with detergent solution and bristle brush until soil is thoroughly dislodged and can be removed by rinsing. Use small brushes to remove soil from joints and crevices. Dip brush in solution often to ensure that adequate fresh detergent is used and that surface remains wet. Rinse with water applied by clean rags or sponges.
- G. Solvent Cleaning: Use solvent cleaning to remove oil, grease, smoke, tar, and asphalt from painted or unpainted surfaces before other preparation work. Wipe surfaces with solvent using clean rags and sponges. If necessary, spot-solvent cleaning may be employed just prior to commencement of paint application, provided enough time is allowed for complete evaporation.
- H. Mildew: Clean off existing mildew, algae, moss, plant material, loose paint, grease, dirt, and other debris by scrubbing with bristle brush or sponge and detergent solution. Scrub mildewed areas with mildewcide. Rinse with water applied by clean rags or sponges. Apply biocide according to Section 040310 "Masonry Cleaning."
- I. Comply with manufacturer's written instructions and recommendations in "MPI Architectural Painting Specification Manual" applicable to substrates and paint systems indicated.
- J. Remove hardware, covers, plates, and similar items already in place that are removable and are not to be painted. If removal is impractical or impossible because of size or weight of item, provide surface-applied protection before surface preparation and painting.
 - 1. After completing painting operations, use workers skilled in the trades involved to reinstall items that were removed. Remove surface-applied protection.
- K. Contractor shall reclaim and dispose of all spent media used in conjunction with this project in accordance with applicable laws.

- L. **All loose, brittle, and detached painted to be removed complete. Feather edges of paint in areas of uneven surfaces. No hard paint edges to be visible following application of new paint system.**

3.6 PAINT REMOVAL

A. Ferrous Metal Substrates

1. Mechanical Rust Removal
 - a. Remove rust with approved abrasives for ferrous-metal cleaning. Clean to bright metal.
 - b. Wipe off residue with mineral spirits and either steel wool or soft rags.
 - c. Dry immediately with clean, soft cloths. Follow direction of grain in metal.
 - d. Prime immediately to prevent rust. Do not touch cleaned metal surface until primed.
 - e. Coat with rust inhibitive primer as soon as possible (preferably the same day) to discourage rust bloom.
 - 1) On existing metal surfaces apply one coat of Ospho rust inhibitor primer to bare metal
 - f. Allow to dry thoroughly before application of paint.
2. Chemical Rust Removal
 - a. Thoroughly clean all surfaces until they are completely free from dirt, oil, grease, and rust. Notify the Architect of any severe corrosion or delaminating members.
 - b. Remove loose rust scale with approved abrasives for ferrous-metal cleaning.
 - c. Apply rust remover with brushes or as recommended in writing by manufacturer.
 - d. Allow rust remover to remain on surface for period recommended in writing by manufacturer or as determined by preconstruction testing. Do not allow extended dwell time.
 - e. Wipe off residue with mineral spirits and either steel wool or soft rags, or clean with method recommended in writing by manufacturer to remove residue.
 - f. Dry immediately with clean, soft cloths. Follow direction of grain in metal.
 - g. Prime immediately to prevent rust. Do not touch cleaned metal surface until primed
 - h. Coat with rust inhibitive primer as soon as possible (preferably the same day)
 - i. to discourage rust bloom
 - 1) On existing metal surfaces apply one coat of Ospho rust inhibitor primer to bare metal
 - j. Allow to dry thoroughly before application of paint.

- B. Schedule all cleaning and painting so that dust and other contaminants from the cleaning process will not fall on wet, newly painted surfaces.
- C. Adequate illumination shall be provided in all areas where painting and staining operations are in progress.
- D. Efflorescence on any area that is scheduled to be painted shall be removed.

3.7 MATERIAL PREPARATION OF PAINT

- A. Mix and prepare materials in accordance with manufacturer's directions or those specified herein, whichever is more stringent.
- B. Stir materials before application to produce a mixture of uniform density and stir as required during application of the materials. Do not stir into the material any foreign materials, residue or surface film. Remove any such deleterious material and strain coating materials before using if necessary.

- C. Add minimum amount of solvents or thinners to coating materials as necessary to achieve proper consistency for method of application.

3.8 PAINT APPLICATION

- A. Apply paints according to manufacturer's written instructions and recommendations in "MPI Architectural Painting Specification Manual."
 - 1. Use applicators and techniques suited for paint and substrate indicated.
 - 2. Paint surfaces behind movable items same as similar exposed surfaces. Before final installation, paint surfaces behind permanently fixed items with prime coat only.
 - 3. Apply paints to produce surface films without cloudiness, spotting, holidays, laps, brush marks, roller tracking, runs, sags, ropiness, or other surface imperfections. Cut in sharp lines and color breaks.
 - 4. Paint both sides and edges of exterior doors and entire exposed surface of exterior door frames.
 - 5. Paint entire exposed surface of window frames and sashes.
 - 6. Do not paint over labels of independent testing agencies or equipment name, identification, performance rating, or nomenclature plates.
 - 7. Primers specified in painting schedules may be omitted on items that are factory primed or factory finished if acceptable to topcoat manufacturers.
- B. Tint undercoats same color as topcoat but tint each undercoat a lighter shade to facilitate identification of each coat if multiple coats of same material are to be applied. Provide sufficient difference in shade of undercoats to distinguish each separate coat.
- C. If undercoats or other conditions show through topcoat, apply additional coats until cured film has a uniform paint finish, color, and appearance.
- D. Apply a transition coat over incompatible existing coatings.
- E. General Finish Application for Paint
 - 1. All materials shall be applied under adequate illumination, evenly spread, and smoothly flowed on with the proper type and size of brushes, roller covers, and bucket grids, to avoid run, sags, holidays, brush marks, air bubbles, and excessive roller stipple.
 - 2. The number of coats and film thickness shall be the same regardless of the method of application. Do not apply succeeding coats until previous coat has dried or cured as recommended by paint manufacturer. Give special attention to ensure that surfaces, including edges, corners, and crevices receive a dry film thickness equivalent to that of flat surfaces.
 - 3. Apply each coat at not less than recommended spreading rate to provide the dry film millimeter thickness specified by the manufacturer for each paint coating.
 - 4. Coverage and hiding shall be complete. When color, stain, mark of any kind, dirt or undercoats show through the final schedule coat of paint to the surface, it shall be covered by additional coats until the paint film is of uniform finish, color, appearance and coverage at no additional cost to the Owner.
 - 5. Back prime any new material before installation unless specified to receive a transparent finish.
 - 6. Touch-up painting as required to provide smooth, even finish prior to final acceptance of work.
- F. Iron
 - 1. Newly cleaned iron should be painted immediately with a corrosion-inhibiting primer before new rust begins to form.

2. Prior to applying paint, ensure surface is dry.
3. Follow manufacturer's recommendations for application of primer and finish coats.

G. All materials must be inspected by Architect prior to application of finish coat.

3.9 CLEAN UP

A. General

1. Provide daily cleanup.
2. During progress of the Work, do not allow the accumulation of empty containers or other excess items except in area specifically set aside for that purpose. Do not store paint materials uncovered.
3. Prevent accidental spilling or splashing of paint materials, and in the event of such spill, immediately remove all spilled material and the waste or other equipment used to clean up the spill, and wash the surfaces to their original undamaged condition, all at no additional cost to the Owner.

B. At completion of construction activities of other trades, touch up and restore damaged or defaced painted surfaces.

C. Upon completion of the painting or finishing, remove excess paint materials, tools and equipment, drop cloths and other protective materials, and debris from the site.

D. Prior to final acceptance: Upon completion of this portion of the Work, visually inspect the surfaces. Clean paint spots or spatters from surfaces not scheduled to receive paint, such as landings, adjacent masonry, and fixtures, leaving surfaces in a satisfactory condition.

3.10 EXTERIOR PAINTING SCHEDULE

A. All materials for a given finishing system shall be the products of a single manufacturer.

B. Exterior and Interior Painting Color Schedule to Be Determined by Architect and the Owner.

END OF SECTION 099000

SECTION 099600 - HIGH-PERFORMANCE COATINGS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. Section includes surface preparation and the application of high-performance coating systems on the following substrates:
 - 1. Exterior Substrates:
 - a. Cast Iron Downspout Boots
- B. Related Requirements:
 - 1. Section 099000 "Architectural Coatings" for general field painting.

1.3 DEFINITIONS

- A. MPI Gloss Level 5: 35 to 70 units at 60 degrees, according to ASTM D 523.
- B. MPI Gloss Level 6: 70 to 85 units at 60 degrees, according to ASTM D 523.
- C. MPI Gloss Level 7: More than 85 units at 60 degrees, according to ASTM D 523.

1.4 ACTION SUBMITTALS

- A. Product Data: For each type of product. Include preparation requirements and application instructions.
 - 1. Include printout of current "MPI Approved Products List" for each product category specified, with the proposed product highlighted.
 - 2. Indicate VOC content.
- B. Product List: Cross-reference to coating system and locations of application areas. Use same designations indicated on Drawings and in schedules. Include color designations.

1.5 MAINTENANCE MATERIAL SUBMITTALS

- A. Furnish extra materials, from the same product run, that match products installed and that are packaged with protective covering for storage and identified with labels describing contents.
 - 1. Coatings: 5 percent, but not less than 1 gal. of each material and color applied.

1.6 DELIVERY, STORAGE, AND HANDLING

- A. Store materials not in use in tightly covered containers in well-ventilated areas with ambient temperatures continuously maintained at not less than 45 deg F.
 - 1. Maintain containers in clean condition, free of foreign materials and residue.
 - 2. Remove rags and waste from storage areas daily.

1.7 FIELD CONDITIONS

- A. Apply coatings per manufacturer's specifications.
- B. Do not apply exterior coatings in snow, rain, fog, or mist.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - 1. Benjamin Moore & Co.
 - 2. PPG Paints; PPG Industries, Inc.
 - 3. Sherwin-Williams Company (The).
 - 4. Tnemec Company, Inc.
- B. Products: Subject to compliance with requirements, provide one of the products listed in the Exterior High-Performance Coating Schedule for the coating category indicated.

2.2 HIGH-PERFORMANCE COATINGS, GENERAL

- A. MPI Standards: Products shall comply with MPI standards indicated and shall be listed in its "MPI Approved Products Lists."
- B. Material Compatibility:
 - 1. Materials for use within each paint system shall be compatible with one another and substrates indicated, under conditions of service and application as demonstrated by manufacturer, based on testing and field experience.
 - 2. For each coat in a paint system, products shall be recommended in writing by topcoat manufacturers for use in paint system and on substrate indicated.
 - 3. Products shall be of same manufacturer for each coat in a coating system.

2.3 BODY FILLERS

- A. Epoxy formulated for use on metal and expressly approved for use with cast iron. Subject to compliance with requirements, available products include the following:
 - 1. Abatron FerroBond.
 - 2. An approved equal.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine substrates and conditions, with Applicator present, for compliance with requirements for maximum moisture content and other conditions affecting performance of the Work.
- B. Verify suitability of substrates, including surface conditions and compatibility, with existing finishes and primers.
- C. Proceed with coating application only after unsatisfactory conditions have been corrected.
 - 1. Application of coating indicates acceptance of surfaces and conditions.

3.2 PREPARATION

- A. Comply with manufacturer's written instructions and recommendations in "MPI Architectural Painting Specification Manual" applicable to substrates and coating systems indicated.
- B. Remove hardware, covers, plates, and similar items already in place that are removable and are not to be painted. If removal is impractical or impossible because of size or weight of item, provide surface-applied protection before surface preparation and painting.
 - 1. After completing painting operations, use workers skilled in the trades involved to reinstall items that were removed. Remove surface-applied protection if any.
- C. Clean substrates of substances that could impair bond of coatings, including dust, dirt, oil, grease, and incompatible paints and encapsulants.
 - 1. Remove incompatible primers and reprime substrate with compatible primers or apply tie coat as required to produce coating systems indicated.
- D. Steel Substrates: Remove rust, loose mill scale, and shop primer if any. Clean using methods recommended in writing by paint manufacturer but not less than the following:
 - 1. SSPC-SP 7/NACE No. 4.
 - 2. SSPC-SP 11.
 - 3. SSPC-SP 6/NACE No. 3.
 - 4. SSPC-SP 10/NACE No. 2.
 - 5. SSPC-SP 5/NACE No. 1.
- E. Shop-Primed Steel Substrates: Clean field welds, bolted connections, and areas where shop paint is abraded. Paint exposed areas with the same material as used for shop priming to comply with SSPC-PA 1 for touching up shop-primed surfaces.
- F. Cast Iron Substrates: Remove loose rust, loose mill scale, and shop primer if any. Clean using methods recommended in writing by paint manufacturer, but not less than the following:
 - 1. SSPC-SP 6/NACE No. 3.
 - 2. After priming, fill holes and imperfections in the finish surfaces with filler that is recommended in writing by topcoat manufacturer for coating system indicated. Sand smooth when dried

3.3 APPLICATION

- A. Apply high-performance coatings according to manufacturer's written instructions and recommendations in "MPI Architectural Painting Specification Manual."
 - 1. Use applicators and techniques suited for coating and substrate indicated.
- B. Tint each undercoat a lighter shade to facilitate identification of each coat if multiple coats of the same material are to be applied. Tint undercoats to match color of finish coat, but provide sufficient difference in shade of undercoats to distinguish each separate coat.
- C. If undercoats or other conditions show through final coat, apply additional coats until cured film has a uniform coating finish, color, and appearance.
- D. Apply coatings to produce surface films without cloudiness, spotting, holidays, laps, brush marks, runs, sags, ropiness, or other surface imperfections. Produce sharp glass lines and color breaks.

3.4 FIELD QUALITY CONTROL

- A. Dry Film Thickness Testing: Owner reserves the right to invoke the following procedures:
 - 1. Owner may engage the services of a qualified testing and inspecting agency to inspect and test coatings for dry film thickness.
 - 2. Contractor shall touch up and restore coated surfaces damaged by testing.
 - 3. If test results show that dry film thickness of applied coating does not comply with coating manufacturer's written recommendations, Contractor shall pay for testing and apply additional coats as needed to provide dry film thickness that complies with coating manufacturer's written recommendations.

3.5 CLEANING AND PROTECTION

- A. At end of each workday, remove rubbish, empty cans, rags, and other discarded materials from Project site.
- B. After completing coating application, clean spattered surfaces. Remove spattered coatings by washing, scraping, or other methods. Do not scratch or damage adjacent finished surfaces.
- C. Protect work of other trades against damage from coating operation. Correct damage to work of other trades by cleaning, repairing, replacing, and recoating, as approved by Architect, and leave in an undamaged condition.
- D. At completion of construction activities of other trades, touch up and restore damaged or defaced coated surfaces.

3.6 EXTERIOR HIGH-PERFORMANCE COATING SCHEDULE

- A. Steel and Iron Substrates:
 - 1. Pigmented Polyurethane over High-Build Epoxy System
 - a. Benjamin Moore; Corotech Epoxy Pre-Primer, V155.
 - b. PPG Architectural; PPG High Performance Coatings, Pitt-Guard 97-145 Series.
 - c. Sherwin- Williams; Protective and Marine, Dura-Plate 301K.
 - d. Tnemec; Chembuild Series 135.

2. Intermediate Coat: Epoxy, high build, low gloss, MPI #108.
 - a. Benjamin Moore; Corotech Polyamide Epoxy, semi-gloss, V400-91.
 - b. PPG Architectural; Protective and Marine Coatings, Aquapon High Build Epoxy, 97-131/97-137.
 - c. Sherwin- Williams; Protective and Marine, Macropoxy 646 Fast Cure, B58W00610/B58V00600.
 - d. Tnemec; Series 66H Hi-Build Epoxoline.
3. Topcoat: Polyurethane, two-component, pigmented, gloss (MPI Gloss Level 6), MPI #72.
 - a. Benjamin Moore; Corotech Aliphatic Acrylic Urethane Gloss.
 - b. PPG Architectural; Protective and Marine Coatings, Pitthane Gloss 95-812 Series.
 - c. Sherwin- Williams; Protective and Marine, Acrolon 218 HS.
 - d. Tnemec; Series 72 Endura Shield.

B. Paint Colors by Location

1. Cast Iron Downspout Boot- TBD by Owner and Architect.

END OF SECTION 099600

SECTION 311000 - SITE CLEARING

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. Section Includes:
 - 1. Protecting existing vegetation to remain.
 - 2. Removing existing vegetation.
 - 3. Clearing and grubbing.
 - 4. Stripping and stockpiling topsoil.
 - 5. Removing above- and below-grade site improvements.
 - 6. Temporary erosion- and sedimentation-control measures.

1.3 DEFINITIONS

- A. Subsoil: All soil beneath the topsoil layer of the soil profile, and typified by the lack of organic matter and soil organisms.
- B. Surface Soil: Soil that is present at the top layer of the existing soil profile at the Project site. In undisturbed areas, the surface soil is typically topsoil; but in disturbed areas such as urban environments, the surface soil can be subsoil.
- C. Topsoil: Top layer of the soil profile consisting of existing native surface topsoil or existing in-place surface soil and is the zone where plant roots grow. Its appearance is generally friable, pervious, and black or a darker shade of brown, gray, or red than underlying subsoil; reasonably free of subsoil, clay lumps, gravel, and other objects more than 1 inch in diameter; and free of subsoil and weeds, roots, toxic materials, or other nonsoil materials.
- D. Plant-Protection Zone: Area surrounding individual trees, groups of trees, shrubs, or other vegetation to be protected during construction, and indicated on Drawings.
- E. Tree-Protection Zone: Area surrounding individual trees or groups of trees to be protected during construction.
- F. Vegetation: Trees, shrubs, groundcovers, grass, and other plants.

1.4 MATERIAL OWNERSHIP

- A. Except for stripped topsoil and other materials indicated to be stockpiled or otherwise remain Owner's property, cleared materials shall become Contractor's property and shall be removed from Project site.

1.5 INFORMATIONAL SUBMITTALS

- A. Existing Conditions: Documentation of existing trees and plantings, adjoining construction, and site improvements that establishes preconstruction conditions that might be misconstrued as damage caused by site clearing.
 - 1. Contractor to take detailed photographs or videotape of any damage to existing pavement/curb etc. that may existing within project area.
- B. Record Drawings: Identifying and accurately showing locations of capped utilities and other subsurface structural, electrical, and mechanical conditions.

1.6 QUALITY ASSURANCE

- A. Preinstallation Conference: Conduct conference at Project Site with City of Beaufort Staff and Architect.

1.7 PROJECT CONDITIONS

- A. Traffic: Minimize interference with adjoining roads, streets, walks, and other adjacent occupied or used facilities during site-clearing operations.
 - 1. Do not close or obstruct streets, walks, or other adjacent occupied or used facilities without permission from Owner and authorities having jurisdiction.
 - 2. Provide alternate routes around closed or obstructed traffic ways if required.
- C. Salvable Improvements: Carefully remove items indicated to be salvaged and store on Owner's premises where indicated.
- D. Utility Locator Service: Notify PUPS, and City of Columbia, for area where Project is located before site clearing. It is required that the Contractor conduct a private utility locate prior to any site clearing operations on private property.
- E. Do not commence site clearing operations until temporary erosion- and sedimentation-control measures are in place.
- F. The following practices are prohibited within protection zones:
 - 1. Storage of construction materials, debris, or excavated material.
 - 2. Parking vehicles or equipment.
 - 3. Foot traffic.
 - 4. Erection of sheds or structures.
 - 5. Impoundment of water.
 - 6. Excavation or other digging unless otherwise indicated.
 - 7. Attachment of signs to or wrapping materials around trees or plants unless otherwise indicated.
- G. Do not direct vehicle or equipment exhaust towards protection zones.
- H. Prohibit heat sources, flames, ignition sources, and smoking within or near protection zones.
- I. Soil Stripping, Handling, and Stockpiling: Perform only when the topsoil is dry or slightly moist.

PART 2 - PRODUCTS

2.1 MATERIALS

A. Satisfactory Soil Material:

1. Obtain approved borrow soil material off-site when satisfactory soil material is not available on-site.

PART 3 - EXECUTION

3.1 PREPARATION

- A. Protect and maintain benchmarks and survey control points from disturbance during construction.
- B. Locate and clearly identify trees, shrubs, and other vegetation to remain by flagging if near project area.
- C. Protect existing site improvements to remain from damage during construction.
 1. Restore damaged improvements to their original condition, as acceptable to Owner.

3.2 TEMPORARY EROSION AND SEDIMENTATION CONTROL

- A. Provide temporary erosion- and sedimentation-control measures to prevent soil erosion and discharge of soil-bearing water runoff or airborne dust to adjacent properties and walkways, according to erosion and sedimentation control requirements of authorities having jurisdiction.
- B. Verify that flows of water redirected from construction areas or generated by construction activity do not enter or cross protection zones.
- C. Inspect, maintain, and repair erosion- and sedimentation-control measures during construction until permanent vegetation has been established.
- D. Remove erosion and sedimentation controls and restore and stabilize areas disturbed during removal.

3.3 TREE AND PLANT PROTECTION

- A. Repair or replace trees, shrubs, and other vegetation indicated to remain or be relocated that are damaged by construction operations, in a manner approved by Architect.

3.4 EXISTING UTILITIES

- C. Interrupting Existing Utilities: Do not interrupt utilities serving facilities occupied by Owner or others unless permitted under the following conditions and then only after arranging to provide temporary utility services according to requirements indicated:
 1. Notify Architect not less than two days in advance of proposed utility interruptions.

3.5 CLEARING AND GRUBBING

- A. Remove obstructions, trees, shrubs, and other vegetation to permit installation of new construction.
 1. Do not remove trees, shrubs, and other vegetation indicated to remain or to be relocated.
 2. Grind down stumps and remove roots, obstructions, and debris below exposed subgrade. Backfill any depressed areas with suitable soil.
 3. Use only hand methods for grubbing within protection zones.
 4. Chip removed tree branches and dispose offsite.
- B. Fill depressions caused by clearing and grubbing operations with satisfactory soil material unless further excavation or earthwork is indicated.
 1. Place fill material in horizontal layers not exceeding a loose depth of 8 inches and compact each layer to a density equal to adjacent original ground.

3.6 TOPSOIL STRIPPING

- A. Strip topsoil in a manner to prevent intermingling with underlying subsoil or other waste materials.
 1. Remove subsoil and nonsoil materials from topsoil, including clay lumps, gravel, and other objects more than 1 inch in diameter; trash, debris, weeds, roots, and other waste materials. Provide screen as required to remove debris and trash as noted for topsoil reuse on site.
- B. Stockpile topsoil away from edge of excavations without intermixing with subsoil. Grade and shape stockpiles to drain surface water. Cover to prevent windblown dust and erosion by water.
 1. Limit height of topsoil stockpiles to 72 inches
 2. Do not stockpile topsoil within protection zones.

3.7 SITE IMPROVEMENTS

- A. Remove existing above- and below-grade improvements as indicated and necessary to facilitate new construction.
- B. Remove slabs, paving, curbs, gutters, and aggregate base as indicated.
 1. Unless existing full-depth joints coincide with line of demolition, neatly saw-cut along line of existing pavement to remain before removing adjacent existing pavement. Saw-cut

- faces vertically.
2. Paint cut ends of steel reinforcement in concrete to remain with two coats of antirust coating, following coating manufacturer's written instructions. Keep paint off surfaces that will remain exposed.

3.8 DISPOSAL OF SURPLUS AND WASTE MATERIALS

- A. Remove surplus soil material, unsuitable topsoil, obstructions, demolished materials, and waste materials including trash and debris, and legally dispose of them off Owner's property.

END OF SECTION 311000

SECTION 321313 – CONCRETE WALKS, CURB, & PAVEMENT

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.
- B. SCDOT Standard Specifications, Latest Edition.

1.2 SUMMARY

- A. This Section includes exterior concrete pavement for the following:
 - 1. Sidewalks
 - 2. Curbs and gutters.
 - i. Following work, paint curbs to match existing.

1.3 SUBMITTALS

- A. Design Mixtures: For each concrete pavement mixture. Include alternate mixture designs when characteristics of materials, project conditions, weather, test results, or other circumstances warrant adjustments.

1.4 QUALITY ASSURANCE

- A. Manufacturer Qualifications: Manufacturer of ready-mixed concrete products who complies with ASTM C 94/C 94M requirements for production facilities and equipment.
 - 1. Manufacturer certified according to NRMCA's "Certification of Ready Mixed Concrete Production Facilities."
- B. Perform Concrete Work in accordance with SCDOT Spec Section 720.

1.5 PROJECT CONDITIONS

- A. Traffic Control: Maintain access for vehicular and pedestrian traffic as required for other construction activities.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. SCDOT Qualified Manufacturer of Concrete. Batch and Mix concrete in accordance with SCDOT Section 701.

2.2 FORMS

- A. Forms to be in accordance with SCDOT Standard Specification 720.4.2. for Concrete sidewalk and curb. Forms for Concrete pavement to be in accordance with SCDOT Standard Specification 501.3.8.
- B. In lieu of wood or metal forms, curb may be placed by a curb extrusion or slip form machine. Construct expansion and contraction joints at the same locations as required when form construction is used. Make contraction joints, spaces at 10 ft intervals, by cutting the concrete with a trowel or by other means to ensure the joints has a workmanlike finish after edging.

2.3 CONCRETE MATERIALS

- A. Cementitious Material: Use the following cementitious materials, of the same type, brand, and source throughout the Project:
 - 1. Portland Cement: per SCDOT Standard Specification 701.2.1
 - 2. Normal-Weight Aggregates: per SCDOT Standard Specifications SC-M-501.
- B. Water: SCDOT Specification 701.2.11.
- C. Air-Entraining Admixture: In accordance with SCDOT Specification 701.2.5.1.

2.4 CURING MATERIALS

- A. Liquid membrane-forming compounds meeting the requirements of SCDOT Section 702.2.2.11.

2.5 CONCRETE MIXTURES

- A. Proportion mixtures to provide normal-weight concrete with the following properties:
 - 1. Concrete Walks and Curbs and Gutters: Class 3000 per SCDOT Table 701.2.12.2.
- B. Add air-entraining admixture per SCDOT Specifications.
- C. Chemical Admixtures: Use admixtures according to manufacturer's written instructions.
 - 1. Use plasticizing and retarding admixture in concrete, as required, for placement and workability.
 - 2. Use water-reducing and retarding admixture when required by high temperatures, low humidity, or other adverse placement conditions.

2.6 CONCRETE MIXING AND PLACING

- A. Batch and mix the concrete in accordance with SCDOT Section 701.
- B. Construct concrete curbs and curb and gutter in uniform 10 ft. sections, except where shorter sections are necessary for closure. Ensure that no section is less than 4 feet. Separate the sections by sheet steel templates or dividing plates set normal to the face and top of curb.

Carefully set the plates during the placing of concrete and keep in place until the concrete has set sufficiently to hold its shape. Remove the plates while the forms are still in place.

- C. Deposit concrete in forms so that the forms do not displace out of grade or alignment. During placing operations, spade or vibrate the concrete throughout the entire mass and especially against forms and joints. Tamp, float, trowel, broom, edge, and finish the surface of the concrete to the typical section, lines, and grades as soon as practicable after the placing of concrete.
- D. Extruded or Slip Form Curb may be used in lieu of wood or metal forms. Construct expansion and contraction joints at the same locations as required when form construction is used. Make contraction joints, spaces at 10 ft intervals, by cutting the concrete with a trowel or by other means to ensure the joints has a workmanlike finish after edging.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine exposed subgrades and subbase surfaces for compliance with requirements for dimensional, grading, and elevation tolerances.

3.2 PREPARATION FOR SIDEWALKS AND CURB

- A. Thoroughly compact the subgrade and finish to a smooth, firmly compacted surface, which is moist at the time the concrete is placed. In areas where it is impractical to use standard type rollers, compact by vibratory hand compactors. Remove and replace any concrete that settles or cracks after placement due to poor compaction at no expense to the Owner.

3.3 CONCRETE PAVEMENT PLACEMENT

- A. Place concrete pavement to allow continuous placement for the working period.
- B. Deposit concrete in a manner requiring as little handling as possible. Do not allow workers to walk on fresh concrete with footwear coated with earth or foreign matter.
- C. Take precautions to prevent segregation of the concrete ingredients while being placed. Provide baffles or other equipment in the discharge end of depositing equipment if necessary.
- D. Thoroughly consolidate concrete against the face of all forms and joints, including against previously constructed pavement, by means of vibrators inserted into the concrete. Do not permit vibrators to contact a joint assembly, the grade, or side form. Do not operate the vibrator more than 15 seconds in any one location. Do not operate the vibrator in a way that brings excess mortar to the surface or causes segregation in the mix. Use vibrators that meet SCDOT section 501.3.9.2.
- E. Do not place concrete around a manhole or structure until it has been adjusted to proper grade or alignment and keep the casting surrounded by preformed joint material.

- F. Repair or replace any damage caused by the operation of mechanical equipment on existing pavement at no cost to the Owner. If concrete material falls on or is worked into the surface of a completed slab or existing pavement, remove the material immediately.
- G. In order that the concrete be properly protected against the effects of rain before the concrete is sufficiently set, have available at all times the necessary material for the protection of the surface and edges of fresh concrete. When rain appears imminent, cease all paving operations and direct personnel to begin placing materials to protect the fresh concrete. Immediately after rain ceases, if any damage occurs, make all repairs to pavement caused by a rain event.

3.4 JOINTS FOR WALKS AND CURB.

- A. Expansion Joints: Ensure that preformed expansion joints are $\frac{3}{4}$ inch thick and extend the full depth of the concrete. Construct joints at the following locations:
 - 1. Wherever a sidewalk is constructed between an adjoining structure on one side and curbing on the other side, form an expansion joint adjacent to the curbing.
 - 2. Place an expansion joint between the sidewalk and the radius curbing at street intersections.
 - 3. Where existing structures such as light poles, bases, fire hydrants, etc. are within the limits of sidewalk or curb.
 - 4. Where concrete sidewalks are constructed adjacent to existing or new concrete pavement or structures, place a transverse expansion joint in the sidewalk opposite such joints in the concrete pavement or structure.
 - 5. Place expansion joints at intervals of not more than 100 feet in all concrete.
- B. Contraction Joints:
 - 1. Divide concrete slabs in sidewalks between expansion joints into blocks 10 feet in length, by scoring transversely after floating operations are complete. Where the sidewalk slabs are more than 10 feet in width, score them longitudinally in the center. Extend transverse and longitudinal scoring for a depth of 1 inch and not less than $\frac{1}{4}$ inch or more than $\frac{1}{2}$ inch in width. Edge and finish joints smooth and true to line.
 - 2. Form weakened-plane contraction joints, sectioning concrete into areas as indicated above for curb and gutter.
- C. Edging: Tool edges of pavement, gutters, curbs, and joints in concrete after initial floating with an edging tool to a $\frac{3}{8}$ -inch radius. Repeat tooling of edges after applying surface finishes. Eliminate tool marks on concrete surfaces.
- D. Painting: Paint curbs as required to match adjacent surfaces.

3.5 CONCRETE WALK/CURB PROTECTION AND CURING

- A. General: Protect freshly placed concrete from premature drying and excessive cold or hot temperatures.
- B. Protect the concrete as specified in SCDOT Section 702.4.6 and cure with liquid membrane-forming compound meeting the requirements of SCDOT Section 702.2.2.11.

3.6 PROTECTION OF CONCRETE PAVEMENT

- A. Exclude all vehicle traffic from newly constructed pavement for a period of 14 days. Do not count the time during weather less than 40 degrees F.

- B. Erect and maintain suitable barricades to exclude traffic from the newly constructed pavement for the above mentioned period.
- C. If needed, place and construct a earth berm adjacent to any exposed pavement to prevent undermining of the pavement slab.

3.7 FIELD QUALITY CONTROL

- A. Testing Agency: Owner will engage a qualified independent testing and inspecting agency to perform field tests and inspections and prepare test reports. Testing agency to perform compressive concrete strength testing in accordance with SC-T-50.
- B. Test results shall be reported in writing to Engineer, concrete manufacturer, and Contractor within 48 hours of testing. Reports of compressive-strength tests shall contain Project identification name and number, date of concrete placement, name of concrete testing and inspecting agency, location of concrete batch in Work, design compressive strength at 28 days, concrete mixture proportions and materials, compressive breaking strength, and type of break for both 7- and 28-day tests.
- C. Additional Tests: Testing and inspecting agency shall make additional tests of concrete when test results indicate that slump, compressive strengths, or other requirements have not been met, as directed.
- D. Remove and replace concrete pavement where test results indicate that it does not comply with specified requirements.
- E. Additional testing and inspecting, at Contractor's expense, will be performed to determine compliance of replaced or additional work with specified requirements.

3.8 REPAIRS AND PROTECTION

- A. Remove and replace concrete pavement that is broken, damaged, or defective or that does not comply with requirements in this Section.
- B. Protect concrete from damage. Exclude traffic from pavement for at least 14 days after placement.
- C. Maintain concrete pavement free of stains, discoloration, dirt, and other foreign material. Sweep concrete pavement not more than two days before date scheduled for Substantial Completion inspections.

END OF SECTION 321313

SECTION 334100 - STORM DRAINAGE PIPING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. Section Includes:

- 1. Pipe and fittings.

1.3 SUBMITTALS

- A. Product Data: For each type of pipe indicated.
- B. Pre-Construction Meeting: Hold pre-construction meeting to review routing of all pipes.
- C. Record Drawings: The Contractor shall furnish to the Architect/Engineer Record Drawings of the storm drainage system.

1.4 DELIVERY, STORAGE, AND HANDLING

- A. Protect pipe, pipe fittings, and seals from dirt and damage.

1.5 PROJECT CONDITIONS

- A. Interruption of Existing Storm Drainage Service: Do not interrupt service to facilities occupied by Owner or others unless permitted under the following conditions and then only after arranging to provide temporary service according to requirements indicated:
 - 1. Notify Owner no fewer than two days in advance of proposed interruption of service.

PART 2 - PRODUCTS

2.1 MATERIALS:

- A. PVC Piping:

- 1. Pipe: ASTM D 1785, Schedule 40 PVC, with plain ends for solvent-cemented joints.
- 2. Fittings: ASTM D 2466, Schedule 40 PVC, socket type.

- B. PVC Pipe to Cast Iron Boot Connection:

1. Fernco flexible coupling or approved equal.
 - a. Complies with ASTM D5926, CI 173 and CSA B602

C. Cast Iron Boot:

1. JR Hoe Cast Iron Downspout Boot
 - a. Corporate Office & Foundry, 101 Ironwood Road, Middlesboro KY, 40965
 - b. Angle at base of boot TBD by contractor.
 - c. Pre-primed from manufacturer and finish painted by contractor with marine grade epoxy. See High Performance Coatings Section for specifications.
 - d. Sized to fit existing downspouts.

PART 3 - EXECUTION

3.1 EARTHWORK

- A. Excavation, trenching, and backfilling of Storm Drainage Piping to be in accordance with Trenching Specification.
 1. Backfill compaction to be done in 4" lifts if compacted with hand operator tamping equipment. Contractor may use in situ material for backfill of roof drainage lines.

3.2 PIPING INSTALLATION

- A. General Locations and Arrangements: Drawing plans and details indicate general location and arrangement of underground storm drainage piping. Location and arrangement of piping layout take into account design considerations. Install piping as indicated, to extent practical. Where specific installation is not indicated, follow piping manufacturer's written instructions.
- B. Install piping beginning at low point, true to grades and alignment indicated with unbroken continuity of invert. Place bell ends of piping facing upstream. Install gaskets, seals, sleeves, and couplings according to manufacturer's written instructions for use of lubricants, cements, and other installation requirements.
- C. Install gravity-flow, nonpressure drainage piping according to SCDOT Specifications.

3.3 PIPE JOINT CONSTRUCTION

- A. Join gravity-flow, nonpressure drainage piping according to SCDOT Supplemental Technical Specification SC-M-714, latest edition.

3.4 CONCRETE PLACEMENT

- A. Place cast-in-place concrete according to ACI 318.

3.5 FIELD QUALITY CONTROL

- A. Visually inspect 100% of pipe for fractures, cracks, spalling, chips, and breaks during all phases of the installation process. Inspect joints, including tongues and grooves. Inspect installed joints for missing, damaged, or improperly installed joint sealant or gasket. Inspect interior of piping to determine whether line displacement or other damage has occurred. Inspect after approximately 24 inches of backfill is in place, and again at completion of Project.
 - 1. Defects requiring correction include the following:
 - a. Alignment: Less than full diameter of inside of pipe is visible between structures.
 - b. Deflection: Flexible piping with deflection that prevents passage of 9-Fin Mandrel.
 - c. Crushed, broken, cracked, or otherwise damaged piping.
 - 2. Infiltration: Water leakage into piping.
 - 3. Exfiltration: Water leakage from or around piping.
 - 4. Replace defective piping using new materials, and repeat inspections until defects are corrected.

- B. Video Inspect Storm drainage after backfill and provide digital copy of video inspection to Architect.

- C. Replace leaking piping using new materials, and repeat testing until leakage is within allowances specified.
 - 1. Inspect interior of piping to determine whether line displacement or other damage has occurred. Inspect after approximately 24 inches (610 mm) of backfill is in place, and again at completion of Project.

3.6 CLEANING

- 1. Clean interior of piping of dirt and superfluous materials. Flush with water.

END OF SECTION 334100



CARNEGIE LIBRARY BUILDING BEAUFORT, SC CONDITIONS ASSESSMENT REPORT

PREPARED FOR:
LINDA ROPER
CITY OF BEAUFORT
1911 BOUNDARY STREET
BEAUFORT, SC 29902

PREPARED BY:
MEADORS, INC.
PO BOX 21758
CHARLESTON, SC 29413

DATE: 09.26.2022



TABLE OF CONTENTS

INTRODUCTION	5
HISTORIC IMAGES	7
CONDITIONS ASSESSMENT.....	13
EXECUTIVE SUMMARY	13
EXTERIOR WALLS	17
ROOF & DORMERS	28
BUILT-IN GUTTER	35
ENTABLATURE	42
WINDOWS & DOORS	46
ATTIC	48
INTERIOR	55
STRUCTURAL ASSESSMENT.....	60
STRUCTURAL RECOMMENDATIONS.....	65
HAZARDOUS MATERIALS TESTING.....	68
LIMITED ASBESTOS SURVEY FINDINGS.....	72
HVAC ASSESSMENT.....	104
HVAC RECOMMENDATIONS.....	107
PLUMBING ASSESSMENT.....	110
PLUMBING RECOMMENDATIONS.....	111
ELECTRICAL ASSESSMENT.....	116
ELECTRICAL RECOMMENDATIONS.....	118
RECOMMENDATIONS & CONCLUSIONS	123
PRIORITIZED RECOMMENDATIONS WITH COSTS	129





Attention:

Linda Roper
Director of Downtown Operations & Community Services
City of Beaufort
1911 Boundary Street
Beaufort, SC 29902

Introduction

The following report identifies the findings regarding the assessment of the Carnegie Library Building located in the City of Beaufort at 701 Craven Street.

The findings described within this summary encompass visual observations of all facades accomplished during site inspections by Meadors, Inc. in July and August of 2022. The condition of the interior was also investigated during this work. The structure was assessed using a 60-ft lift and a lightweight drone. During the assessment, an awl was used to lightly press on wooden components to determine areas that were sound or exhibited deterioration. The condition of all building elements was recorded with photographs.





Figure 1: Building location at the corner of Craven and Carteret Streets.



HISTORIC IMAGES

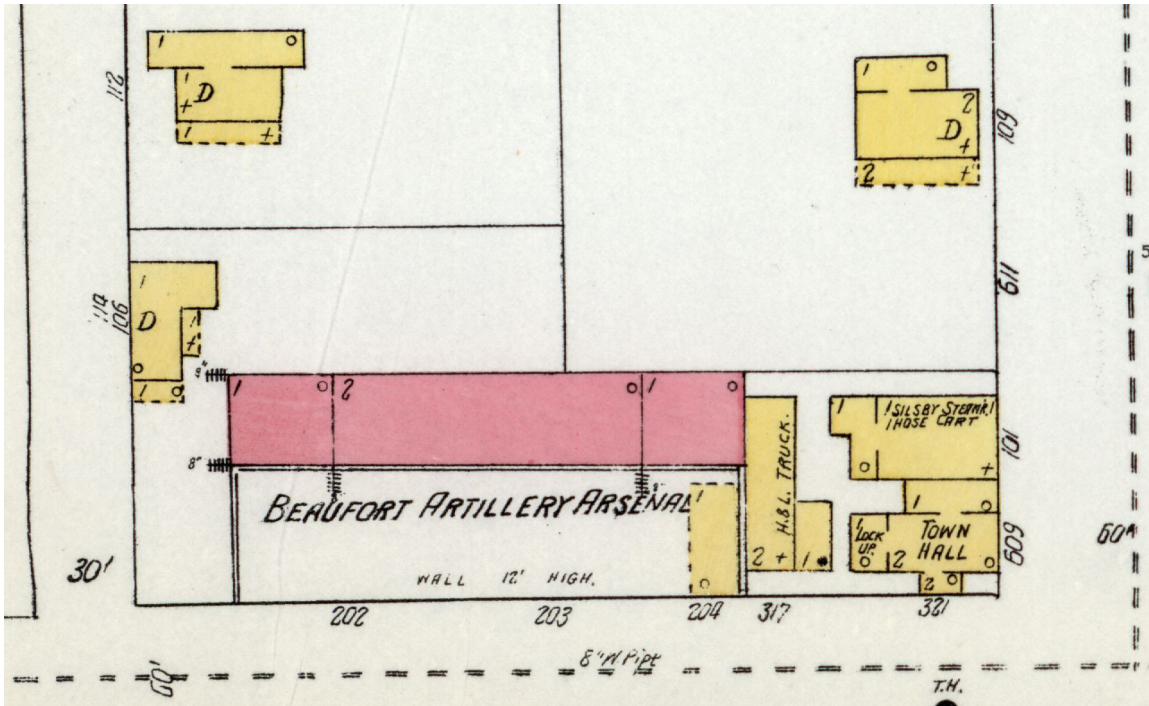


Figure 2: 1905 Sanborn Map of the previous structures located on the site.

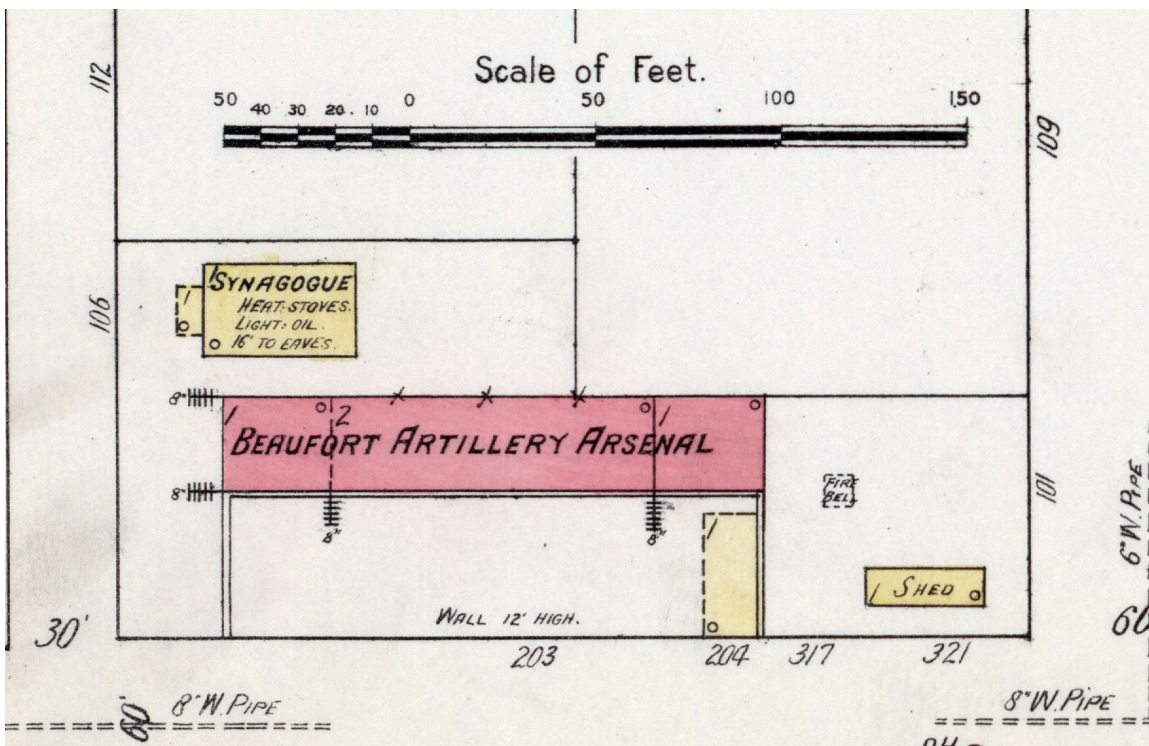


Figure 3: 1912 Sanborn Map showing a shed on the lot before construction. The earlier structures have been demolished by this date.



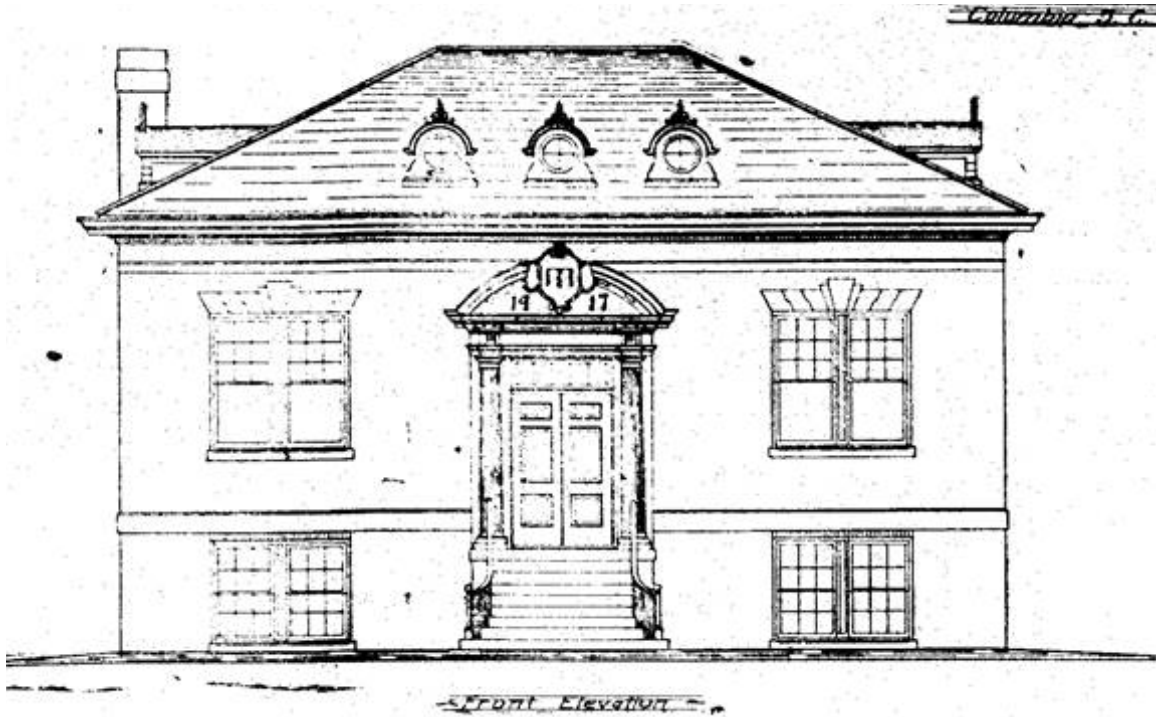


Figure 4: 1917 Elevation drawn by architect J.H. Sams.



Figure 5: Photo taken in June 1917, during the construction of the building.





Figure 6: June 1917 construction photograph. The image captures the north side of the building looking south.

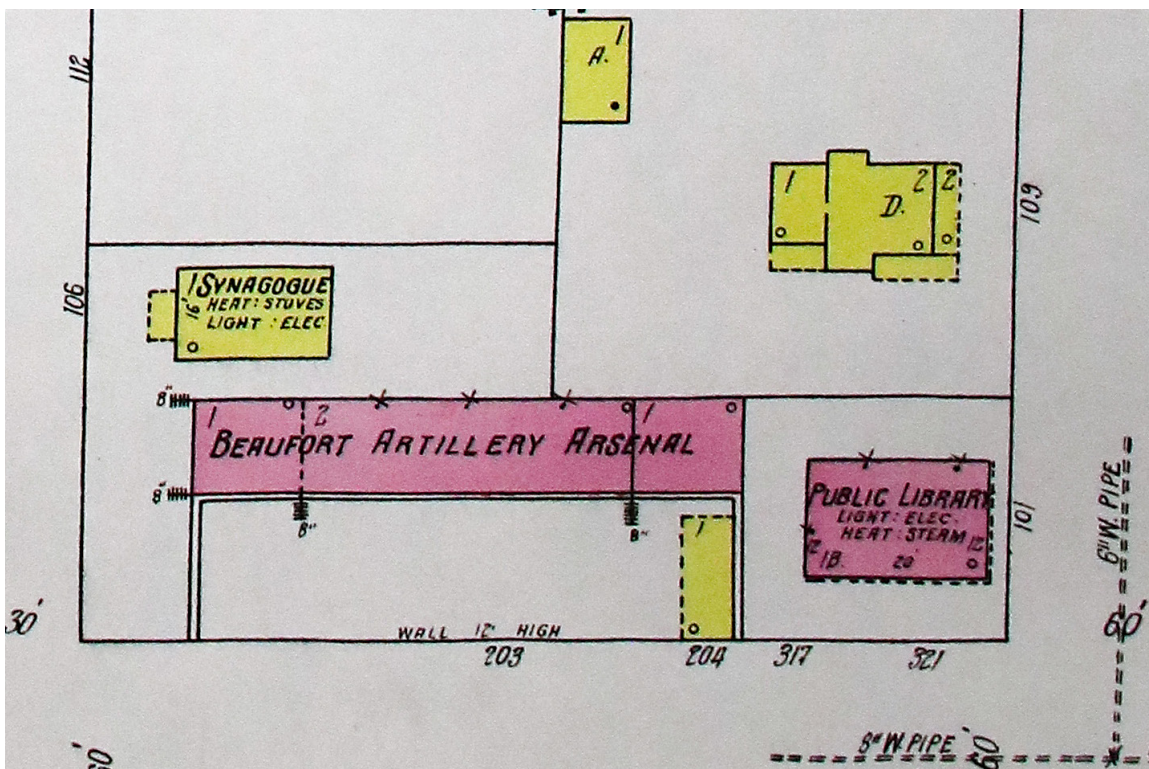


Figure 7: 1924 Sanborn Map showing the new public library at the corner.





Figure 8: 1930s Works Progress Administration photo. The existing crepe myrtle at the southwest corner appears to be visible. Several of the palm trees also survive from this era.



Figure 9: 1941 photo of the front elevation.



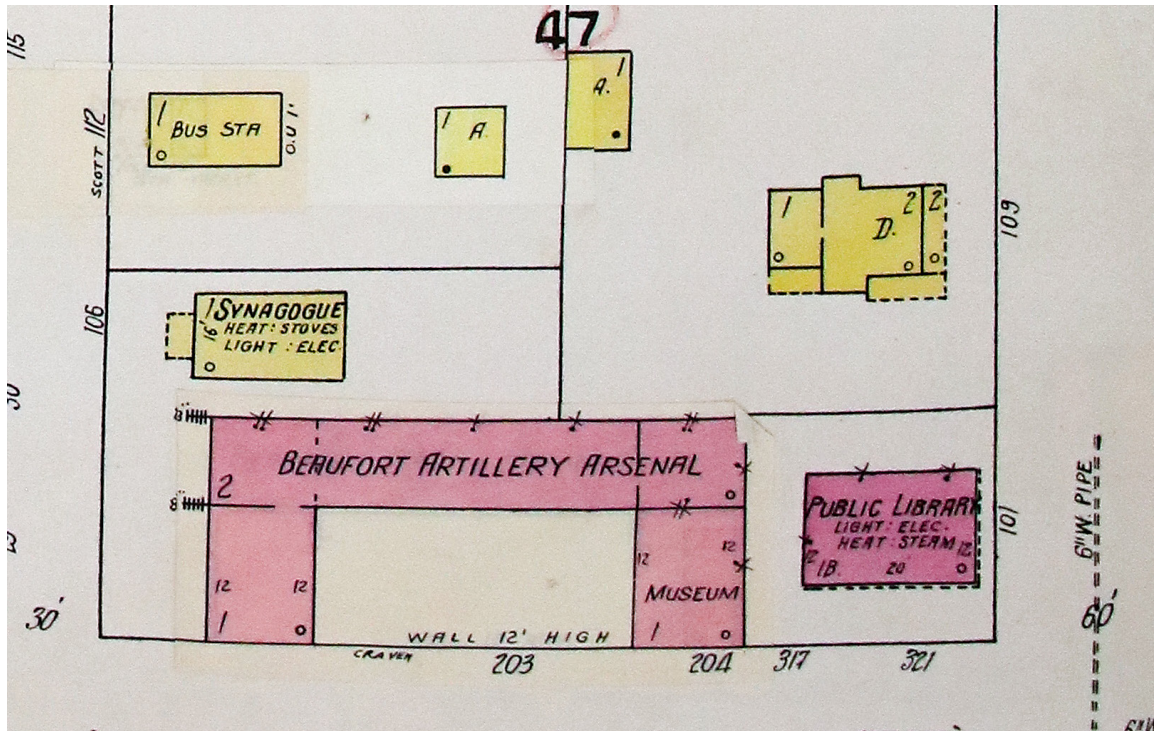


Figure 10: 1942 Sanborn Map.



Figure 11: The Carnegie Library Building during the 1940s - 1950s.





Figure 12: Post 1964 photo of the building after the removal of the tile roof and ocular dormers.



Figure 13: Carnegie Library in 1997 after the construction of the east entrance.



Executive Summary

The following is a summary of conditions observed at the Historic Carnegie Library Building at 701 Craven Street in Beaufort, SC, on July 18, 2022. A more detailed explanation of the described conditions and accompanying photographs can be found in the respective assessment sections. Where possible, a hands-on inspection was performed to determine the condition of the exterior and interior elements.

BUILDING HISTORY

During the early 20th century, the local Clover Club established a plan to create a Beaufort Township Public Library. The Clover Club was a volunteer organization that operated an early circulating library in downtown Beaufort. The new library was constructed using funds awarded by the Carnegie Corporation with local contributions and fundraising established for maintenance. The Carnegie Foundation grant amounted to \$7,500, requiring a local annual contribution of \$750. Construction on the new building began in the spring of 1917. The library was built on land donated by the Town of Beaufort, and James Hagood Sams designed the structure. Contractor J.H. Moore constructed the building using pressed brick and limestone trimmings. The cornerstone was officially laid on June 7, 1917, and the building was finished the following year. The first floor contained the library, and the auditorium was located within the basement.

The building operated as a library until 1964, when a new library was constructed, and the building was renovated for City Hall offices. The original tile roof was replaced with asphalt shingles, and the ocular dormers were removed. The building was also painted during this renovation. The east basement entrance was added sometime during the 1970s-80s. The building was renovated again around 1999-2000, and the tile roof and dormers were restored according to the original 1917 drawings. An extensive window restoration project was completed in 2021.

LANDSCAPE & GRADING:

The structure is situated on high ground facing south toward Craven Street. A large ninety-year-old crepe myrtle is located at the southwest corner of the building. This tree is visible in several photos dating back to the 1930s. Several branches overhang the roof and gutter. The branches should be sensitively trimmed back off the building. A small brick retaining wall is present around the front garden beds along the sidewalk. The southeast pier of the retaining wall is broken.



The southeast downspout contains an extender that drains at corner. The downspout extender at the southwest corner of the building is disconnected, and the water drains directly against the building. At the northwest corner, the downspout lacks a splash block, and water drains against the building and the utility fence. The downspout at the northeast corner drains into the jasmine bed adjacent to the eastern sidewalk. 30"- 36" long splash blocks should be installed below the two downspouts on north (parking lot) facade. On the south elevation, connect the downspouts to a PVC underground pipe at each corner. Core the masonry perimeter wall to accommodate the drainage pipes on each side and install a 6" bronze nozzle with a 4" opening size (Item #52WU84 manufactured by Rectorseal). This configuration will allow water to flow from the base of the wall to the underground drainage pipe and out of the bronze nozzle onto the grass.

A fenced utility area is located to the west of the structure between the library and the Beaufort Arsenal. The grade of this area is slightly higher than the rest of the building. A gravel parking lot is present on the north elevation. Asiatic jasmine is planted at the northeast corner of the building. A large yew bush and a small tree also are planted at the entrance by the utility fence.

EXTERIOR MASONRY

The exterior of the building is painted with a white finish. The finish is in good condition except at the base of the building, where the paint has failed along the mortar joints. The coating on the building does not negatively affect the historic brick and mortar. The finish failure has exposed the original dark gray mortar joints. The mortar appears to be in good condition where exposed. The recent removal of vegetation around the base of the building will prevent rising damp damage in the future.

The limestone belt course, window keystones, and entrance are in good condition with limited areas of mortar loss or section loss. The stone pilasters at the front entrance are damaged at the base where the iron railing intersects the stone. Gaps were observed at the intersection of the broken segmental pediment and the brick masonry. Mortar is missing or cracked on the vertical joints within the belt course and the window keystones. Approximately 20% of the mortar is damaged or missing on the stone trim. On the north elevation, abandoned fasteners and open penetrations are located above the stone belt course. Green biogrowth is growing on the base of the building at the northwest corner. Ivy also frequently grows on the building at this corner near the utility fence.

WINDOWS AND DOORS

The exterior wood windows and doors are in excellent condition and were recently restored in 2021. The aluminum storefront windows on the east one-story addition are failing, and the metal sills beneath the plate glass windows have a negative slope that holds water against the window. The east entrance does not appear to be actively used. The interior window stools on the addition interior are failing and should be replaced.



WOOD ENTABLATURE

A wood entablature is located beneath the built-in gutter. Based on historical photos, the cornice is a simpler design than was initially constructed, and the woodwork was modified during the most recent renovation around 2000. The cornice contains a large soffit with a meshed eave vent. Cove molding is present beneath the roof edge. The cornice has moderate paint failure throughout the building. The wood soffit has deteriorated at the southeast corner of the building beneath a leak in the built-in gutter. The cornice and soffit are separated beneath the tree branches at the southwest corner. There is moderate paint loss throughout the entablature.

On the west elevation, a wood box is located below the original frieze, and a meshed opening is on the underside. The meshed area is likely where HVAC plumbing lines once entered the attic, but the plumbing has since been removed. A hole in the mesh is visible at this location. In addition, the cove molding in the cornice above this box has deteriorated.

BUILT-IN GUTTER

A lead coated copper built-in gutter is located around the perimeter of the hipped roof. An expansion joint is present in the middle of each elevation, and the gutter is sloped from the center to a downspout at each corner. The expansion joints are in good condition.

Standing water was observed at the southeast corner of the gutter, and the soffit is deteriorated beneath, indicating that the gutter leaks. Water also ponds on the south elevation above the front entrance adjacent to the crepe myrtle tree. Tree branches rest directly in the gutter, allowing the gutter to hold water. Low spots are located at the rear gutter near the center expansion joint and at the northwest corner. A loose fastener was present on the gutter on the east side, and the corroded metal has lightly stained the gutter.

ROOF

The building has a modern tile roof that was installed around 2000. The ceramic tile is known as a Ludowici French low-profile interlocking clay tile. Individual tiles have deep locks on all four sides with two prominent flutes. The tiles are installed on two layers of asphalt sheet fastened to the original horizontal wood roof sheathing. The roof tiles overhang the roof eave over the concealed built-in gutter. The ridges are capped with hip roll tiles and ridge tiles. Red mortar seals the gaps between the tiles. The roof's eaves are vented, but the ridge is sealed with mortar. The barrel dormers are covered with lead coated copper. The red and black coloring on the exterior face of the dormers is likely due to the formation of lead sulfide from weathering.

The east and southeast dormers leak at the corners where the barrel roof intersects the roof tiles. Previous repairs are also evident, indicating that the dormers have continued to leak over time. Debris also collects on the sides of each dormer in a pocket between the dormer and tiles. The metal flashing around all five dormers is suspect and requires repair. The roof tiles



surrounding the dormers should be removed to access the dormer flashing and reinstalled. The mortar at the ridge of the roof is also releasing, and the tiles should be relaid. The northwest chimney counterflashing is sound, but the reglets should be recaulked.

INTERIOR

The entry vestibule and the east conference room retain the original plaster cove ceiling. The ceiling in the remaining areas of the first floor has been lowered to accommodate HVAC ductwork. Commercial carpet is installed over the original wood flooring except at the entry vestibule and stairs.

The east conference room has extensive water damage along the south wall directly beneath the southeast dormer. Ceiling damage is also visible on the east side of the room beneath the east dormer. Hazardous materials testing identified the presence of friable asbestos in the plaster base coat. In addition, the wall paneling is damaged beneath the north windows, but the damage predates the 2021 window restoration campaign.

The interior offices contain modern finishes likely installed during the 2000 renovation. The offices contain carpet with metal ceiling and wall vents. Mold is visible around the vents due to condensation on the metal. The metal vents should be replaced with plastic to prevent mold growth. Surface-mounted electrical switches, outlets, and wiring are installed in each office. Select interior trim damage was also noted but was not widespread throughout the interior. The ceiling within the southwest offices is damaged due to debris removal in the attic. The interior of the building requires repainting.

The original plaster in the hallway stair is damaged at the corner near the north entrance. The handrail should be repaired. Moderate plaster damage is present within the basement men's bathroom and the storage rooms. Paint loss was noted on the bottom of the door casing downstairs and may be due to a higher moisture content in the basement.

ATTIC

The current attic is configured with two separate levels. A lower level is present on the west side of the building above the ceiling of the current offices but below the original ceiling of this area of the building. The original plaster cove remains within the lower attic. An additional hatch is above the lower attic area and provides access to the original attic space that extends the entire length of the hipped roof. Attic access should also be improved during a future restoration.

The roof rafters and ridge beam are in good condition. The ceiling joists extend past the masonry walls of the building and support the soffit and built-in gutter. The ends of the ceiling joists have been sistered previously with new wood. One joist on the south façade has deteriorated at the end beneath the built-in gutter. The attic contains remnants of the original knob and tube wiring. The wiring is spliced into modern junction boxes.



EXTERIOR WALLS



Figure 14: Beaufort Carnegie Library Building, South Elevation: Overview of the painted masonry.



Figure 15: Beaufort Carnegie Library: The existing coating has failed along the mortar joints due to rising damp. Note the damaged brick on the retaining wall at the southeast corner.





Figure 16: Beaufort Carnegie Library Building, Front Entrance: View of the carved limestone entrance. Mortar loss and stone damage are visible.

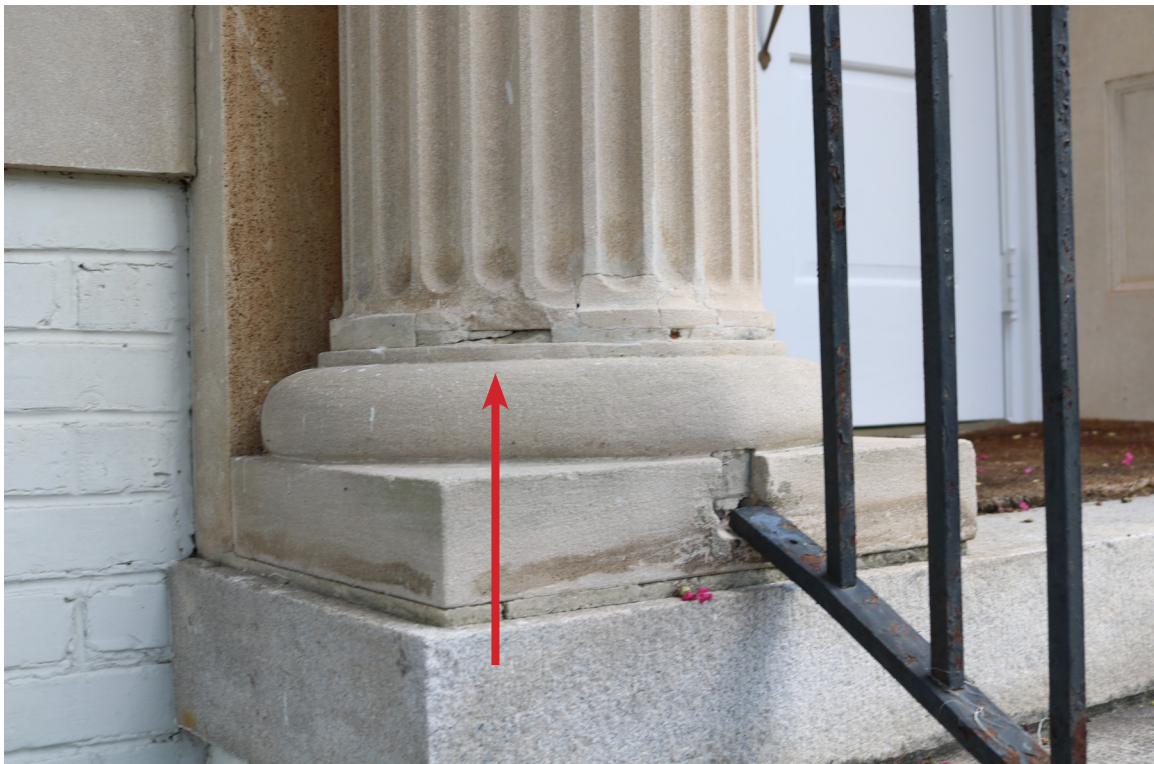


Figure 17: Beaufort Carnegie Library Building, Front Entrance: View of damage to limestone surround (arrow). Mortar loss is also present at select joints. There is light corrosion visible on the metal railings.





Figure 18: Beaufort Carnegie Library Building, Basement Entrance: View of the former exterior basement entrance stair. The exterior door has been removed and the opening has been infilled with masonry. Standing water accumulates in the door well and the white irrigation line acts as a dam in front of the sump pump.





Figure 19: Beaufort Carnegie Library Building, Historic Basement Entrance: View of the masonry beneath the granite treads. A plaster ceiling was once installed at this location. Several cracks are present in the masonry arch, and the treads have settled.



Figure 20: Beaufort Carnegie Library Building, Historic Basement Entrance: View of ponding and the dam created by the irrigation line. The sump pump appears to have been installed higher than the concrete floor (arrow).





Figure 21: Beaufort Carnegie Library Building, South Elevation, West Side: The branches of the crepe myrtle are in direct contact with the masonry and the roof. The tree should be sensitively trimmed away from the historic building.



Figure 22: Beaufort Carnegie Library Building, Masonry Keystone: View of mortar loss next to the limestone keystone (arrow).





Figure 23: Beaufort Carnegie Library Building, Southwest Corner: The painted masonry is in good condition. Moderate paint loss is present at the base of the building due to rising damp (arrow).





Figure 24: Beaufort Carnegie Library Building, West Elevation: A small mesh vent and box are located beneath the cornice. A hole is present within the mesh (arrow). The cove trim is deteriorated above the box.



Figure 25: Beaufort Carnegie Library Building, West Elevation at Ground Level: Vines commonly grow on the building at this corner. Note paint damage from rising damp.





Figure 26: Beaufort Carnegie Library Building, Northeast Corner: The masonry is in fair condition on the back elevation.



Figure 27: Beaufort Carnegie Library Building, North Elevation: The limestone belt course has isolated mortar loss (arrow).





Figure 28: Beaufort Carnegie Library Building, North Elevation, West Side: View of abandoned fasteners and missing paint in an area where a pipe was removed (arrow).

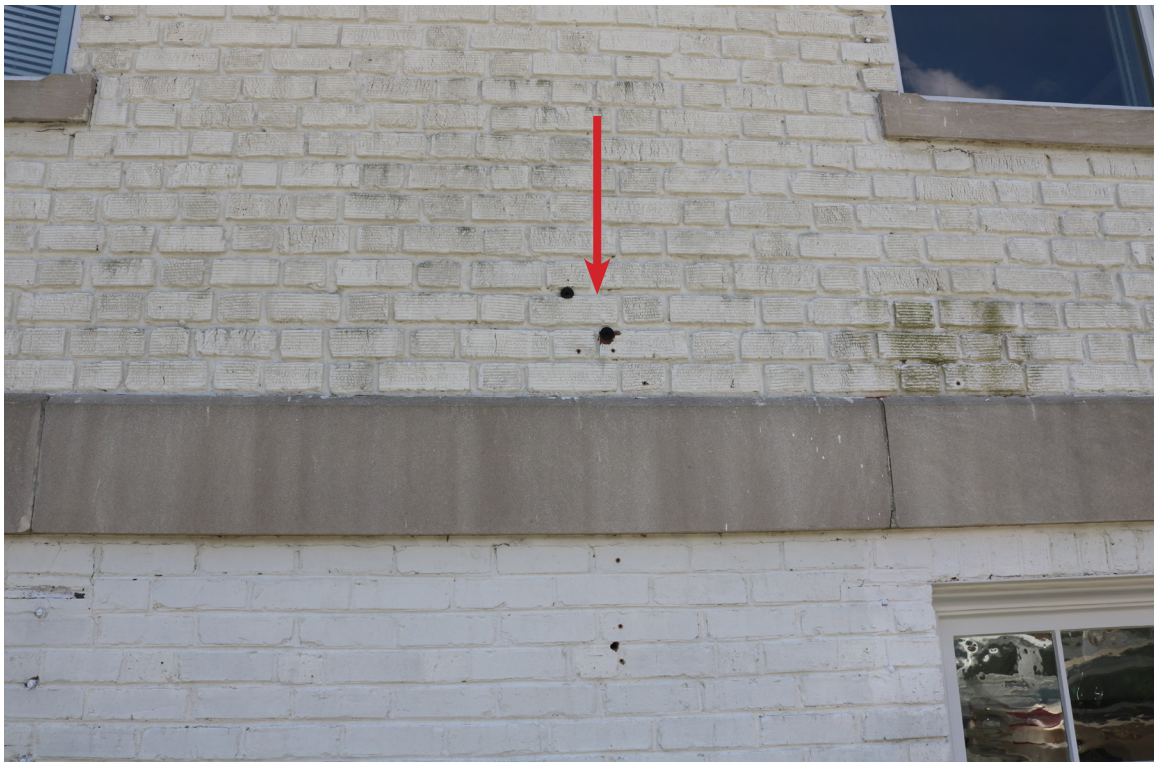


Figure 29: Beaufort Carnegie Library Building, North Elevation: View of open penetrations within the masonry (arrow).





Figure 30: Beaufort Carnegie Library Building, East Elevation and East Entrance.



Figure 31: Beaufort Carnegie Library Building, East Elevation. View of the intersection of the east entrance addition and the masonry wall. A gap is present between the wood and brick (arrow).





Figure 32: Beaufort Carnegie Library Building, East Elevation. Overview of addition and cornice.



Figure 33: Beaufort Carnegie Library Building, Southeast Corner. Detail of paint loss due to rising damp.



ROOF AND DORMERS



Figure 34: Beaufort Carnegie Library Building, Overview of the Ludowici French tile roof.



Figure 35: Beaufort Carnegie Library Building, South Elevation Dormers. The dormers are clad in lead coated copper.





Figure 36: Beaufort Carnegie Library Building, South Elevation Dormers: East Side.



Figure 37: Beaufort Carnegie Library Building, South Elevation Dormers: The dormers are installed over two layers of felt roofing, and the tiles are laid around the dormer openings. This area has been recalced several times (arrow).





Figure 38: Beaufort Carnegie Library Building, South Elevation Dormers: East Side. View of dormer face. The metal is in good condition. The flashing between the roof and dormer is suspect.



Figure 39: Beaufort Carnegie Library Building, East Elevation Dormer: The dormers are ca. 2000 recreations constructed from lead-coated copper. Red and black lead sulfides have formed on the metal's exterior surface, creating a mottled finish.





Figure 40: Beaufort Carnegie Library Building, East Elevation Dormer. This dormer also actively leaks on the south side.



Figure 41: Beaufort Carnegie Library Building, North Elevation and Northwest Corner Chimney. Overview of roof conditions.





Figure 42: Beaufort Carnegie Library: Roof Ridge. The mortar is releasing from the ridge tiles.

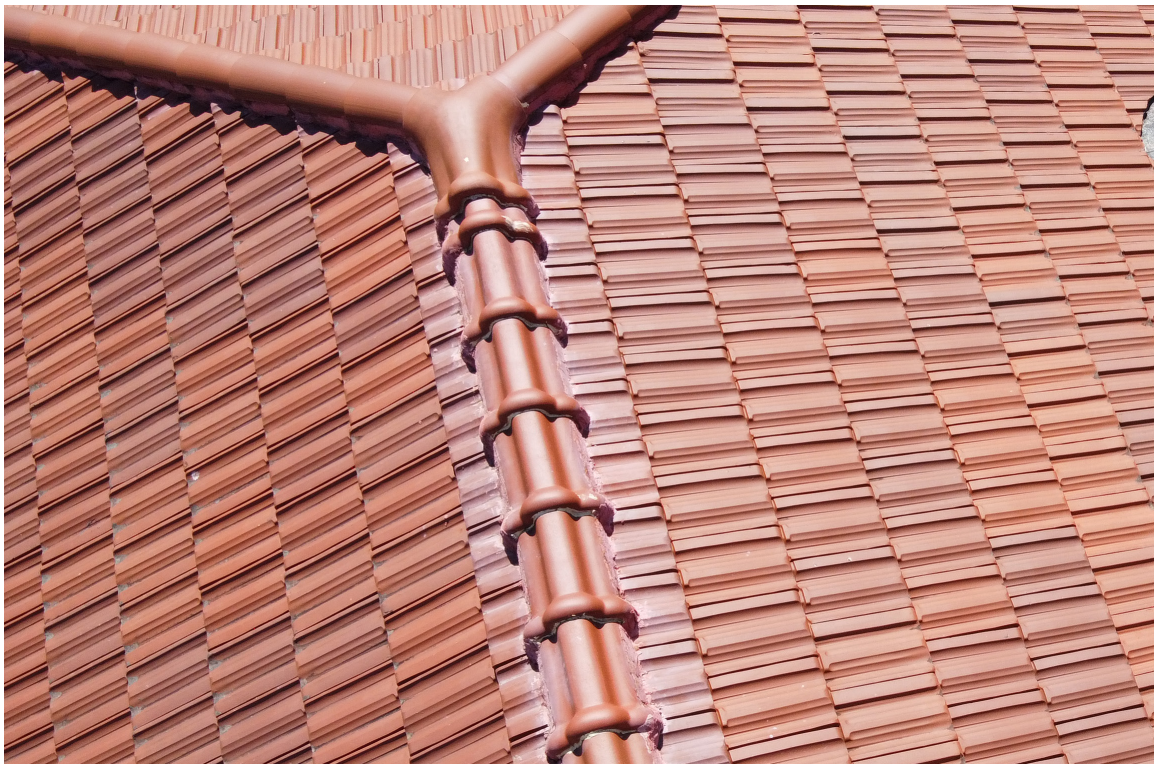


Figure 43: Beaufort Carnegie Library: Roof Ridge From Above.





Figure 44: Beaufort Carnegie Library Building, View of Hip Caps. View of cracked mortar.



Figure 45: Beaufort Carnegie Library Building, Northeast Corner: View of hip caps at gutter.





Figure 46: Beaufort Carnegie Library Building, View of flashing on the corner chimney. The reglet should be recaulked where it intersects the masonry.



Figure 47: Beaufort Carnegie Library Building, West Dormer. This dormer does not appear to leak, but all the dormer flashing is suspect.



BUILT-IN GUTTER



Figure 48: Beaufort Carnegie Library Building, South Elevation, Southeast Corner: The built-in gutter ponds at this corner (arrow). The soffit has deteriorated beneath, indicating there is an active leak.



Figure 49: Beaufort Carnegie Library Building, South Elevation: Standing water is present on the south side of the gutter, next to the large crepe myrtle (arrow).





Figure 50: Beaufort Carnegie Library Building, South Elevation, Looking East: Detail of standing water at the southeast corner.



Figure 51: Beaufort Carnegie Library Building, West Elevation: Detail of built-in gutter on this side of the building. The gutter appears to be in good condition.





Figure 52: Beaufort Carnegie Library Building, Northwest Corner: Detail of built-in gutter at the corner. Note the standing water (arrow).



Figure 53: Beaufort Carnegie Library Building, North Elevation: Detail of built-in gutter on this side of the building. Standing water is present next to the expansion joint and on the east side (arrows).





Figure 54: Beaufort Carnegie Library Building, Northeast Corner: Standing water is visible near the corner. The gutter inlet is in good condition.



Figure 55: Beaufort Carnegie Library Building, East Elevation Aerial: The expansion joint on the east elevation is in good condition. A loose fastener is visible in the gutter (arrow).





Figure 56: Beaufort Carnegie Library Building, Aerial of Southeast Corner: Note the standing water at the corner (arrow).



Figure 57: Beaufort Carnegie Library Building, East Elevation Addition Roof: View of the asphalt roof with ballast. The roof appears to hold water, but no evidence of water infiltration was found on the interior.





Figure 58: Beaufort Carnegie Library Building, Southeast Downspout: The downspout at this corner connects to an extender that drains to the garden bed and sidewalk.



Figure 59: Beaufort Carnegie Library Building, Southwest Downspout: The downspout extender is disconnected, allowing water to drain near the foundation of the building. Both downspouts on the south elevation can be directed underground to drain through a nozzle in the perimeter wall.





Figure 60: Beaufort Carnegie Library Building, Northwest Downspout: The downspout drains directly onto a broken splash block near the base of the building. A splashblock should be installed beneath the downspout.



Figure 61: Beaufort Carnegie Library Building, Northeast Downspout: This downspout drains onto the garden bed, which appears to slope away from the building. A splashblock should be installed at this location.



WOOD ENTABLATURE



Figure 62: Beaufort Carnegie Library Building, Southeast Corner: The soffit has deteriorated at this corner.



Figure 63: Beaufort Carnegie Library Building, South Entrance: View of the limestone door surround. There is a gap between the stone and masonry (arrow).





Figure 64: Beaufort Carnegie Library Building, South Entrance: The cornice is in good condition, but the adjacent tree is in direct contact with the wooden elements.



Figure 65: Beaufort Carnegie Library Building, Southwest Corner: The woodwork is beginning to separate at this corner.





Figure 66: Beaufort Carnegie Library Building, West Facade: The cornice is damaged at the center of this elevation (arrow)



Figure 67: Beaufort Carnegie Library Building, North Facade: The cornice is in fair condition with moderate paint failure.





Figure 68: Beaufort Carnegie Library Building, East Addition: There is a gap between the brick masonry and the wood cornice on the addition (arrow).



Figure 69: Beaufort Carnegie Library Building, East Addition: The woodwork on the addition has extensive paint failure.



WINDOWS & DOORS



Figure 70: Beaufort Carnegie Library Building, East Addition: View of the modern storefront doors and windows.





Figure 71: Beaufort Carnegie Library Building, East Addition: The windows should be replaced. The exterior window sills have a negative slope, allowing water to enter the building.



Figure 72: Beaufort Carnegie Library Building, East Addition: The interior stools should be replaced. The stools are damaged from water infiltration.



ATTIC



Figure 73: Beaufort Carnegie Library Building, Attic, Lower Level Looking Southwest: View of the attic's lower level directly above the office ceilings.



Figure 74: Beaufort Carnegie Library Building, Attic, Lower Level Looking Northwest: The original plaster ceiling and cove cornice remain in this space. The lower attic level was created after the construction of the interior offices.





Figure 75: Beaufort Carnegie Library Building, Attic, Lower Level: View of debris and insulation present during the assessment. The debris has since been removed, but the office ceiling below is currently damaged.



Figure 76: Beaufort Carnegie Library Building, Attic, Upper Level: View of the original attic with exposed rafters. A central HVAC line runs in the middle of the upper attic.





Figure 77: Beaufort Carnegie Library Building, Attic, Upper Level: The HVAC lines were disconnected from the main line. These ducts feed the ceiling vents in the large conference room.



Figure 78: Beaufort Carnegie Library Building, Attic, Upper Level: View of disconnected ductwork.





Figure 79: Beaufort Carnegie Library Building, Attic, Looking South: The original wood decking around the southeast dormer is water damaged and deteriorated, identifying the location of active leaks (arrow). The southeast dormer is present at right.



Figure 80: Beaufort Carnegie Library Building, Attic, Looking South: View of deteriorated roof decking and mold growth to the west of the southeast dormer (arrow).





Figure 81: Beaufort Carnegie Library Building, Attic, Looking West: View of deteriorated sheathing to the south of the west dormer (arrow). The ceiling damage below this location is related to the leaking gutters.



Figure 82: Beaufort Carnegie Library Building, Attic, Looking West: View of water-stained rafters to the south of the west dormer (arrow).





Figure 83: Beaufort Carnegie Library Building, Attic Ridge: No evidence of water damage was observed at the ridge despite the mortar loss on the exterior.



Figure 84: Beaufort Carnegie Library Building, Attic Ridge: The rafters are in good condition.





Figure 85: Beaufort Carnegie Library Building, Attic, Looking South. The end of one joist has deteriorated below the south dormers (arrow). White mold from an active leak is visible above.



Figure 86: Beaufort Carnegie Library Building, Attic Ceiling Joists: Knob and tube wiring was found spliced into a modern conduit.



INTERIOR FINISHES



Figure 87: Beaufort Carnegie Library Building, East Conference Room: The interior plaster damage along the south wall is related to the leak at the southeast dormer.



Figure 88: Beaufort Carnegie Library Building, East Conference Room: The interior plaster damage along the east wall is from the leaking east dormer.





Figure 89: Beaufort Carnegie Library Building, East Conference Room: The ducts connected to the ceiling joists in this room are all disconnected from the main line in the attic.



Figure 90: Beaufort Carnegie Library Building, South Vestibule: The original pine flooring and stair treads are exposed at this location. The original wood flooring appears to be preserved beneath the office carpet, but the condition is unknown.





Figure 91: Beaufort Carnegie Library Building, First-Floor Offices: View the surface-mounted electrical wiring and the metal ceiling vents.



Figure 92: Beaufort Carnegie Library Building, First Floor: View of mold growth around the metal ceiling vents (arrow).





Figure 93: Beaufort Carnegie Library Building, First Floor: View the trim damage (arrow).



Figure 94: Beaufort Carnegie Library Building, First-Floor Landing: View of plaster damage and paint loss in the interior stair hall.





Figure 95: Beaufort Carnegie Library Building, Basement: View of paneling damage possibly caused by rising damp.



Figure 96: Beaufort Carnegie Library Building, Basement Offices: View of paint finish failure and bubbling on the lower casing (arrows). This may be caused by moisture.



Structural Assessment (Michael H Hance PE LLC)



MICHAEL H. HANCE, PE LLC

STRUCTURAL DESIGN AND CONSULTING

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Telephone: (843) 856-2649
mhancepe@comcast.net**August 29, 2022****Betty Prime, AIA
Meadors, Inc.
2811 Azalea Drive
Charleston SC 29405****SUBJECT: Structural Assessment
Carnegie Library
701 Craven Street
Beaufort, South Carolina 29902**

Ms. Prime:

The following review details the structural assessment of Carnegie Library located in Beaufort, South Carolina. The findings described within this review were limited to visual observations of the existing structural roof components as well as interior and exterior finishes obtained during the site investigation on August 9th, 2022. The structural inspection was performed with Meadors, Inc. per request as part of an overall investigation of the existing roof system at the subject property. The original architectural documents were not able to be provided for the subject property.

GENERAL:

The Carnegie Library was designed by James Hagood Sams, an architect in Columbia and was funded in part by donations from steel industrialist Andrew Carnegie as well as contributions from the local community. Records indicate the structure was built by J.H. Moore of Camden, South Carolina. Construction of the Carnegie Library began in 1917 and was completed in March of 1918. It served as the public library for the Beaufort Township for several years. The Carnegie Library currently houses administrative offices for the Town of Beaufort and is located at the corner of Craven Street and Carteret Street. The building is a one and a half story structure with a first floor level and a raised basement level. The main entrance to the first floor level is located at the South side of the building. The main entrance stairs are constructed of stone treads over brick masonry arches. The stairs lead to a landing entrance with a cast stone surround and pilasters on each side. A secondary entrance located at grade level on the building's North side provides access to the first floor and basement level. An additional entrance to the basement level is also provided by an enclosed stairwell on the building's East side. The enclosed stairwell entrance appears to be a later addition to the original structure. A former entrance to the basement level is also located below the main entrance stairs and has been closed off. Access to the attic area is located in the ceiling of the South side office adjacent to the front entrance. The basement level consists of office areas, restrooms, storage and a mechanical room. The first floor level consists of office space and a conference room at the East side.

The one and half story structure is constructed of multi-wythe brick masonry exterior walls that extend from below grade to the roof eave level. The building exterior consists of exposed brick with precast panels at first floor windows and a precast perimeter band above the basement windows. The structure is covered with a clay tile hip roof system with barrel dormers located on the building's North, East and West side. The ridge of the hip roof system extends parallel to the length of the building. The basement level is constructed of a slab foundation with interior loadbearing walls and two columns at the open office area.

**Structural Assessment
Carnegie Library
Beaufort, SC
August 29, 2022
Page Two**

The first floor level consists of 3x12 floor framing bearing in joist pockets constructed within the exterior multi-wythe brick masonry. Interior support of the first floor framing is provided by basement level walls and a floor beam located over the two open area columns. The spacing of the joist framing is approximately 18 inches. The size and type of floor beam extending over the basement level columns could not be determined due to the presence of interior finishes. The original first floor ceiling has been concealed with a wood framed drop ceiling throughout the building. The clay tile hip roof system is supported by true 2x7½ wood rafters spaced at approximately 18 to 22 inches on center. The rafters are tied into 2x9½ ceiling joists with 2x7½ diagonals at each side of the ridge to form a built-up roof truss. The roof truss spans approximately 30 feet across the width of the structure and rests on a sill plate at the top of the perimeter multi-wythe brick masonry walls. Rafter framing extends just beyond the exterior wall to create the cornice detail at the eave line along the perimeter of the building. Roof drainage is provided by concealed metal lined gutter within the cornice at the roof edge. The gutter system is connected to a downspout at each building corner.

FINDINGS - BUILDING COMPONENTS:

The findings discussed within this report are based on visual observations obtained on site. The primary focus of the structural assessment was to review the condition of the roof framing. The condition of the brick arches below the main entrance stairs was also addressed. A visual inspection of the roof framing system at the attic level was performed during the site investigation. The roof exterior was also examined via the use of a drone by Meadors, Inc. An invasive investigation via selective demolition was not performed as part of the structural assessment of the roof system.

Foundation/Basement Level Structural Components:

The Carnegie Library is a one and half story structure is constructed of multi-wythe brick masonry exterior walls that extend from below grade to the roof eave level. The basement floor level is constructed of a raised slab foundation. An entrance located at grade level on the building's North side provides access to the first floor and basement level. An additional entrance to the basement level is also provided by an enclosed stairwell on the building's East side. The enclosed stairwell entrance appears to be a later addition to the original structure. A former entrance to the basement level at the South end is located below the main entrance stairs and has been closed off. The depth and reinforcement of the footing supporting the exterior brick masonry walls and raised slab is not known.

The interior of the basement level consists of office areas, restrooms, storage and a mechanical room. At the East side of the basement level, a large open office area extends the width of the building from the North to South side. This space was originally utilized as an assembly area for various functions. Support for the first floor framing is provided by interior walls and two round steel columns located in the open office space. The two columns support a floor beam installed in line with corridor wall at the first floor level. The depth and reinforcement of the footing supporting the interior walls and two steel columns is not known. The interior walls and slab foundation appears to be in sound condition.

**Structural Assessment
Carnegie Library
Beaufort, SC
August 29, 2022
Page Three**

First Floor Level Structural Components:

The first floor level consists of office space and a conference room at the East side. First floor framing is constructed of 3x12 floor joists spaced at 18 inches on center. Floor framing bears in joist pockets constructed within the exterior multi-wythe brick masonry. Interior support of the floor joists is provided by the basement level walls below and a floor beam located over the two open area columns. The size and type of floor beam extending over the basement level columns could not be determined due to the presence of interior finishes.

Exterior Wall Components:

The one and half story structure is constructed of multi-wythe brick masonry exterior walls that extend from below grade to the roof eave level. The building exterior consists of exposed brick with precast panels at first floor windows and a precast perimeter band above the basement windows. The main entrance to the first floor level is located at the South side of the building. The main entrance stairs are constructed of stone treads over brick masonry arches. The stairs lead to a landing entrance with a cast stone surround and pilasters on each side. As part of a renovation effort at the building exterior, the windows at the basement level and first floor were restored in 2021. The circular windows at the single barrel dormers at the attic level were not included in the scope of work for this restoration. Overall, the brick masonry and precast panels appear to be in good condition and sound for a structure of this age.

Roof Structural Components:

Carnegie Library is covered with a terra cotta clay tile hip roof system supported by wood roof truss framing. The ridge of the hip roof system extends parallel to the length of the building. A single barrel dormer covered with copper is located on the building's East and West side. A series of three single barrel dormers are located at the South side of the structure and are centered over the main entrance to the first floor level. The original first floor ceiling has been concealed with a wood framed drop ceiling throughout the building. The drop ceiling is constructed of 2x4 wood framing supported at exterior and interior walls. Access to the attic area is located in the drop ceiling framing at the South side office adjacent to the front entrance. The original hatch to the roof attic area is directly above the drop ceiling access.

The terra cotta clay tile roof system is installed over wood plank roof sheathing throughout. The hip roof system is supported by true 2x7½ wood rafters spaced at approximately 18 to 22 inches on center. The rafters are tied into 2x9½ ceiling joists with 2x7½ diagonals at each side of the ridge to form a built-up roof truss. The roof truss spans from the building's North to South end approximately 30 feet and rests on a sill plate at the top of the perimeter multi-wythe brick masonry walls. Rafter framing extends just beyond the exterior wall to create the cornice detail at the eave line along the perimeter of the building. At the inside face of the exterior walls, an angled 1x gusset plate is face nailed to the side of the rafter and ceiling joists to tie these components together. At the center of the structure, opposing rafters overlap and are cut to form the roof ridge line. The rafters act as the top chord of the roof truss with the 2x9½ ceiling joists forming the bottom chord. A vertical 2x7½ chord extends from the ridge to the base of the ceiling framing at each rafter intersection. The ceiling joists are lapped with a 2x9½ gusset plate at the base of the vertical chord. All connections at this location are face nailed from the vertical chord to the gusset plate.

**Structural Assessment
Carnegie Library
Beaufort, SC
August 29, 2022
Page Four**

Roof Structural Components: (Continued)

At the hip to ridge intersection at the East and West side of the building, a double 2x9½ ceiling beam spans from the North to South wall. A double 2x9½ beam is connected to the center of this beam to support ceiling framing at each hip end. Each hip is constructed of a 2x7½ rafter that extends from the building corner to the hip to ridge intersection. The hip rafter is toe nailed into the face of the rafter top chord on each side.

As noted, single barrel dormers are located at the East and West side of the library and three dormers are installed over the South side main entrance. The barrel dormers are constructed of light gage metal framing and covered with copper roofing. As part of previous repairs to the roof framing due to water infiltration at the dormers, a 2x8 rafter has been sistered to the rafter at each side of the dormer opening. The installation of the 2x8 repair was observed at all five of the single barrel dormer locations. At the dormer openings, main roof rafters run continuous to the exterior wall therefore a header was not required. Replacement of wood plank sheathing was noted directly above the roof eave line and below the dormers along the South and East side of the building. The replacement of plank sheathing is likely the result of water damage sustained from leaks at barrel dormer roof penetrations.

Roof drainage is provided by a concealed metal lined gutter within the cornice at the roof edge. The gutter system is connected to a downspout at each building corner that extends to grade. Downspouts are terminated above grade where drainage is dispersed to lower elevations away from the structure.

The following numbered items detail findings observed during the assessment of the structural components at the Carnegie Library.

Exterior Wall Components - Findings:

1. **Main Entrance Brick Stairway:** The main entrance to the first floor level is located at the South side of the building. The main entrance stairs are constructed of stone treads over brick masonry arches. The stairs lead to a landing entrance with a cast stone surround and pilasters on each side. Minor mortar loss was noted in the brick masonry directly below the treads at the stair entrance. Mortar loss was also noted in the brick arches supporting the stair landing above.
2. **Main Entrance Basement Level Stairs:** The stone coping tiles over the brick retaining wall at the stairs leading to the closed off entry to the basement level have cracked at the top of the steps. The brick masonry below the stone coping tiles at this location has been dislodged and portions of brick are broken. Standing water was also noted at the base of the basement level stairs. It appears the sump pump installed to remove water at this location is not operating or the drain has been clogged.

Roof Structural Components - Findings:

1. **Terra Cotta Clay Tile Roof System:** The terra cotta clay tile roof system appears to be in fair condition for its age. Visual observations via the use of a drone by Meadors, Inc.

**Structural Assessment
Carnegie Library
Beaufort, SC
August 29, 2022
Page Five**

Roof Structural Components - Findings: (Continued)

indicated the release of mortar from the terra cotta clay tile at the ridge line. In addition, the flashing along the ridge was not visible and could not be confirmed. The loss of mortar and inadequate flashing at this location is a potential source of water infiltration. Water damage to plank sheathing was noted at one location above the conference room at the North side of the building within three rafter spaces from hip to ridge intersection.

2. Single Barrel Dormers: During the roof framing inspection, water damage to wood plank sheathing was noted at each side of the barrel dormers at the South side of the building. Evidence of water infiltration was also noted at the conference room wall below these dormer locations. As noted earlier, previous repairs to the roof framing included a 2x8 rafter sistered to the rafter at each side of the dormer opening. The 2x8 repair was observed at all five of the single barrel dormer locations and installed to support deteriorated rafter framing at the lower portion of the roof system. Along the South and East side of the building, wood plank sheathing was also replaced between the dormer and roof eave. The replacement of plank sheathing at these areas is most likely attributed to water infiltration entering along the dormer penetrations at the main roof due to inadequate flashing details. A portion of wood plank sheathing was also replaced at one location below the East side dormer.
3. Hip Framing to Ridge Connection: A minor gap between the 2x7½ hip to top chord rafter connection has developed at the East end of the structure. The gap is probably the result of movement and shrinkage of framing over a period of time causing toe nail fastening to pull away at this location.
4. Roof Gutter System: At the Southwest corner of the building adjacent to the main entrance, a large crepe myrtle extends above the roof. Leaves and debris are collecting at the roof gutters.

RECOMMENDATIONS – BUILDING COMPONENTS:

Based on observations during the structural assessment, recommendations for the roof system at the Carnegie Library are provided below.

Exterior Wall Components - Recommendations:

1. Main Entrance Brick Stairway: Minor mortar loss was noted in the brick masonry directly below the treads at the stair entrance. Mortar loss was also noted in the brick arches supporting the stair landing above. It is recommended the deteriorated joints at the brick stairs and brick arches be repointed with compatible restoration mortar. Any damaged brick should also be replaced with in kind reclaimed brick as required.
2. Main Entrance Basement Level Stairs: The stone coping tiles over the brick retaining wall at the stairs leading to the closed off entry to the basement level have cracked at the top

**Structural Assessment
Carnegie Library
Beaufort, SC
August 29, 2022
Page Five**

Exterior Wall Components - Recommendations: (Continued)

of the steps. The brick masonry below the stone coping tiles at this location has been dislodged and portions of brick are broken. It is recommended the damaged stone coping tiles at the brick stairs be replaced with like material of similar dimension. The damaged brick at the top of the retaining wall at the stair entry brick masonry should also be repaired. Any damaged brick should be replaced with in kind with similar brick and mortar as required. Standing water was also noted at the base of the basement level stairs. It appears the sump pump installed to remove water at this location is not operating or the drain has been clogged. It is recommend the sump pump at this location be checked to ensure it is operating and the drain be kept free of debris as part of regular maintenance of the building exterior.

Roof Structural Components - Recommendations:

1. **Terra Cotta Clay Tile Roof System:** Visual observations via the use of a drone by Meadors, Inc. indicated the release of mortar from the terra cotta clay tile at the ridge line. In addition, the flashing along the ridge was not visible and could not be confirmed. It is recommended the terra cotta clay tiles along the ridge line be removed to confirm the ridge flashing detail at this location. Based on these findings, additional flashing might be required prior to reinstallation of the clay tiles. Mortar of like material should be repointed at all ridge locations as required.
2. **Single Barrel Dormer Flashing:** During the inspection of the roof framing, evidence of water infiltration was noted at the barrel dormer penetrations to the main roof. Based on the conditions observed, it is recommended the terra cotta clay tiles around the barrel dormers be removed to allow for the installation of new flashing at the dormer base. New caulking should also be applied at the dormer surrounds following the flashing installation. As part of routine maintenance, it is recommended the dormers caulking be reapplied every 3 to 5 years. The condition of the terra cotta tile at the dormer penetrations should also be further evaluated and any damaged tiles be replaced with similar material of like dimension.
3. **Wood Plank Sheathing:** As noted previously, damaged wood plank sheathing was observed at the barrel dormer locations. During the installation of new flashing for the barrel dormer penetrations at the main roof, it is recommended any damaged plank sheathing be removed and replaced as required with new plank sheathing of similar dimension.
4. **Hip Framing to Ridge Connections:** A minor gap between the 2x7½ hip to top chord rafter connection has developed at the East end of the structure. Connection of the hip at the ridge can be provided with the installation of skewed angle plates fastened to rafter and hip framing with wood screws. In addition, it is recommended skewed angle plates be installed at the West end hip to ridge connection to prevent gaps from developing at this location in the future.

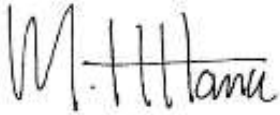
**Structural Assessment
Carnegie Library
Beaufort, SC
August 29, 2022
Page Six**

Roof Structural Components - Recommendations: (Continued)

5. Roof Gutters: It is recommended all roof gutters be adequately cleaned and kept free of debris as part of routine maintenance of the building exterior. The trees adjacent to the building should also be trimmed as part of routine maintenance to prevent debris from collecting in the roof gutters.

I appreciate the opportunity to provide you with this report and if I can answer any questions or provide any additional services, please contact my office.

Respectfully yours,

A handwritten signature in black ink that reads "M. H. Hance". The signature is written in a cursive style with a horizontal line through the middle of the letters.

Michael H. Hance, PE
Michael H. Hance PE LLC

Hazardous Materials Testing (Trident Environmental Services, Inc.)



LIMITED ASBESTOS SURVEY

**CARNEGIE LIBRARY INTERIOR
701 CRAVEN STREET
BEAUFORT, SOUTH CAROLINA 29902**



Prepared For:

MEADORS
SINCE 1984

**Attn: Ms. Betty Prime
2811 Azalea Drive
North Charleston, SC 29405
(843) 723-8585**

Performed By:

TES

Trident Environmental Services, Inc.

*Consultants in Industrial Hygiene and Safety
500 Oakbrook Lane, Suite E
Summerville, SC 29485
(843) 873-3648*

LIMITED ASBESTOS SURVEY

Carnegie Library Interior
701 Craven Street
Beaufort, SC 29902

Executive Summary4

Background5

- Asbestos5
- Limitations5

Asbestos Survey6

- Asbestos Investigative Procedures6
- Visual Inspection6
- Laboratory/Analysis6
- Asbestos Classifications & Categories7
- Asbestos Abbreviations/Hazard Assessment Key8

Asbestos Summary Table9

Homogeneous Estimated Quantity Table10

Asbestos Sample Data Table11

Conclusions / Recommendations14

- Conclusions14
- Recommendations14
- Response Actions14

Regulatory Requirements15

- Friable Abatement15
- Non Friable Abatement15
- Demolitions15
- OSHA16

Homogenous Area Photographs17

Diagram(s)20

Inspector Accreditation22

Laboratory Accreditation23

Chain of Custody/Laboratory Reports25

- Chain of Custody25
- PLM Laboratory Report29
- TEM Laboratory Report33



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Limited Asbestos Survey
 Carnegie Library Interior
 701 Craven Street – Beaufort, SC
 Survey Date: July 19, 2022



EXECUTIVE SUMMARY

The limited asbestos survey performed by Trident Environmental Services, Inc. on July 19, 2022 of the Carnegie Library Interior located at 701 Craven Street in Beaufort, South Carolina **did** identify the presence of asbestos containing materials (ACM). The following table lists the asbestos identified in the scope of the limited inspection.

Description	Type
Carpet Mastic (black)	Category I – Non Friable
Plaster/Skim Coat	RACM – Friable
Vinyl Sheet Flooring (brick pattern)	RACM – Friable

RACM – Regulated Asbestos Containing Material

PACM – Presumed Asbestos Containing Material

Abatement of ACM shall be performed by a properly trained and licensed abatement contractor prior to the planned renovation/demolition activities in accordance with Federal/State regulations. The Asbestos Survey describes the investigative procedures utilized, results of the suspect materials sampled/analyzed, and recommendations regarding the structures as related to asbestos.

Limited Asbestos Survey
Carnegie Library Interior
701 Craven Street – Beaufort, SC
Survey Date: July 19, 2022



BACKGROUND

Trident Environmental Services, Inc. was contracted by **Meadors, Inc.** to perform a limited asbestos survey of the Carnegie Library Interior located at 701 Craven Street in Beaufort, South Carolina. This survey was performed in order to satisfy the NESHAP requirements for an impending renovation/modification to the building. The historical 1.5 story masonry building is constructed on a raised basement and consists of approximately 2,443 square feet. Date of construction is 1917.

Interior walls are drywall with joint compound applied at seams and plaster with skim coat over a wood lathe. Ceilings are a suspended metal grid system with lay-in ceiling tiles and plaster. Floor finishes include hardwood, vinyl floor planks, vinyl floor tiles and carpet over wood. **Note: This inspection was limited to the interior and should not be used or considered as an all-inclusive asbestos survey for the building.**

Asbestos

The inspection was conducted to identify ACM which may be disturbed during the renovation/demolition activities. The identification of ACM will aid in the prevention of occupational exposures and/or environmental releases of airborne asbestos fibers. Identification of ACM also complies with Title 40 Code of the Federal Regulations, Part 61, and South Carolina Department of Health and Environmental Control (SCDHEC) Regulation 61-86.1, along with Title 29 Code of Federal Regulations, Part 1926 enforced by the Occupational Safety and Hazard Administration (OSHA). The Asbestos Survey describes the investigative procedures utilized, results of the suspect ACM sampled/analyzed, and recommendations regarding the structures as related to asbestos.

Limitations

There is a possibility that suspect materials may be located in areas that are inaccessible during the inspection. These areas include but not limited to the following: walls, voids, chases, above ceilings, or areas where building components obstruct views, where there are operational mechanical/electrical/HVAC systems, under platforms, slabs, foundations, inside attics or crawlspaces, under multiple layers of flooring/floor systems and roofing. When additional unsampled suspect ACM are discovered during renovation or demolition activities, work shall immediately stop until receipt of laboratory results confirming the material is non asbestos.

Limited Asbestos Survey
Carnegie Library Interior
701 Craven Street – Beaufort, SC
Survey Date: July 19, 2022



ASBESTOS SURVEY

Asbestos Investigative Procedures

It is our understanding that the subject structure is scheduled for renovation and repair in the near future. The asbestos survey was performed by observing and sampling suspect building materials. Significant destructive testing was not utilized during the inspection. There is a possibility that suspect materials exist in inaccessible areas such as wall cavities and pipe chases. If any additional suspect ACM are discovered during the course of demolition activities, bulk samples should be extracted to identify the presence, or absence, of asbestos prior to continuation of work activities.

Visual Inspection

The survey began with a visual observation of building and/or structure components to identify homogeneous areas of suspect ACM. A homogeneous area consists of building materials, which appear similar throughout in terms of color, texture and date of application. Building materials not identified as concrete, glass, wood, masonry, metal, rubber, foam or plastic were not considered ACM. A sampling strategy was developed to provide representative samples for analysis. Samples were then extracted from a variety of suspect ACM.

Laboratory & Analysis

Bulk samples collected were recorded on a Chain-of-Custody record and submitted to Electron Microscopy Services Laboratory Analytical, Inc. (EMSL) a Polarized Light Microscopy (PLM) laboratory. The laboratory is accredited by the National Voluntary Laboratory Accreditation Program (NVLAP), administered by the National Institute of Standards and Technology (NIST). EMSL is accredited by NVLAP for the analysis of bulk asbestos by PLM and Transmission Electron Microscopy (TEM) ([NVLAP Lab Code: 200841-0](#)). Non-Friable Organically Bound (NOB) samples were analyzed by TEM

The suspect materials were analyzed by trained microscopists utilizing PLM techniques coupled with dispersion staining in accordance with EPA Test Method Title 40 CFR Regulations, Chapter I (1-1-87 edition), Part 763, Subpart F- Appendix A. This method identifies asbestos mineral fibers based on six optical characteristics: morphology, birefringence, refractive index, extinction angle, sign of elongation and dispersion staining colors. The laboratory analysis reports the specific type of asbestos identified (there are six asbestos minerals) and the percentage of asbestos present. The EPA and SCDHEC defines materials as asbestos containing if an asbestos content of greater than one percent (>1%) is detected in a representative sample. OSHA considered a material with any content of asbestos as an ACM.

Limited Asbestos Survey
Carnegie Library Interior
701 Craven Street – Beaufort, SC
Survey Date: July 19, 2022



The State requires NOB materials with negative or trace results by PLM to be analyzed by at least one TEM. SCDHEC in accordance with ASTM E 2356-04 defines NOB materials as “materials that are not friable and that consist of fibers and other particulate matter embedded in a solid matrix of asphalt, vinyl or other organic substances.” Examples of NOB materials include but are not limited to flooring materials such as vinyl floor tiles, vinyl sheet flooring, adhesives, mastics, asphalt shingles, roofing materials, glazing, caulks, and cove base.

Asbestos Classifications & Categories

The EPA classifies ACM into two categories, friable and non-friable. A friable material creates a greater health hazard due to the fact that it may be “crumbled, pulverized or reduced to powder by the forces expected to act upon it in the course of demolition or renovation operations.”

Friable Asbestos material means any material containing more than one percent asbestos as determined using the method specified in appendix A, subpart F, 40 CFR part 763 section 1, Polarized Light Microscopy, that, when dry, can be crumbled, pulverized, or reduced to powder by hand pressure. If the asbestos content is less than 10 percent as determined by a method other than point counting by polarized light microscopy (PLM), verify the asbestos content by point counting using PLM.

Category I Non Friable Asbestos-Containing Material (ACM) means asbestos-containing packings, gaskets, resilient floor coverings, and asphalt roofing products containing more than one percent asbestos as determined using the method specified in appendix A, subpart F, 40 CFR part 763, section 1, Polarized Light Microscopy.

Category II Non Friable ACM means any material, excluding Category I non friable ACM, containing more than one percent asbestos as determined using the methods specified in appendix A, subpart F, 40 CFR part 763, section 1, Polarized Light Microscopy that, when dry, cannot be crumbled, pulverized, or reduced to powder by hand pressure. (cement siding, transite board shingles, etc.)

Regulated Asbestos-Containing Material (RACM) means (a) Friable asbestos material, (b) Category I non friable ACM that has become friable, (c) Category I non friable ACM that will be or has been subjected to sanding, grinding, cutting, or abrading, or (d) Category II non friable ACM that has a high probability of becoming or has become crumbled, pulverized, or reduced to powder by the forces expected to act on the material in the course of demolition or renovation operations.

The following section summarizes the sample numbers, locations, type material, asbestos type, percent of asbestos detected, present condition of the asbestos containing material, potential for disturbance, and hazard assessment ratings. The asbestos sample laboratory analyses and chain of custody records are included at the end of this report.

Limited Asbestos Survey
 Carnegie Library Interior
 701 Craven Street – Beaufort, SC
 Survey Date: July 19, 2022



Asbestos Abbreviations and Hazard Assessment Key

The EPA and SCDHEC require that confirmed ACM is given a hazard assessment based on its present condition and potential for future disturbance. This hazard assessment is used as a tool for prioritization in future remedial actions regarding the ACM. The following key demonstrates the criteria that make up the hazard assessment.

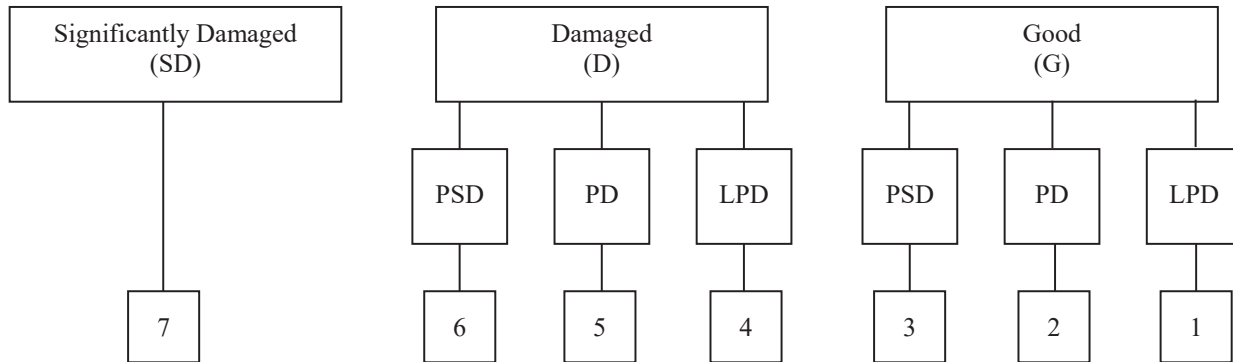
Present Condition

- F = Friable
- NF = Non-friable
- G = Good (very localized limited damage)
- D = Damaged (<10% distributed and/or <25% localized)
- S = Significantly Damaged (≥10% distributed and/or 25% localized)

Potential for Future Disturbance

- LPD = Low Potential for Disturbance (Contact, Vibration, and/or Air Erosion – low concern)
- PD = Potential for Damage (Contact, Vibration, and/or Air Erosion – moderate concern)
- PSD = Potential for Significant Damage (Contact, Vibration and/or Air Erosion – high concern)

Hazard Assessment



Limited Asbestos Survey
 Carnegie Library Interior
 701 Craven Street – Beaufort, SC
 Survey Date: July 19, 2022



ASBESTOS SUMMARY

DESCRIPTION	TYPE	LOCATION	ESTIMATED QUANTITY
Carpet Mastic (black)	Category I Non Friable	First Floor	1,182 SF
Plaster/Skim Coat	RACM – Friable	First Floor, Basement	9,456 SF
Vinyl Sheet Flooring (brick pattern)	RACM – Friable	Basement Storage	50 SF

RACM – Regulated Asbestos Containing Material

PACM – Presumed Asbestos Containing Material

The estimated quantities/locations provided shall be verified by abatement contractor and building owner with any discrepancies reported to Consultant and addressed prior to abatement. Removal costs vary depending on the contractor, the quantity/condition, and the accessibility/location. This survey report shall not be used as a bidding document and field conditions are to be verified and not used in lieu of a site visit.

Limited Asbestos Survey
 Carnegie Library Interior
 701 Craven Street – Beaufort, SC
 Survey Date: July 19, 2022

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HOMOGENOUS AREA ESTIMATED QUANTITY TABLE

HOMOGENOUS AREA ID #	DESCRIPTION	ESTIMATED QUANTITY
01	Carpet Mastic (yellow)	1,182 SF
02	Carpet Mastic (black)	1,182 SF
03	HVAC Duct mastic (white)	270 SF
04A/B	Plaster/Skim Coat	9,456 SF
05	Vinyl Sheet Flooring (brick pattern)	50 SF
06	Vinyl Mastic (black)	50 SF
07	Vinyl Plank Flooring (brown)	1,066 SF
08	12" Floor Tile (tan)	1,066 SF
09	Floor Tile Mastic (yellow)	
10	2' x 2' Ceiling Tile	1,230 SF
11	HVAC Duct Mastic (beige)	80 SF
12	Vinyl Cove Base (gray)	1,654 LF
13	Cove Base mastic (beige)	
14	Drywall	2,960 SF
15	Joint Compound	
16	Roof Felt Paper	1,500 SF

Limited Asbestos Survey
Carnegie Library Interior
701 Craven Street – Beaufort, SC
Survey Date: July 19, 2022

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ASBESTOS SAMPLE DATA TABLE

DESCRIPTION OF EACH SAMPLE AREA				LABORATORY		ASSESSMENT OF MATERIALS	
Homogeneous Area & Sample ID	Description	Unit # / Room	Friable (Y/N)	Asbestos Present		Condition Assessment Category	Hazard Assessment Category
				Percent	Asbestos		
01-01	Carpet Mastic (yellow)	1 st Floor	N	0.0%	ND	7	N/A
01-02	Carpet Mastic (yellow)	1 st Floor	N	0.0%	ND	7	N/A
01-03 T	Carpet Mastic (yellow)	1 st Floor	N	0.0%	ND	7	N/A
02-04	Carpet Mastic (black)	1 st Floor	N	2.0%	CHRY	7	3
02-05	Carpet Mastic (black)	1 st Floor	N	NT	PACM	7	3
02-06	Carpet Mastic (black)	1 st Floor	N	NT	PACM	7	3
03-07	HVAC Duct Mastic (white)	Basement	N	0.0%	ND	7	N/A
03-08	HVAC Duct Mastic (white)	Basement	N	0.0%	ND	7	N/A
03-09 T	HVAC Duct Mastic (white)	Basement	N	0.0%	ND	7	N/A
04-10A	Plaster (white coat)	1 st Floor	Y	0.0%	ND	4	N/A
04-10B	Plaster (gray coat)	1 st Floor	Y	4.0%	CHRY	4	3
04-11A	Plaster (white coat)	1 st Floor	Y	0.0%	ND	4	N/A
04-11B	Plaster (gray coat)	1 st Floor	Y	2.0%	CHRY	4	3
04-12A	Plaster (white coat)	1 st Floor	Y	0.0%	ND	4	N/A
04-12B	Plaster (gray coat)	1 st Floor	N	2.0%	CHRY	4	3
04-13A	Plaster (white coat)	Basement	Y	0.0%	ND	4	N/A
04-13B	Plaster (gray coat)	Basement	Y	3.0%	CHRY	4	3
04-14A	Plaster (white coat)	Basement	Y	0.0%	ND	4	N/A
04-14B	Plaster (gray coat)	Basement	Y	2.0%	CHRY	4	3
04-15A	Plaster (white coat)	Basement	Y	0.0%	ND	4	N/A
04-15B	Plaster (gray coat)	Basement	Y	3.0%	CHRY	4	3
04-16A	Plaster (white coat)	Basement	Y	0.0%	ND	4	N/A
04-16B	Plaster (gray coat)	Basement	Y	3.0%	CHRY	4	3
05-17	Viny Sheet Flooring (brick pattern)	Basement Storage	Y	15.0%	CHRY	7	3
05-18	Viny Sheet Flooring (brick pattern)	Basement Storage	Y	NT	PACM	7	3
05-19	Viny Sheet Flooring (brick pattern)	Basement Storage	Y	NT	PACM	7	3
06-20	Vinyl Mastic (black)	Basement Storage	N	0.0%	ND	7	N/A
06-21	Vinyl Mastic (black)	Basement Storage	N	0.0%	ND	7	N/A
06-22 T	Vinyl Mastic (black)	Basement Storage	N	0.0%	ND	7	N/A
07-23	Vinyl Plank Floor (brown)	Basement – Top Layer	N	0.0%	ND	7	N/A

Limited Asbestos Survey
Carnegie Library Interior
701 Craven Street – Beaufort, SC
Survey Date: July 19, 2022



ASBESTOS SAMPLE DATA TABLE

DESCRIPTION OF EACH SAMPLE AREA				LABORATORY		ASSESSMENT OF MATERIALS	
Homogeneous Area & Sample ID	Description	Unit # / Room	Friable (Y/N)	Asbestos Present		Condition Assessment Category	Hazard Assessment Category
				Percent	Asbestos		
07-24	Vinyl Plank Floor (brown)	Basement – Top Layer	N	0.0%	ND	7	N/A
07-25 T	Vinyl Plank Floor (brown)	Basement – Top Layer	N	0.0%	ND	7	N/A
08-26	12” Floor Tile (tan)	Basement Bottom Layer	N	0.0%	ND	7	N/A
08-27	12” Floor Tile (tan)	Basement Bottom Layer	N	0.0%	ND	7	N/A
08-28 T	12” Floor Tile (tan)	Basement Bottom Layer	N	0.0%	ND	7	N/A
09-29	Floor Tile Mastic (black)	Basement Bottom Layer	N	0.0%	ND	7	N/A
09-30	Floor Tile Mastic (black)	Basement Bottom Layer	N	0.0%	ND	7	N/A
09-31 T	Floor Tile Mastic (black)	Basement Bottom Layer	N	0.0%	ND	7	N/A
10-32	2’ x 2’ Ceiling Tile	Basement	Y	0.0%	ND	7	N/A
10-33	2’ x 2’ Ceiling Tile	Basement	Y	0.0%	ND	7	N/A
10-34	2’ x 2’ Ceiling Tile	Basement	Y	0.0%	ND	7	N/A
11-35	HVAC Duct Mastic (beige)	Basement	N	0.0%	ND	7	N/A
11-36	HVAC Duct Mastic (beige)	Basement	N	0.0%	ND	7	N/A
11-37 T	HVAC Duct Mastic (beige)	Basement	N	0.0%	ND	7	N/A
12-38	Vinyl Cove Base (gray)	Basement	N	0.0%	ND	7	N/A
12-39	Vinyl Cove Base (gray)	Basement	N	0.0%	ND	7	N/A
12-40 T	Vinyl Cove Base (gray)	Basement	N	0.0%	ND	7	N/A
13-41	Cove Base Mastic (beige)	Basement	N	0.0%	ND	7	N/A
13-42	Cove Base Mastic (beige)	Basement	N	0.0%	ND	7	N/A
13-43 T	Cove Base Mastic (beige)	Basement	N	0.0%	ND	7	N/A
14-44	Drywall	1 st Floor	Y	0.0%	ND	7	N/A
14-45	Drywall	Basement	Y	0.0%	ND	7	N/A
14-46	Drywall	Basement	Y	0.0%	ND	7	N/A
15-47	Joint Compound	1 st Floor	Y	0.0%	ND	4	N/A
15-48	Joint Compound	1 st Floor	Y	0.0%	ND	4	N/A
15-49	Joint Compound	1 st Floor	Y	0.0%	ND	4	N/A
15-50	Joint Compound	Basement	Y	0.0%	ND	4	N/A
15-51	Joint Compound	Basement	Y	0.0%	ND	4	N/A

Limited Asbestos Survey
 Carnegie Library Interior
 701 Craven Street – Beaufort, SC
 Survey Date: July 19, 2022



ASBESTOS SAMPLE DATA TABLE

DESCRIPTION OF EACH SAMPLE AREA				LABORATORY		ASSESSMENT OF MATERIALS	
Homogeneous Area & Sample ID	Description	Unit # / Room	Friable (Y/N)	Asbestos Present		Condition Assessment Category	Hazard Assessment Category
				Percent	Asbestos		
16-52	Roof Felt Paper	Rooftop	N	0.0%	ND	7	N/A
16-53	Roof Felt Paper	Rooftop	N	0.0%	ND	7	N/A
16-54 T	Roof Felt Paper	Rooftop	N	0.0%	ND	7	N/A

Assessment Categories

- (1) Thermal Systems Insulation – Good Condition
- (2) Thermal Systems Insulation – Damaged
- (3) Thermal Systems Insulation – Significantly Damaged
- (4) Surfacing – Good Condition
- (5) Surfacing – Damaged
- (6) Surfacing – Significantly Damaged
- (7) Miscellaneous – Good Condition
- (8) Miscellaneous – Damaged
- (9) Miscellaneous – Significantly Damaged

Asbestos Present

- AMOS – Amosite
- CHRY – Chrysotile
- CROC – Crocidolite
- ANTH – Anthophyllite
- TREM – Tremolite
- ACTI – Actinolite
- ND – None Detected
- NT – Not Tested
- PACM – Presumed ACM
- Asbestos Detected**

Limited Asbestos Survey
Carnegie Library Interior
701 Craven Street – Beaufort, SC
Survey Date: July 19, 2022



CONCLUSIONS/RECOMMENDATIONS

Conclusions

The limited asbestos survey performed by Trident Environmental Services, Inc. on July 19, 2022 of the Carnegie Library Interior located at 701 Craven Street in Beaufort, South Carolina **did** identify the presence of asbestos. Renovation or demolition activities that disturb asbestos will require removal per state and federal regulations. Asbestos materials can become hazardous when, due to damage, disturbance, or deterioration over time, they release asbestos fibers into the air of the building. All areas that contain asbestos should be utilized in a controlled manner to reduce the potential for disturbance. OSHA requires notification to all trades/contractors about the condition of the ACM to prevent possible occupational exposures.

Recommendations

Based on the findings of the survey, we recommend the following: Removal of the ACM by a SCDHEC licensed asbestos abatement contractor prior to disturbance by renovation/demolition activities in the building under controlled conditions. The state requires abatement of all identified ACM prior to demolitions. Keep a copy of the asbestos inspection report on site during renovation or demolition activities as required by state regulations.

Response Actions

Appropriate response actions for the identified ACM that are in good condition as follows:

No further action: Leave asbestos in place and implement and Operations and Maintenance (O & M) program to monitor the condition of the identified ACM

Remove: The abatement of identified ACM that will be disturbed during renovation or demolition activities using a licensed abatement contractor in compliance with state and federal regulations. Abatement is defined as procedures to control fiber release from regulated asbestos-containing materials. This includes removal, enclosure, encapsulation, repair, and any associated preparation, clean up and disposal activities having the potential to disturb regulated asbestos-containing material.

Enclosure: Construct an airtight, impermeable, permanent barrier around/over ACM to prevent the release of asbestos fibers into the air.

Limited Asbestos Survey
Carnegie Library Interior
701 Craven Street – Beaufort, SC
Survey Date: July 19, 2022

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Summerville, SC 29485
(843) 873-3648

Page 15 of 34

REGULATORY REQUIREMENTS

Friable Abatement

The owner or operator shall provide SCDHEC with a notification of planned abatement and removal activities prior to the commencement of those activities. There is a ten (10) day notification for RACM projects and is typically submitted by the abatement contractor. The Department collects project license fees for all RACM being removed and for previously non-regulated ACM rendered regulated by use of destructive removal techniques such as chipping, grinding, sawing, and abrading, drilling, or extensive breaking. Abatement project fees for RACM are calculated at 10 cents per linear, cubic, or square foot, with a minimum fee of \$25.00 and a maximum fee of \$1,000.00.

Abatement projects involving greater than 3,000 square feet, 1,500 LF or 656 cubic feet of regulated ACM require a project design prepared by a SCDHEC licensed Project Designer for each structure. Air monitoring is required prior to, during and upon completion of abatement activities during friable interior ACM removal for NESHAP size projects. Air sampling shall be performed by a SCDHEC licensed Air Sampler not underemployment of the abatement entity. Clearance sampling is by TEM when the project design threshold is met and/or when the Department requires a project design.

Non Friable Abatement

Provide SCDHEC with an electronic or written application and obtain a Department-issued abatement license for the project four (4) working days prior to beginning abatement. The license shall be maintained at the project site for the duration of the project. Approved SCDHEC methods for non-friable abatement include dry ice or infra-red heat machine. The use of spud bars, shovels, scraping tools, buffer or grinders is considered a regulated/friable abatement and shall be notified and as such and performed in a negative pressure enclosure under controlled condition.

Demolitions

Demolition activities in public and commercial buildings are regulated by OSHA, EPA, and SCDHEC in compliance with CFR Part 61, subpart M, Final Rule (NESHAP) and SCDHEC Regulation 61-86.1. Demolition is defined as the wrecking or taking out any load-supporting structural member. These regulations require the proper removal and disposal of ACM that is affected by renovation or demolition. Demolition of the subject structures will require written notification, proper transportation, and disposal per state and federal regulations.

Limited Asbestos Survey
Carnegie Library Interior
701 Craven Street – Beaufort, SC
Survey Date: July 19, 2022

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Page 16 of 34

SCDHEC Asbestos Section requires the following prior to demolitions of each structure:

Submit an electronic or written demolition project license application for each separate structure/facility that includes all information required on the application form and a \$50.00 fee (payable to SCDHEC) at least **10 working days prior to the start date**. A copy of the asbestos survey report (no older than 3 years) must accompany the application. Obtain an asbestos demolition license for each structure/facility, regardless of whether the required building inspection indicates the presence of ACM and prior to demolition activities. For additional information concerning regulatory requirements, contact our office or visit the SCDHEC website <http://www.scdhec.gov/environment/baq/asbestos>

OSHA

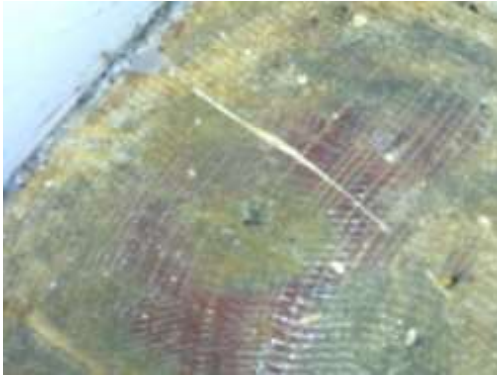
OSHA considers a material with any content of asbestos as an ACM. The OSHA construction standard 29 CFR 1926.1101 regulates construction, alteration, repair, maintenance, or renovation and demolition of structures containing asbestos. Employers are required to notify affected employees and contractors of the presence and location of asbestos-containing materials and test results. See OSHA3507 Fact Sheet for additional requirements.

For the purpose of this survey, the following materials are considered asbestos containing by OSHA: Carpet Mastic (black), Plaster, and Vinyl Sheet Flooring (brick pattern).

Limited Asbestos Survey
Carnegie Library Interior
701 Craven Street – Beaufort, SC
Survey Date: July 19, 2022

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HOMOGENOUS AREA PHOTOGRAPHS



HOMOGENEOUS AREA 01
CARPET MASTIC (YELLOW)



HOMOGENEOUS AREA 02
CARPET MASTIC (BLACK)



HOMOGENEOUS AREA 03
HVAC DUCT MASTIC (WHITE)



HOMOGENEOUS AREA 04, 04A
PLASTER/SKIM COAT



HOMOGENEOUS AREAS 05, 06
VINYL SHEET FLOOR (BRICK PATTERN)
MASTIC (BLACK)



HOMOGENEOUS AREA 07
VINYL PLANK FLOORING (BROWN)

Limited Asbestos Survey
Carnegie Library Interior
701 Craven Street – Beaufort, SC
Survey Date: July 19, 2022

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HOMOGENOUS AREA PHOTOGRAPHS



HOMOGENEOUS AREAS 08, 09
12" FLOOR TILE (TAN)
MASTIC (YELLOW)



HOMOGENEOUS AREA 10
2' X 2' CEILING TILE



HOMOGENEOUS AREA 11
HVAC DUCT MASTIC (BEIGE)



HOMOGENEOUS AREAS 12, 13
VINYL COVE BASE (GRAY)
MASTIC (BEIGE)



HOMOGENEOUS AREA 14
DRYWALL



HOMOGENEOUS AREA 15
JOINT COMPOUND

Limited Asbestos Survey
Carnegie Library Interior
701 Craven Street – Beaufort, SC
Survey Date: July 19, 2022

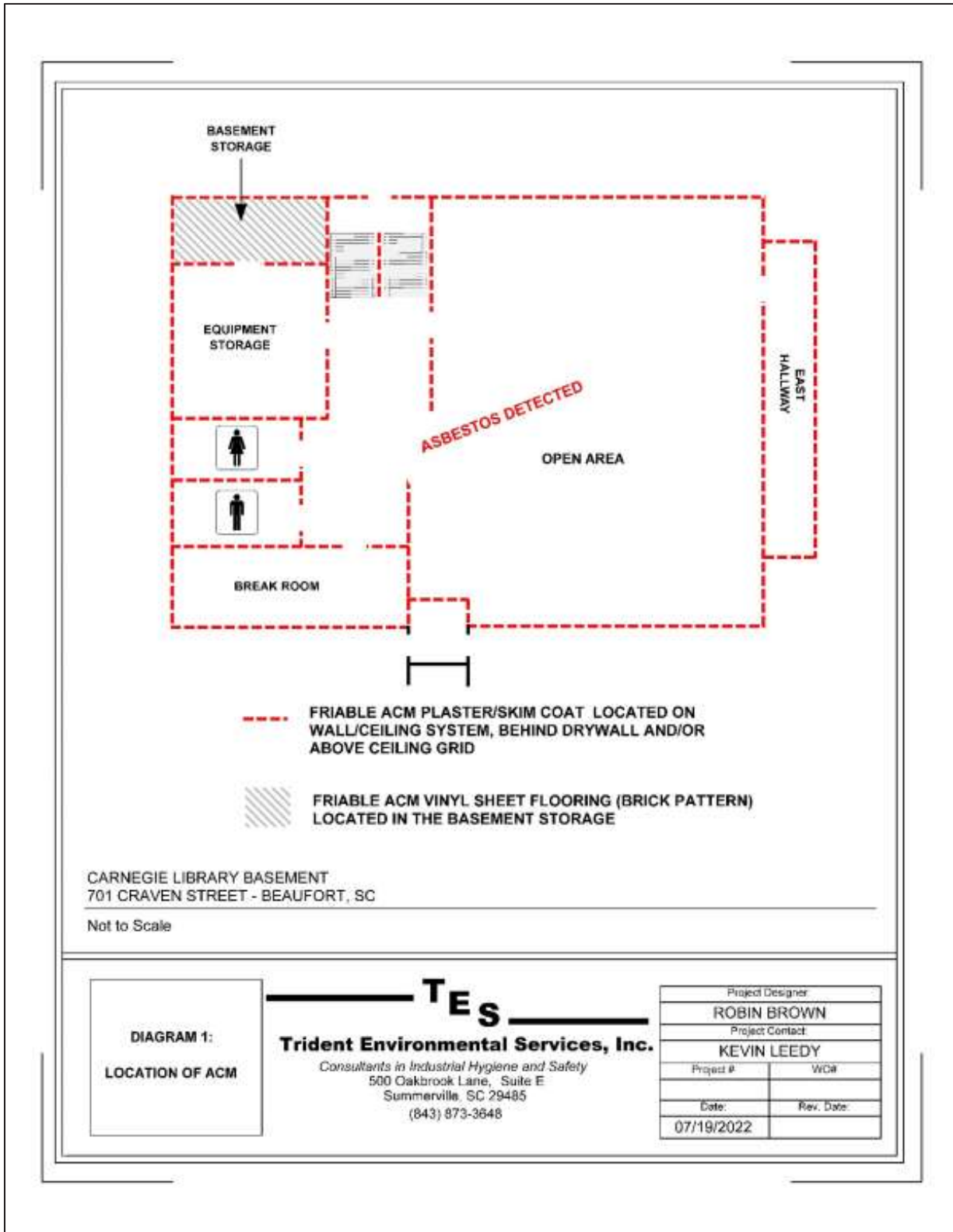
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HOMOGENOUS AREA PHOTOGRAPHS



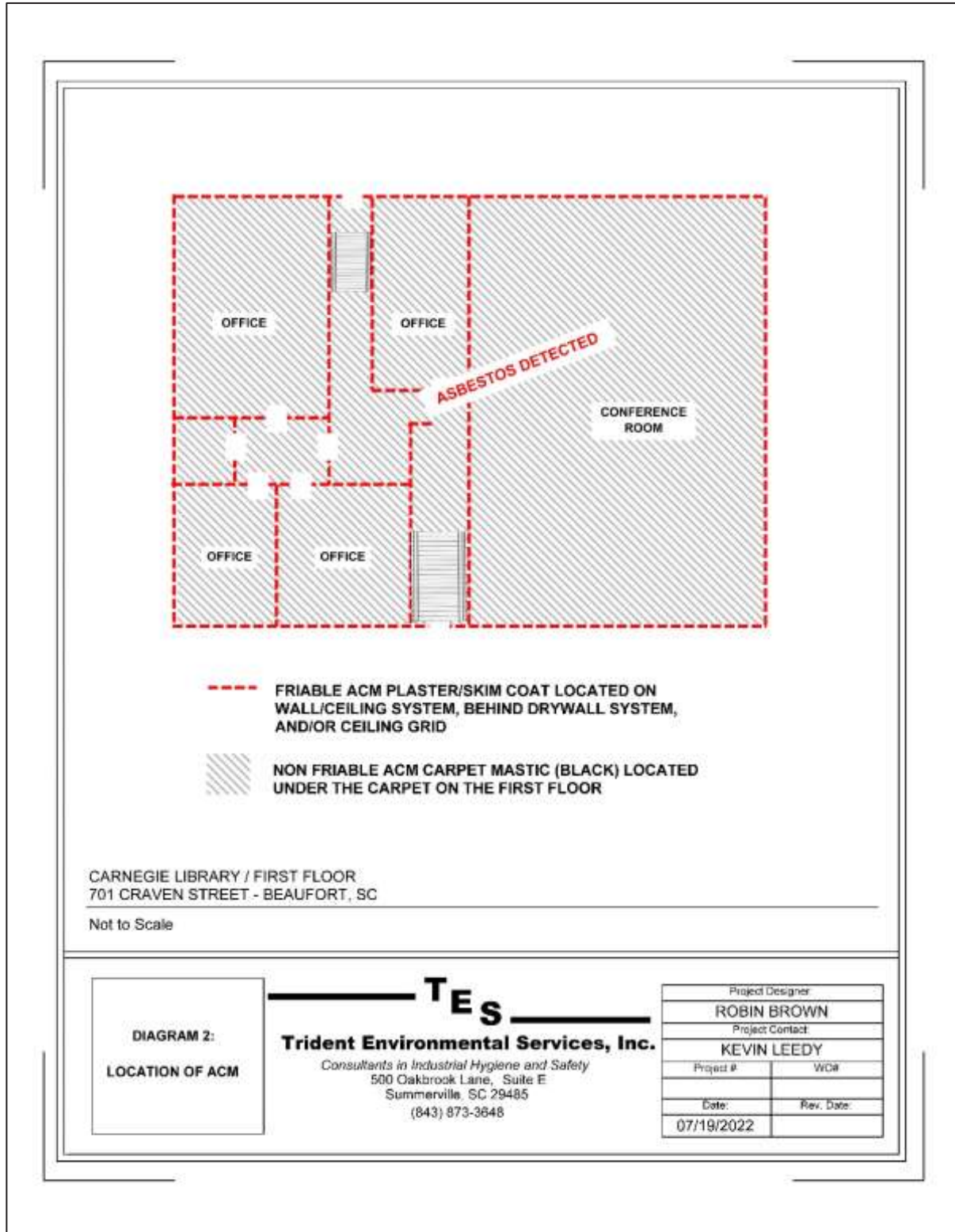
HOMOGENEOUS AREA 16
ROOF FELT PAPER

Limited Asbestos Survey
Carnegie Library Interior
701 Craven Street – Beaufort, SC
Survey Date: July 19, 2022



Limited Asbestos Survey
Carnegie Library Interior
701 Craven Street – Beaufort, SC
Survey Date: July 19, 2022

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Limited Asbestos Survey
Carnegie Library Interior
701 Craven Street – Beaufort, SC
Survey Date: July 19, 2022



INSPECTOR ACCREDITATION

Inspection Date: July 19, 2022

Preparation Date: August 15, 2022

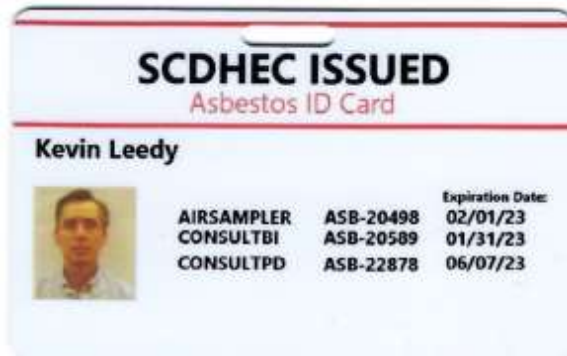
Prepared By:

Hunter Hanson
S.C. Inspector License BI – 01468



Inspected By:

Kevin E Leedy
S.C. Inspector License ASB – 20589



Limited Asbestos Survey
Carnegie Library Interior
701 Craven Street – Beaufort, SC
Survey Date: July 19, 2022

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United States Department of Commerce
National Institute of Standards and Technology



Certificate of Accreditation to ISO/IEC 17025:2017

NVLAP LAB CODE: 200841-0

EMSL Analytical, Inc.
Pineville, NC

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

Asbestos Fiber Analysis

This laboratory is accredited in accordance with the recognized International Standard ISO/IEC 17025:2017.
This accreditation demonstrates technical competence for a defined scope and the operation of a laboratory quality
management system (refer to joint ISO-ILAC-IAF Communique dated January 2009).

2022-07-01 through 2023-06-30
Effective Dates



John S. Lamm
For the National Voluntary Laboratory Accreditation Program

Limited Asbestos Survey
Carnegie Library Interior
701 Craven Street – Beaufort, SC
Survey Date: July 19, 2022



**National Voluntary
Laboratory Accreditation Program**



SCOPE OF ACCREDITATION TO ISO/IEC 17025:2017

EMSL Analytical, Inc.
10801 Southern Loop Blvd.
Pineville, NC 28134
Mr. Lee Plumley
Phone: 704-525-2205 Fax: 704-525-2382
Email: lplumley@emsl.com
http://www.emsl.com

ASBESTOS FIBER ANALYSIS

NVLAP LAB CODE 200841-0

Bulk Asbestos Analysis

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

Airborne Asbestos Analysis

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

For the National Voluntary Laboratory Accreditation Program

Limited Asbestos Survey
Carnegie Library Interior
701 Craven Street – Beaufort, SC
Survey Date: July 19, 2022



Order ID: 412206988
EMSL
EMSL ANALYTICAL, INC.
 LABORATORY PRODUCTS DIVISION

Asbestos Bulk Building Materials - Chain of Custody
 EMSL Order Number / Lab Use Only
 412206988

EMSL Analytical, Inc.
 10801 Southern Loop Blvd
 Pineville, NC 28134
 PHONE: (704) 525-2205
 EMAIL: charlottelab@EMSL.com

Customer Information		Billing Information	
Customer ID:		Billing ID:	
Company Name:	Trident Environmental Services, Inc.	Company Name:	Trident Environmental Services, Inc.
Contact Name:	Kevin Leedy	Billing Contact:	Kevin Leedy
Street Address:	500 Oakbrook Lane Suite E	Street Address:	500 Oakbrook Lane, Suite E
City, State, Zip:	Summerville SC 29485	City, State, Zip:	Summerville SC
Country:	US	Country:	US
Phone:	8438733648	Phone:	8438733648
Email(s) for Report:	kevinleedy@tridentenvironmental.com	Email(s) for Invoice:	

Project Information

Project Name: Carnegie Library 701 Craven Street Beaufort, SC
 Purchase Order:
 EMSL LIMS Project ID:
 (If applicable, list all previous)

US State where samples collected: SC
 State of Connecticut (CT) must select project location:
 Commercial (Taxable) Residential (Non-Taxable)

Sampled By Name: Leedy
 Sampled By Signature: *[Signature]*
 Date Sampled: 07/19
 No. of Samples in Shipment: 54

Turn-Around Time (TAT)

3 Hour 8 Hour 24 Hour 32 Hour 48 Hour 72 Hour 96 Hour 1 Week 2 Week

Test Selection

PLM - Bulk (reporting limit)

PLM EPA 800/R-93/116 (<1%)
 PLM EPA NOB (<1%)
 POINT COUNT
 400 (<0.25%) 1,000 (<0.1%)
 POINT COUNT w/ GRAVIMETRIC
 400 (<0.25%) 1,000 (<0.1%)
 NIOSH 8002 (<1%)
 NYS 198.1 (Friable - NY)
 NYS 198.6 NOB (Non-Friable - NY)
 NYS 198.8 (Vermontite SM-V)

TEM - Bulk

TEM EPA NOB
 NYS NOB 198.4 (Non-Friable - NY)
 TEM EPA 800/R-93/116 w Milling Prep (0.1%)

Other Tests (please specify)

Positive Stop - Clearly Identified Homogeneous Area (HA)

Sample Number	HA Number	Sample Location	Material Description
See Attached COC			

Special Instructions and/or Regulatory Requirements (Sample Specifications, Processing Methods, Lists of Detectives, etc.)

Method of Shipment: *FedEx*
 Relinquished by: Leedy *[Signature]* Date/Time: 07/19/22
 Received by: *[Signature]* Date/Time: 7/20/22
 Relinquished by: *[Signature]* Date/Time:
 Received by: *[Signature]* Date/Time: 10Am

Consent to Document - Accession 501707 0148021

AGREE TO ELECTRONIC SIGNATURE (By checking, I consent to signing this Chain of Custody document by electronic signature.)

EMSL Analytical, Inc.'s Laboratory Terms and Conditions are incorporated into this Chain of Custody by reference to their entirety. Submission of samples to EMSL Analytical, Inc. constitutes acceptance and acknowledgment of all terms and conditions by Customer.

Page 1 of 4

Limited Asbestos Survey
 Carnegie Library Interior
 701 Craven Street – Beaufort, SC
 Survey Date: July 19, 2022

TES
Trident Environmental Services, Inc.
 Consultants in Industrial Hygiene and Safety
 500 Oakbrook Lane, Suite E
 Summerville, SC 29485
 (843) 873-3648

OrderID: 412206988

6958

TES
Trident Environmental Services, Inc.
 Consultants in Industrial Hygiene and Safety
 500 Oakbrook Lane, Suite E
 Summerville, SC 29485
 Phone (843) 873-3648
 Fax (843) 821-1767

CHAIN OF CUSTODY FORM
Asbestos Bulk Samples

Project Name: Carnegie Library Date: 7/19/22
 Location: Beaufort, SC

DESCRIPTION OF EACH SAMPLE AREA						ASSESSMENT OF MATERIALS			
Homog Area	Sample ID	Location	Description	Friable (+)	Friable (-)	Asbestos Type	COND Assess	HAZ Assess	
01	01	12 th Floor	carpet matting (yellow)		X				
	02				X				
	03				X				
02	04	12 th Floor	carpet matting (black)		X				
	05				X				
	06				X				
03	07	Basement	HVAC duct matting (white)		X				
	08				X				
	09				X				
04	10	12 th Floor	plaster	X					
	11			X					
	12			X					
	13			Basement	X				
	14			X					
	15			X					
05	17	Basement	vinyl sheet floor (brick pattern)		X		50 ug ft ²		
	18				X				
	19				X				
06	20	Basement	vinyl matting (black)		X				
	21				X				

CONDITION Assessment Categories
 (1) Thermal System Insulation - Good Condition
 (2) Thermal System Insulation - Damaged
 (3) Thermal System Insulation - Significantly Damaged
 (4) Surfacing - Good Condition
 (5) Surfacing - Damaged
 (6) Surfacing - Significantly Damaged
 (7) Miscellaneous - Good Condition
 (8) Miscellaneous - Damaged

Asbestos Types
 (1) Amosite
 (2) Chrysotile
 (3) Crocidolite
 (4) Anthophyllite
 (5) Tremolite
 (6) Actinolite
 ND - None Detected
 NT - Not Tested

HAZARD Assessment Categories
 G = Good Condition
 D = Damaged
 S = Significantly Damaged
 LPD = Low Potential for Disturbance
 PD = Potential for Damage
 PSD = Potential for Significant Damage

Samples Collected by: [Signature] Date / Time: 7/19/22
 Samples Received by: _____ Date / Time: _____

Limited Asbestos Survey
 Carnegie Library Interior
 701 Craven Street – Beaufort, SC
 Survey Date: July 19, 2022

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Order ID: 412206988 6988

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 Fax (843) 821-1767

CHAIN OF CUSTODY FORM
Asbestos Bulk Samples

Project Name: Carnegie Library Date: 7/19/22
 Location: Beaufort, SC

DESCRIPTION OF EACH SAMPLE AREA				ASSESSMENT OF MATERIALS				
Room Area	Sample ID	Location	Description	Friable (+)	Friable (-)	Asbestos Type	COND Asbestos	HAZ Access
	06 22	Basement	vinyl mat.		X			
	07 23		plank floor			X		
	24		(top of 2)			X		
	25					X		
	08 26		12" Fir tile			X		
	27		(tan)			X		
	28					X		
	09 29		tile mantel			X		
	30		(yellow)			X		
	31					X		
	10 32		ceiling tile		X			
	33		(axal)		X			
	34				X			
	11 35	HVAC duct			X			
	36	(beige)			X			
	37				X			
	12 38	vinyl scue base			X			
	39				X			
	40				X			
	13 41	scue base mantel			X			
	42				X			

CONDITION Assessment Categories

(1) Thermal Systems Insulation - Good Condition
 (2) Thermal Systems Insulation - Damaged
 (3) Thermal Systems Insulation - Significantly Damaged
 (4) Surfacing - Good Condition
 (5) Surfacing - Damaged
 (6) Surfacing - Significantly Damaged
 (7) Miscellaneous - Good Condition
 (8) Miscellaneous - Damaged

Asbestos Types

(1) Amosite
 (2) Chrysotile
 (3) Crocidolite
 (4) Anthrophyllite
 (5) Tremolite
 (6) Actinolite
 ND - None Detected
 NT - Not Tested

HAZARD Assessment Categories

G = Good Condition
 D = Damaged
 S = Significantly Damaged
 LPD = Low Potential for Disturbance
 PD = Potential for Damage
 PSD = Potential for Significant Damage

Samples Collected by: [Signature] Date / Time: 7/19/22
 Samples Received by: _____ Date / Time: _____

Page 3 OF 4

Limited Asbestos Survey
 Carnegie Library Interior
 701 Craven Street – Beaufort, SC
 Survey Date: July 19, 2022

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CHAIN OF CUSTODY FORM
Asbestos Bulk Samples

Project Name: Carnegie Library Date: 7/19/22
 Location: Beaufort, SC

DESCRIPTION OF EACH SAMPLE AREA				ASSESSMENT OF MATERIALS				
Homog Area	Sample ID	Location	Description	Fritable (+)	Fritable (-)	Asbestos Type	COND Assess	HAZ Assess
13	43	Basement	ceiling basement		X			
14	44	1st Flr	original	X				
	45	Basement	}	X				
	46	2		X				
15	47	1st Flr	joint compound	X				
	48	↓	}	X				
	49	↓		X				
	50	Basement		X				
	51	↓	}	X				
16	52	Roofing		felt paper		X		
	53	↓		}		X		
	54	↓	X					

CONDITION Assessment Categories

(1) Thermal Systems Insulation - Good Condition
 (2) Thermal Systems Insulation - Damaged
 (3) Thermal Systems Insulation - Significantly Damaged
 (4) Surfacing - Good Condition
 (5) Surfacing - Damaged
 (6) Surfacing - Significantly Damaged
 (7) Miscellaneous - Good Condition
 (8) Miscellaneous - Damaged

Asbestos Present

(1) Amosite
 (2) Crocidolite
 (3) Chrysotile
 (4) Actinolite
 (5) Tremolite
 (6) Actinolite
 (7) None Detected
 (8) Not Tested

NSA250 Assessment Categories

G = Good Condition
 D = Damaged
 S = Significantly Damaged
 LPD = Low Potential for Disturbance
 PD = Potential for Damage
 PSD = Potential for Significant Damage

Samples Collected by: [Signature] Date / Time: 7/19/22
 Samples Received by: _____ Date / Time: _____

Page 4 OF 4

Limited Asbestos Survey
Carnegie Library Interior
701 Craven Street – Beaufort, SC
Survey Date: July 19, 2022



EMSL Analytical, Inc.
 10901 Southern Loop Blvd Pineville, NC 28134
 Tel/Fax: (704) 525-2205 / (704) 525-2382
<http://www.EMSL.com> / charlotte@emsl.com

EMSL Order: 412206988
 Customer ID: TRID50
 Customer PO:
 Project ID:

Attention: Kevin Leedy
 Trident Environmental Services, Inc.
 500 Oakbrook Lane
 Suite E
 Summerville, SC 29485
Project: Carnegie Library 701 Craven Street Beaufort, SC

Phone: (843) 670-9987
Fax:
Received Date: 07/20/2022 10:00 AM
Analysis Date: 07/20/2022 - 07/22/2022
Collected Date: 07/19/2022

Test Report: Asbestos Analysis of Bulk Materials via EPA 600/R-93/116 Method using Polarized Light Microscopy

Sample	Description	Appearance	Non-Asbestos		Asbestos
			% Fibrous	% Non-Fibrous	% Type
01-01 41220698-0001	1st Floor - Carpet Mastic (Yellow)	Yellow Non-Fibrous Homogeneous	2% Synthetic	98% Non-fibrous (Other)	None Detected
01-02 41220698-0002	1st Floor - Carpet Mastic (Yellow)	Tan Non-Fibrous Homogeneous	1% Synthetic	99% Non-fibrous (Other)	None Detected
02-04 41220698-0003	1st Floor - Carpet Mastic (Black)	Black Non-Fibrous Homogeneous		98% Non-fibrous (Other)	2% Chrysotile
02-05 41220698-0004	1st Floor - Carpet Mastic (Black)				Positive Stop (Not Analyzed)
03-07 41220698-0005	Basement - HVAC - Duct Ins Mastic (White)	White Non-Fibrous Homogeneous	2% Synthetic	15% Ca Carbonate 83% Non-fibrous (Other)	None Detected
03-08 41220698-0006	Basement - HVAC - Duct Ins Mastic (White)	White Non-Fibrous Homogeneous	1% Synthetic	15% Ca Carbonate 84% Non-fibrous (Other)	None Detected
04-10-White Coat 41220698-0007	1st Floor - Plaster	White Non-Fibrous Homogeneous		15% Ca Carbonate 85% Non-fibrous (Other)	None Detected
04-10-Gray Coat 41220698-0007A	1st Floor - Plaster	Gray Non-Fibrous Homogeneous		98% Non-fibrous (Other)	4% Chrysotile
04-11-White Coat 41220698-0008	1st Floor - Plaster	White Non-Fibrous Homogeneous		15% Ca Carbonate 85% Non-fibrous (Other)	None Detected
04-11-Gray Coat 41220698-0008A	1st Floor - Plaster	Gray Non-Fibrous Homogeneous		98% Non-fibrous (Other)	2% Chrysotile
04-12-White Coat 41220698-0009	1st Floor - Plaster	White Non-Fibrous Homogeneous		15% Ca Carbonate 85% Non-fibrous (Other)	None Detected
04-12-Gray Coat 41220698-0009A	1st Floor - Plaster	Gray Fibrous Homogeneous		98% Non-fibrous (Other)	2% Chrysotile
04-13-White Coat 41220698-0010	Basement - Plaster	White Non-Fibrous Homogeneous		15% Ca Carbonate 85% Non-fibrous (Other)	None Detected
04-13-Gray Coat 41220698-0010A	Basement - Plaster	Gray Fibrous Homogeneous		97% Non-fibrous (Other)	3% Chrysotile
04-14-White Coat 41220698-0011	Basement - Plaster	White Non-Fibrous Homogeneous		10% Ca Carbonate 90% Non-fibrous (Other)	None Detected
04-14-Gray Coat 41220698-0011A	Basement - Plaster	Gray Non-Fibrous Homogeneous		98% Non-fibrous (Other)	2% Chrysotile

Report amended: 07/23/2022 12:58:56 Replaces amended report from: 07/22/2022 12:20:21 Reason Code: Client-Additional Analysis

Limited Asbestos Survey
Carnegie Library Interior
701 Craven Street – Beaufort, SC
Survey Date: July 19, 2022



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EMSL Order: 412206988
 Customer ID: TRID50
 Customer PO:
 Project ID:

Test Report: Asbestos Analysis of Bulk Materials via EPA 600/R-93/116 Method using Polarized Light Microscopy

Sample	Description	Appearance	Non-Asbestos		Asbestos % Type
			% Fibrous	% Non-Fibrous	
04-15-White Coat 412206988-00102	Basement - Plaster	White Non-Fibrous Homogeneous		15% Ca Carbonate 85% Non-fibrous (Other)	None Detected
04-15-Gray Coat 412206988-00124	Basement - Plaster	Gray Fibrous Homogeneous		97% Non-fibrous (Other)	3% Chrysotile
04-16-White Coat 412206988-00113	Basement - Plaster	White Non-Fibrous Homogeneous		15% Ca Carbonate 85% Non-fibrous (Other)	None Detected
04-16-Gray Coat 412206988-00134	Basement - Plaster	Gray Fibrous Homogeneous		97% Non-fibrous (Other)	3% Chrysotile
05-17 412206988-00114	Basement Storage/AHU - Vinyl Sheet Floor (Brick Pattern)	Tan/Red Fibrous Homogeneous		85% Non-fibrous (Other)	15% Chrysotile
05-18 412206988-00115	Basement Storage/AHU - Vinyl Sheet Floor (Brick Pattern)				Positive Stop (Not Analyzed)
06-20 412206988-00116	Basement Storage/AHU - Vinyl Mastic (Black)	Clear Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
06-21 412206988-00117	Basement Storage/AHU - Vinyl Mastic (Black)	Clear Non-Fibrous Homogeneous		5% Ca Carbonate 95% Non-fibrous (Other)	None Detected
07-23 412206988-00118	Basement - Plank Floor (Top of 2)	Brown/Black Non-Fibrous Homogeneous		20% Ca Carbonate 80% Non-fibrous (Other)	None Detected
07-24 412206988-00119	Basement - Plank Floor (Top of 2)	Black Non-Fibrous Homogeneous		20% Ca Carbonate 80% Non-fibrous (Other)	None Detected
08-26 412206988-0020	Basement - 12" Floor Tile (Tan)	Tan Non-Fibrous Homogeneous		30% Ca Carbonate 70% Non-fibrous (Other)	None Detected
08-27 412206988-0021	Basement - 12" Floor Tile (Tan)	Brown Non-Fibrous Homogeneous		20% Ca Carbonate 80% Non-fibrous (Other)	None Detected
08-29 412206988-0022	Basement - Tile Mastic (Yellow)	Yellow Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
08-30 412206988-0023	Basement - Tile Mastic (Yellow)	Yellow Non-Fibrous Homogeneous	1% Cellulose	5% Ca Carbonate 94% Non-fibrous (Other)	None Detected
10-32 412206988-0024	Basement - Ceiling Tile (2x2)	White/Beige Fibrous Homogeneous	60% Cellulose 20% Min. Wool	15% Perlite 5% Non-fibrous (Other)	None Detected
10-33 412206988-0025	Basement - Ceiling Tile (2x2)	White/Beige Fibrous Homogeneous	60% Cellulose 20% Min. Wool	15% Perlite 5% Non-fibrous (Other)	None Detected
10-34 412206988-0026	Basement - Ceiling Tile (2x2)	Gray/White Fibrous Homogeneous	50% Cellulose 15% Min. Wool	15% Perlite 20% Non-fibrous (Other)	None Detected
11-35 412206988-0027	Basement - HVAC - Duct Mastic (Beige)	Beige Non-Fibrous Homogeneous	2% Cellulose	98% Non-fibrous (Other)	None Detected
11-36 412206988-0028	Basement - HVAC - Duct Mastic (Beige)	Tan Non-Fibrous Homogeneous	1% Cellulose	5% Ca Carbonate 94% Non-fibrous (Other)	None Detected

Report amended: 07/23/2022 12:58:56 Replaces amended report from: 07/22/2022 12:20:21 Reason Code: Client-Additional Analysis

Limited Asbestos Survey
 Carnegie Library Interior
 701 Craven Street – Beaufort, SC
 Survey Date: July 19, 2022



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EMSL Order: 412206988
 Customer ID: TRID50
 Customer PO:
 Project ID:

Test Report: Asbestos Analysis of Bulk Materials via EPA 600/R-93/116 Method using Polarized Light Microscopy

Sample	Description	Appearance	Non-Asbestos		Asbestos % Type
			% Fibrous	% Non-Fibrous	
12-38 412206988-0329	Basement - Vinyl Cove Base	Gray Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
12-39 412206988-0330	Basement - Vinyl Cove Base	Gray Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
13-41 412206988-0331	Basement - Cove Base Mastic	Beige Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
13-42 412206988-0332	Basement - Cove Base Mastic	Beige Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
14-44 412206988-0333	1st Floor - Drywall	Gray Non-Fibrous Homogeneous	10% Cellulose	90% Non-fibrous (Other)	None Detected
14-45 412206988-0334	Basement - Drywall	Gray Non-Fibrous Homogeneous	10% Cellulose	90% Non-fibrous (Other)	None Detected
14-46 412206988-0335	Basement - Drywall	Gray Fibrous Homogeneous	5% Cellulose	95% Non-fibrous (Other)	None Detected
15-47 412206988-0336	1st Floor - Joint Compound	White Non-Fibrous Homogeneous		40% Ca Carbonate 60% Non-fibrous (Other)	None Detected
15-48 412206988-0337	1st Floor - Joint Compound	White Non-Fibrous Homogeneous		30% Quartz 70% Non-fibrous (Other)	None Detected
15-49 412206988-0338	1st Floor - Joint Compound	White Non-Fibrous Homogeneous		40% Ca Carbonate 60% Non-fibrous (Other)	None Detected
15-50 412206988-0339	Basement - Joint Compound	White Non-Fibrous Homogeneous		15% Ca Carbonate 85% Non-fibrous (Other)	None Detected
15-51 412206988-0340	Basement - Joint Compound	White Non-Fibrous Homogeneous		15% Ca Carbonate 85% Non-fibrous (Other)	None Detected
16-52 412206988-0341	Rooftop - Felt Paper	Black Fibrous Homogeneous	80% Cellulose	20% Non-fibrous (Other)	None Detected
16-53 412206988-0342	Rooftop - Felt Paper	Black Fibrous Homogeneous	80% Cellulose	20% Non-fibrous (Other)	None Detected

Report amended: 07/23/2022 12:59:56 Replaces amended report from: 07/22/2022 12:20:21 Reason Code: Client-Additional Analysis

Limited Asbestos Survey
Carnegie Library Interior
701 Craven Street – Beaufort, SC
Survey Date: July 19, 2022

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EMSL Order: 412206988
Customer ID: TRID50
Customer PO:
Project ID:

Analyst(s)

- Branif Aiyee (10)
- Jessica Cooper (18)
- Sarah Brennan (19)

Lee Plumley, Laboratory Manager
or Other Approved Signatory

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Samples analyzed by EMSL Analytical, Inc. Pineville, NC NVLAP Lab Code 200841-0, VA 3353 0012

Report amended: 07/23/2022 12:58:56 Replaces amended report from: 07/22/2022 12:20:21 Reason Code: Client-Additional Analysis

Limited Asbestos Survey
Carnegie Library Interior
701 Craven Street – Beaufort, SC
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EMSL Order: 412206988
 Customer ID: TRID50
 Customer PO:
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Attention: Kevin Leady
 Trident Environmental Services, Inc.
 500 Oakbrook Lane
 Suite E
 Summerville, SC 29485
Project: Carnegie Library 701 Craven Street Beaufort, SC

Phone: (843) 670-9967
Fax:
Received Date: 07/20/2022 10:00 AM
Analysis Date: 07/22/2022
Collected Date: 07/19/2022

Test Report: Asbestos Analysis of Non-Friable Organically Bound Materials by TEM via EPA/600/R-93/116 Section 2.5.5.1

Sample ID	Description	Appearance	% Matrix Material	% Non-Asbestos Fibers	Asbestos Types
01-03 #12206988-0043	1st Floor - Carpet Mastic (Yellow)	Tan Non-Fibrous Homogeneous	100.0 Other	None	No Asbestos Detected
03-08 #12206988-0044	Basement - HVAC - Duct Ins Mastic (White)	White Non-Fibrous Homogeneous	100.0 Other	None	No Asbestos Detected
06-22 #12206988-0045	Basement - Vinyl Mastic (Black)	Clear Non-Fibrous Homogeneous	100.0 Other	None	No Asbestos Detected
07-25 #12206988-0046	Basement - Plank Floor (Top of 2)	Gray Non-Fibrous Homogeneous	100.0 Other	None	No Asbestos Detected
08-28 #12206988-0047	Basement - 12" Floor Tile (Tan)	Gray Non-Fibrous Homogeneous	100.0 Other	None	No Asbestos Detected
09-31 #12206988-0048	Basement - Tile Mastic (Yellow)	Tan Non-Fibrous Homogeneous	100.0 Other	None	No Asbestos Detected
11-37 #12206988-0049	Basement - HVAC - Duct Mastic (Beige)	Tan Non-Fibrous Homogeneous	100.0 Other	None	No Asbestos Detected
12-40 #12206988-0050	Basement - Vinyl Cove Base	Gray Non-Fibrous Homogeneous	100.0 Other	None	No Asbestos Detected
13-43 #12206988-0051	Basement - Cove Base Mastic	Tan Non-Fibrous Homogeneous	100.0 Other	None	No Asbestos Detected
15-54 #12206988-0052	Rooftop - Felt Paper	Black Fibrous Homogeneous	100.0 Other	None	No Asbestos Detected

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Samples analyzed by EMSL Analytical, Inc. Pineville, NC

Initial report from: 07/25/2022 07:48:03

Limited Asbestos Survey
Carnegie Library Interior
701 Craven Street – Beaufort, SC
Survey Date: July 19, 2022



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EMSL Order: 412206988
Customer ID: TRID50
Customer PO:
Project ID:

Attention: Kevin Leedy
Trident Environmental Services, Inc.
500 Oakbrook Lane
Suite E
Summerville, SC 29485
Project: Carnegie Library 701 Craven Street Beaufort, SC
Phone: (843) 670-9987
Fax:
Received Date: 07/20/2022 10:00 AM
Analysis Date: 07/22/2022
Collected Date: 07/19/2022

Test Report: Asbestos Analysis of Non-Friable Organically Bound Materials by TEM via
EPA/600/R-93/116 Section 2.5.5.1

Sample ID	Description	Appearance	% Matrix Material	% Non-Asbestos Fibers	Asbestos Types
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Analyst(s)
Demick Young (10)

Lee Plumley
Lee Plumley, Laboratory Manager
or other approved signatory

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Samples analyzed by EMSL Analytical, Inc. Pineville, NC
Initial report from: 07/25/2022 07:48:03

HVAC Assessment (Charleston Engineering)



CHARLESTON ENGINEERING

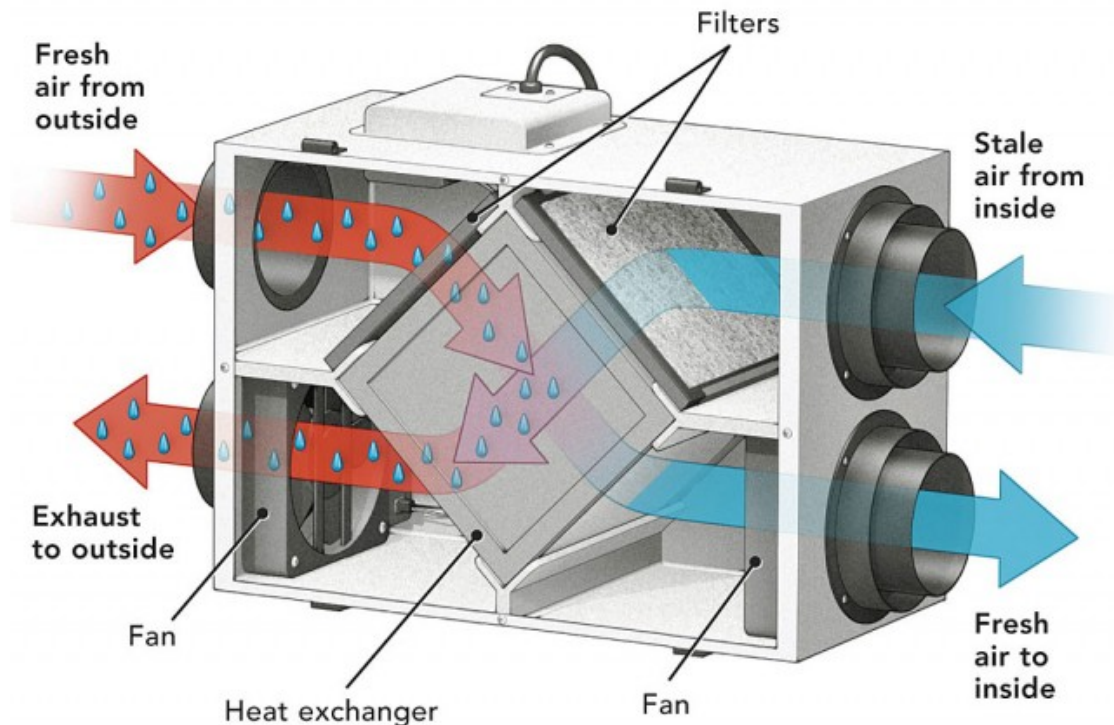
To: Betty Prime of Meadors Construction

Reference: Carnegie Library HVAC, Beaufort, SC

Friday August 26th, 2022

Existing HVAC and Envelope:

The main floor is served by a 3 ton split system (2011) and a 3.5 ton split from 2009. The lower level is served by a 4 ton split from 2009. I would say these units have 2-4 years of life left on them. Another aspect of the existing HVAC is that there is an ERV unit in the lower level mechanical room. An ERV (Energy Recovery Ventilator) is a very efficient unit which handles the building exhaust as well as the building fresh air. It is a machine that basically trades heat and coolness between the exhaust and the fresh air. It does not trade odors. The unit will pre-cool and semi-dry the fresh air during the summer. It serves the fresh air via ducts to the various AHU's in the building. It also rejects the exhausts to the outdoors. At the time of inspection, the ERV was not operating. This means that the toilet exhaust was not operating and fresh air is not provided to the building either. Below is a simplified diagram of what an ERV is:



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Page 2 of 5

The ductwork is a combination of hard metal, flex duct, and duct board. I don't believe the HVAC is balanced properly to each and every space. There are signs of moisture damage and humidity problems. Many of the grilles are rusted and/or discolored with dust or mildew. The envelope of the building at the attic is not very tight, which allows more infiltration to leak in. It is good that the windows were replaced.

There are some code deficiencies and other problems in the HVAC. The ducts are very old with some having damaged insulation or deteriorating insulation. To be in a hot attic, code requires 3" of duct wrap, whereas the most I saw was 2". A number of the ducts were pinched or bent, restricting air flow. There is an old abandoned AHU with abandoned ductwork in the attic. The downstairs mechanical room is being used as a return plenum room. As such, nothing combustible is allowed in the room, and the room has quite a bit of storage items. Not all offices have a return grille, as required by code, and this will hurt comfort when the office door is closed. Refrigerant lines outdoors have very deteriorated insulation. AHU and condensing unit installations do not meet current seismic and wind code. The street side entrance to the basement has a lot of glass but no air conditioning vent. There is a "half round" duct sox in the office cubicle area that looks to still be in good shape.

It appears that Johnson Controls is providing HVAC controls for the building. This would include the thermostats and the control of the ERV unit. I understand that the thermostats are set to turn on based on motion detectors. Apparently one thermostat in particular is not able to read motion effectively and has caused some comfort problems.

Recommended Solutions:

I would recommend that the (3) split systems be replaced with new units and new ductwork. Engineer to provide load calculations to verify proper sizes and capacities. The return ductwork would have to be expanded and modified to meet code. All new branch ducts would have new volume dampers so that airflow to each office can be adjusted to the proper level by the Testing and Balance Company. The ERV is a nice feature to have and I would recommend repairing the unit for continued use. This would require that the desiccant heat exchanger inside the ERV be replaced with a new one. Regular maintenance is required for this ERV. Desiccant heat exchanger should be cleaned every other year and replaced every 8-10 years. Recommend cleaning the existing duct sox.

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Regarding controls, I would recommend that Johnson Controls survey any new HVAC construction work and update all of their settings. A meeting with the owners is recommended so that temperature settings, motion detectors, and schedules can be discussed and revised.

The envelope must be repaired in order for the HVAC systems to work properly. The basic problem is that hot and humid attic air is getting into the occupied space.

The new AHU's and condensing units should be installed to current seismic and wind code. All drains should be cleaned out if re-used. If refrigerant pipes are re-used, they must be pressure tested and provided with new insulation. For any bathroom that is not connected to the ERV exhaust, new exhaust fans and ducts are recommended.

Below are some pictures:



Pinched and damaged ductwork

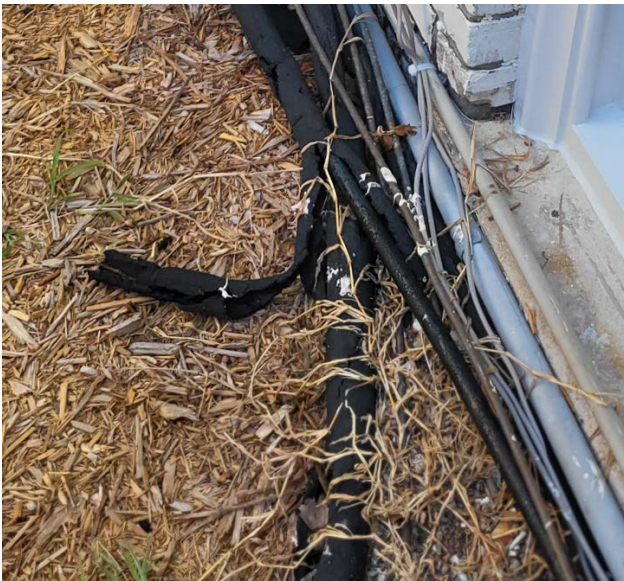
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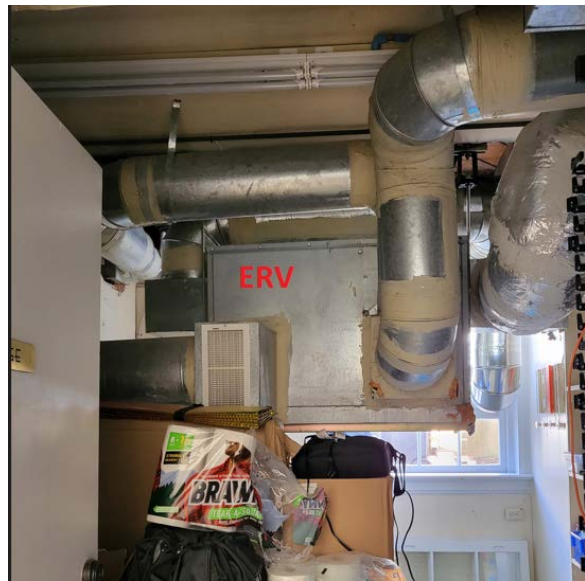
Abandoned AHU and ductwork



Damaged duct insulation



Damaged refrigerant insulation



Existing ERV

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I look forward to talking more about this project soon,

A handwritten signature in black ink that reads "R. Turner". The signature is written in a cursive style with a large, looped initial "R".

Rob Turner, P.E.
(South Carolina P.E. # 20539)

Plumbing Assessment (Charleston Engineering)



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Plumbing Assessment of Carnegie Library, Beaufort, SC

The plumbing in the building consist of two single toilet rooms. These rooms are narrow and elevated with steps up from the ground floor. It is assumed the toilets are raised to allow for gravity drain lines.

The building also has a sump pump located inside on the ground floor and a sump pump located under the main stairs on the exterior of the building.

The following is an evaluation of the existing water and waste system.

A. Water service to building

The building appears to be fed with a 1" schedule 40 PVC service. The service apparently also serves the building next door. I was told that the water does not appear clean at times. This may be due to a very low water usage in the building. The lines may need to be flushed regularly to clean sediment.

B. Waste water service

The building appears to have a 4" schedule 40 PVC waste pipe leaving the building to the city sewer system.

C. Interior piping

1. The building appears to have a combination of PEX B and copper water lines.
2. The building appears to be still using old galvanized piping and cast iron for waste lines.

D. Plumbing fixtures

1. The toilets and lavatories in the two toilets are in good condition. The toilets are tank type and the sinks are pedestal type.

E. Sump pumps

1. There are two sump pumps. The sump pump located inside on the ground floor appears to be in good condition and is connected with PVC piping to the exterior.
2. The sump pump located on the exterior of the building under the main stairs is in a pit set too high and does not allow all of the water to drain to it but it appears to be operational.

F. Water heater

1. The building has a 4500 watt electric 40 gallon water heater located in the ground floor mechanical room.
2. The water heater is not seismically restrained and does not have a drain pan or expansion tank.

Recommendations

The following changes are recommended if the building will receive a full renovation.

The plumbing system inside the building appears to be far pass it useful life and it is recommended that all interior piping be replaced. New piping should be type PEX A piping and waste lines should be schedule 40

PVC.

Submitted by:
John Deden, PE
Charleston Engineering



Water heater, PEX B piping, no expansion tank



Water heater, no drain pan



Cast iron waste piping



Toilet room



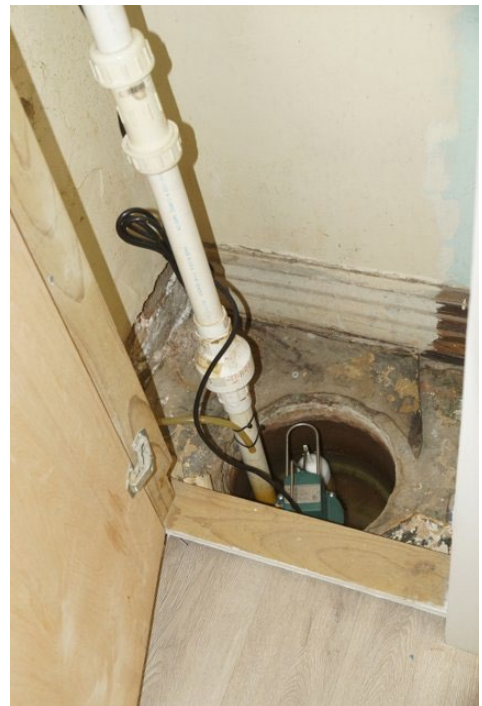
Cast iron waste pipe



Copper water supply piping



Exterior sump pump under mail stairs



Ground floor sump pump



Water service to building

Electrical Assessment (Charleston Engineering)



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ENGINEERING

Electrical Assessment of Carnegie Library, Beaufort, SC

The following is an evaluation of the existing electrical system.

A. Electrical Service

The building is fed from a Dominion Energy handhole at 120/240 volt single phase with electric meter mounted on the building. The service is 200 amp single phase. The main is a fused disconnect switch located in the mechanical room on the ground floor and feeds 3 subpanels. Two of the subpanel are located in the mechanical room and one panel is located in the stairs. The panel located in the stairs between the ground and the first floor does not have proper clearance to meet code. There is no main exterior disconnect switch.

B. Lighting

1. Lighting Fixtures

Most of the lighting fixtures are fluorescent tube type with a few decorative fixtures. The lighting fixtures on the main floor and generally surface mounted fluorescent and the fixtures on the ground floor are generally lay-in 2 x 4 fluorescent troffers.

2. Lighting control

The building has no lighting control other than switches in the rooms. None of the lighting fixtures are dimmable.

3. Exterior lighting

The building has two exterior metal halide flood on the back corner and a single ceiling mounted light at the entrance. There are no required emergency battery backup for egress lighting.

4. Interior egress lighting

There are no emergency battery packs installed for egress paths. There are no required emergency lighting in the toilets nor at exterior exits as required by code.

5. Exit fixtures

The building has exit fixtures to indicate paths of exit per code.

C. Fire Alarm System

1. The building does not have a fire alarm system.

D. Telephone/ Data

1. The building is wired for telephone/ data service but much of the cabling is poorly routed.

E. Receptacles

1. The building receptacle locations are poorly located for current work station arrangement resulting in use of extension cords.

F. Wiring systems

1. The building has a combination of abandoned knob and tube wiring, type NM (romex) and MC (metal clad cable). It also has wire in EMT (electrical metallic tubing), ENT (electrical nonmetallic tubing and schedule 40 PVC conduit).
2. Much of the wiring system is surface mounted with a combination of wiremold style, metal conduit and PVC conduit.
3. The multiple types and material used in the building wiring indicates many changes in the wiring over a long period of time.

Recommendations

The following changes are recommended if the building will receive a full renovation. The electrical system appears to have had multiple minor renovations and the electrical system is in poor condition.

1. Remove all existing electrical from the building and rewire. The existing electrical service and meter can remain.
2. Replace all lighting fixtures with dimmable LED lighting fixtures. New lighting fixtures in public areas could be period decorative surface mount fixtures. Although the building is not required to meet the International Energy Code due to being an historic building, new lighting fixtures would save energy, be a more comfortable and more aesthetically pleasing.
3. Provide occupancy switches for office lighting and photoswitches on exterior lighting to save energy.
4. Replace all exterior lighting fixtures with LED lighting fixtures. Provide lighting fixtures at all exterior doors with emergency battery back-up for exterior egress lighting. Exterior egress lighting is code requirement. Period lighting fixtures could be used with remote emergency battery inverters for exterior egress lighting.
5. Provide egress and exit fixtures. Emergency lighting should be installed in all paths of egress and is a code requirement.
6. Replace all receptacles and conductors. No abandoned wiring should be left in-place. Receptacles should be located to avoid the use of any extension cords. Remove all surface mounted raceways and surface mounted outlet boxes. Flush mounted receptacles and concealed wireway would be more aesthetically pleasing. Properly placed receptacles at workstations would eliminate extension cords which are not allowed in commercial building.
7. Install a complete manual/ automatic fire alarm with smoke detectors in corridors. A fire alarm system should report to monitoring system. Presently the building is classified as a business occupancy which would not require a fire alarm but due to the historic nature of the building, a complete fire alarm with smoke detectors is recommended to protect the building.
8. Rewire building for data to provide outlets at workstations and remove all surface mounted raceways. Properly placing data receptacles at work stations and eliminating surface raceway would be more aesthetically pleasing.

Submitted by:
John Deden, PE
Charleston Engineering



200 amp, 120/240 volt electrical service



Main electrical equipment



General lighting main floor



General lighting ground floor



Exterior lighting at front door



Exterior flood light



MC, ENT and NM cable in attic



Existing wiring in attic



Abandoned wiring under main stairs



Control wiring in mechanical room



Abandoned lighting fixtures and IT wiring in attic



Abandoned overhead phone line and PVC conduit on building exterior

PRIORITIZED RECOMMENDATIONS

The following pages include prioritized recommendations based upon Meadors' assessment of the structure. Approximate costs have been determined for each recommended repair and have been organized according to priority level. The priority levels are arranged as follows:

Priority Level 1 - Immediate - Phase 1: Repairs that should be completed as soon as possible. These repairs are necessary to permanently resolve the structural issues and address areas of major water intrusion. Upon the completion of these recommended items, the structure will be fully weatherized and secured.

Priority Level 2 - Immediate - Phase 2: Repairs that should be completed in a second phase after Priority Level 1. These repairs are necessary to permanently resolve the electrical, HVAC, and plumbing issues and address minor issues related to the exterior walls. Upon the completion of these recommended items, the structure will be brought up to code with new systems.

Priority Level 3 - Short to Long Term: Repairs that should be completed within the next three to five years. These repairs are important for the long-term durability of the building and will extend the service life of the historic building materials. Recommendations have been made in this section for annual maintenance. Completion of these repairs would contribute to the overall preservation of the structure and enable the structure to be fully utilized. Changes in the interior layout or use of the structure have not been assessed or budgeted.

For all budgeted renovation costs, it was assumed that the Secretary of the Interior's Standards must be met in order to preserve the resource's integrity.

****NOTE:** The planning estimates are intended to be used as a professional opinion of probable cost of construction based on our past project experience and does not represent project specific quotes. We have no control over general or subcontractor overhead and profit percentages, bidding climates, schedules, and contractors' methods of determining prices, etc.

When preparing each cost analysis submittal, Meadors, Inc. reviewed current market conditions. Additional project specific factors to consider (when applicable) are; anticipated mid-point of construction, difficult conditions, phasing, Liquidated Damages, limited or set-aside contracting requirements, etc. These multiple factors should also be considered whenever the project is delayed and/or market conditions change significantly.

Meadors, Inc. cannot guarantee that proposals, bids, or actual construction costs will be within a certain range of the probable cost estimate developed for this project. The cost estimates provided are intended to be planning estimates.

***Fee Factor:** A Fee Factor has been added to the subtotal cost to account for typical construction project's general conditions, overhead costs, and contractor fee. The fee factor is an estimated cost that includes general conditions (Project management, site supervision, administration, insurance, permitting, project clean up, trash, material hauling, i.e.,etc.), plus 10% overhead, and a 10% fee. This fee factor is an estimated cost and attempts to incorporate costs that cannot be fully defined based on a rapid assessment.



Integrated Recommendations & Conclusions

Structural

Immediate - Phase 1

- It is recommended the deteriorated joints at the brick stairs and brick arches be repointed with compatible restoration mortar. Any damaged brick should also be replaced with in kind reclaimed brick as required.
- Replace the damaged stone coping tiles at the brick stairs be with like material of similar dimension. The damaged brick at the top of the retaining wall at the stair entry brick masonry should also be repaired.
- It is recommend the sump pump at this location be checked to ensure it is operating and the drain be kept free of debris as part of regular maintenance of the building exterior.
- Remove the terra cotta clay tiles along the ridge line to confirm the ridge flashing detail at this location. Based on these findings, additional flashing might be required prior to reinstallation of the clay tiles. Mortar of like material should be repointed at all ridge locations.
- Remove tiles around barrel dormers to install new flashing. Recaulk the dormers every 3 to 5 years.
- During the installation of new flashing for the barrel dormer penetrations at the main roof, it is recommended any damaged plank sheathing be removed and replaced as required with new plank sheathing of similar dimension.
- Connection of the hip at the ridge can be provided with the installation of skewed angle plates fastened to rafter and hip framing with wood screws. In addition, it is recommended skewed angle plates be installed at the West end hip to ridge connection to prevent gaps from developing at this location in the future.

Hazardous Materials

Immediate - Phase 1

- The limited asbestos survey performed by Trident identified the presence of asbestos.



- Renovation or demolition activities that disturb asbestos will require removal per state and federal regulations.
- Asbestos was found in the following locations and materials:
- Carpet Mastic (Black) - Category I - Non Friable - 1,182 Square Feet (SF)
- Plaster/Skim Coat - Regulated Asbestos Containing Material (RACM) - Friable - 9,486 SF
- Vinyl Sheet Flooring (brick pattern) - RACM - Friable - 50 SF
- If required, remove the asbestos containing materials by a SCDHEC licensed asbestos abatement contractor prior to disturbance by renovation/demolition activities in the building under controlled conditions. The state requires abatement of all identified ACM prior to demolitions. Keep a copy of the asbestos inspection report on site during renovation or demolition activities as required by state regulations. Removal of RACM plaster estimated to be \$15,000.
- For plaster repairs if the scratch coat remains undisturbed, monitor plaster repairs by a SCDHEC licensed asbestos abatement contractor (\$600/day).

Electrical

Immediate - Phase 2

- Separate the electrical meter and water service from the adjacent Arsenal Building.
- Remove all existing electrical from the building and rewire. The existing electrical service and meter can remain.
- Replace all lighting fixtures with dimmable LED lighting fixtures. New lighting fixtures in public areas could be period decorative surface mount fixtures. Although the building is not required to meet the International Energy Code due to being an historic building, new lighting fixtures would save energy, be a more comfortable and more aesthetically pleasing.
- Provide occupancy switches for office lighting and photoswitches on exterior lighting to save energy.
- Replace all exterior lighting fixtures with LED lighting fixtures. Provide lighting fixtures at all exterior doors with emergency battery back-up for exterior egress lighting. Exterior egress lighting is code requirement. Period lighting fixtures could be used with remote emergency battery inverters for exterior egress lighting.



- Provide egress and exit fixtures. Emergency lighting should be installed in all paths of egress and is a code requirement.
- Replace all receptacles and conductors. No abandoned wiring should be left in-place. Receptacles should be located to avoid the use of any extension cords. Remove all surface mounted raceways and surface mounted outlet boxes. Flush mounted receptacles and concealed wireway would be more aesthetically pleasing. Properly placed receptacles at workstations would eliminate extension cords which are not allowed in commercial building.
- Install a complete manual/ automatic fire alarm with smoke detectors in corridors. A fire alarm system should report to monitoring system. Presently the building is classified as a business occupancy which would not require a fire alarm but due to the historic nature of the building, a complete fire alarm with smoke detectors is recommended to protect the building.
- Rewire building for data to provide outlets at workstations and remove all surface mounted raceways. Properly placing data receptacles at work stations and eliminating surface raceway would be more aesthetically pleasing.

HVAC

Immediate - Phase 2

- Replace the (3) split systems with new units and new ductwork. Engineer to provide load calculations to verify proper sizes and capacities. The return ductwork would have to be expanded and modified to meet code. All new branch ducts would have new volume dampers so that airflow to each office can be adjusted to the proper level by the Testing and Balance Company. They can be put on any wall including an interior wall. These types of units are also called “ductless mini-splits”.
- Replace the desiccant heat exchanger inside the ERV unit. Clean every other year.
- Clean the existing duct sox annually.
- Update the settings on the controls during future HVAC work. Controls should be timed and not seasonal.
- The new AHU’s and condensing units should be installed to current seismic and wind code. All drains should be cleaned out if re-used. If refrigerant pipes are re-used, they must be pressure tested and provided with new insulation. For any bathroom that is not connected to the ERV exhaust, new exhaust fans and ducts are recommended.



Plumbing

Immediate - Phase 2

- The plumbing system inside the building appears to be far past its useful life and it is recommended that all interior piping be replaced. New piping should be type PEX A piping and waste lines should be schedule 40 PVC.

Landscape and Grading

Immediate - Phase 1

- Add 30"- 36" long splash blocks to the two downspouts on north (parking lot) facade.
- On the south elevation, connect the downspouts to a 6" PVC underground pipe at each corner. Core the masonry perimeter wall to accommodate the drainage pipes on each side and install a 6" bronze nozzle with a 4" opening size (Item #52WU84 manufactured by Rectorseal). The proposed configuration will allow water to flow from the base of the wall to the underground drainage pipe and out of the bronze nozzle onto the grass.
- Modify irrigation line within basement stairwell to promote drainage.
- Consider infilling south stairwell to prevent ponding water.
- Repair brickwork around stairs and front garden bed according to the structural recommendations.
- Trim the crepe myrtle tree off the roof of the structure. Trim roots as needed to prevent damage to the masonry wall.

Exterior Walls

Immediate - Phase 1

- Spray D2 biological solution on stairs and exterior walls to prevent biogrowth and slime.
- Apply anti-slip liquid sealer on the exterior granite stairs to increase resistance (511 Anti-slip or similar). Sealer should be tested before widescale application.



Immediate - Phase 2

- Repoint deteriorated mortar on exterior masonry and stone entrance and window heads.
- Seal open penetrations and remove abandoned fasteners.
- Repaint masonry where the white finish has failed.
- Perform composite repairs (Jahn M-70 or similar product) on the broken limestone at the front entrance.
- Repaint iron railings.
- Replace wood trim on east addition. Repaint.
- Replace missing fasteners on the side entrance railing.

Windows and Doors*Immediate - Phase 2*

- Replace aluminum storefront windows on the east addition. Install a new door closer. Install new stool trim.

Wood Entablature*Immediate - Phase 1*

- Repair deteriorated woodwork around the soffit and roof eave following gutter repairs. Repair fascia and soffit at the southeast corner.
- Repaint entablature.

Built-In Gutter*Immediate - Phase 1*

- Modify built-in gutter to remove low spots where water commonly ponds. One at center rear gutter, the second at the front elevation corner by the trees, and the seam at corner of Craven and Carteret Street.
- Renew caulking at chimney counter flashing.
- Rework the flashing at the intersection of the east addition roof with the masonry building.
- Replace ballast roof on east addition (short-term).



Attic

Immediate - Phase 1

- Sister ceiling joist where deteriorated at the end beneath the soffit and built-in gutter. One deteriorated joist was observed on the south side of the building adjacent to the access hatch.
- Install fixed attic access hatch and ladder (short-term).

Interior

Immediate - Phase 1

- Following roof work, repair the interior plaster and wallpaper damage within the east conference room. Repair water-damaged wall paneling on the north side of the room. Add liner paper to walls as needed to create a uniform surface. If scratch coat remains undisturbed, monitor plaster repairs by a SCDHEC licensed asbestos abatement contractor (\$600/day).
- Repair plaster and railing in the interior stair hall.
- Repair ceiling in first-floor southwest offices.
- Replace all metal HVAC wall and ceiling vents to plastic.

Immediate - Phase 2

- Paint the interior of the building complete.

Short Term - Phase 3

- Remove carpet and refinish original wood floors. *This may be moved into Phase 2 if the existing carpet is removed and hazardous materials abatement is necessary.*
- Office trim repair.
- Additional interior upgrades or renovations to be determined during a later phase.

