

PROJECT MANUAL

VIOLET BANK

PHASE II - EXTERIOR RESTORATION

303 VIRGINIA AVENUE, COLONIAL HEIGHTS, VIRGINIA 23834



MAY 19, 2025

MCWB | ARCHITECTS ■

388 BROADWAY
ALBANY, NEW YORK 12207

402 W. DUKE OF GLOUCESTER STREET
WILLIAMSBURG, VIRGINIA 23185

**VIOLET BANK MUSEUM
PHASE II – EXTERIOR RESTORATION**

TABLE OF CONTENTS

DOCUMENTS AND FORMS

City of Colonial Heights, Virginia – Invitation for Bid Documents
Bidder Qualifications Form for Restoration Work

TECHNICAL SPECIFICATIONS

DIVISION 01 – GENERAL REQUIREMENTS

011000	Summary
012100	Allowances
012200	Unit Prices
012600	Contract Modification Procedures
012900	Payment Procedures
013100	Project Management and Coordination
013200	Construction Progress Documentation
013233	Photographic Documentation
013300	Submittal Procedures
015000	Temporary Facilities and Controls
016000	Product Requirements
017700	Closeout Procedures
017839	Project Record Documents

DIVISION 02 – EXISTING CONDITIONS

022230	Lead-Based Paint Remediation
024119	Selective Removals

DIVISION 04 – MASONRY

040140	Brick Masonry Repointing
--------	--------------------------

DIVISION 06 – WOOD, PLASTICS, AND COMPOSITES

061000	Rough Carpentry
062013	Exterior Finish Carpentry
062100	Wood Consolidation & Repair

DIVISION 07 – THERMAL AND MOISTURE PROTECTION

075323	Ethylene Propylene Diene Monomer (EPDM) Roofing
076100	Sheet Metal Flashing & Trim
079200	Joint Sealants

DIVISION 08 – OPENINGS

080152	Wood Windows & Shutters
080314	Wood Doors

DIVISION 09 – FINISHES

092400	Lime Plaster & Restoration
099113	Exterior Painting

**VIOLET BANK MUSEUM
PHASE II – EXTERIOR RESTORATION**

LIST OF DRAWINGS:

Architectural Drawings

T1.0	Title Sheet
SR1.0	Selective Removals Plans
A1.0	Window Schedule & Details
A1.1	Door Schedule & Details
A2.0	Basement & First Floor Plans
A3.0	South Elevations
A3.1	North Elevation
A3.2	Partial North & East Elevations
A3.3	East Elevation
A3.4	West Elevation
A4.0	Details

Structural Drawings

S0.0	Project Information
S2.0	Enlarged Structural Plans
S5.0	Sections & Details



CITY OF COLONIAL HEIGHTS, VIRGINIA



INVITATION FOR BID: #25-061102-7155 VIOLET BANK MUSEUM – PHASE II EXTERIOR RESTORATION

BID OPENING DATE: JUNE 11, 2025, 2:00 PM EDT

CITY OF COLONIAL HEIGHTS CONTACTS:

**CITY REPRESENTATIVE: MATTHEW SPRUILL, DIRECTOR OF PARKS &
RECREATION**

**OFFICE: 804-520-9390, CELL: 804-520-9392
spruillm@colonialheightsva.gov**

**PURCHASING AGENT: LARRY MELVIN
OFFICE: 804-520-9333, CELL: 804-895-3316
melvinL@colonialheightsva.gov**

**ARCHITECT: Mesick Cohen Wilson Baker Architects, LLP
M. Jeffrey Baker**

City of Colonial Heights
 Finance/Purchasing Department
 201 James Avenue -2nd Floor – P.O. Box 3401
 Colonial Heights, VA 23834-9001
 Larry H. Melvin, Purchasing Agent
 (804) 520-9333 Fax (804) 524-8723
 MelvinL@colonialheightsva.gov

May 19, 2025

#25-061102-7155

Sealed bids, subject to the plans, specifications and conditions contained herein and attached hereto, will be received at the above office until, but no later than **2:00 PM EDT, June 11, 2025**, for the **Violet Bank Museum – Phase II Exterior Restoration, located at 303 Virginia Avenue, Colonial Heights, VA**

Your bid to be considered must be submitted on copy of this Invitation to Bid in the places provided. Please keep a duplicate copy for your records. Bidders shall sign this form in the spaces provided without detaching from rest of bid and must return bid in its entirety to the above noted office/address. Bids shall be returned in a sealed envelope marked with the above Invitation Number, Bid Date and Project Name.

Time is of the essence, and any bid received after the announced time and date for submittal, whether by mail or otherwise, will be rejected. It is the sole responsibility of the bidder for ensuring that their bids are stamped by Purchasing Department personnel or designated personnel before the deadline outlined above.

Nothing herein is intended to exclude any responsible firm or in any way restrain or restrict competition. On the contrary, all responsible firms are encouraged to submit proposals. The City of Colonial Heights encourages all businesses, including minority and women-owned businesses to respond to all invitations to Bid and Request for Proposals.

All items shall be bid as specified or an approved equal unless the item specifically states no substitute. If bidding other than specified, complete specifications on each item quoted upon must be submitted with bid. Failure to comply with this requirement will be cause for rejection of bid.

No bid may be withdrawn after the scheduled closing time for receipt of bids for ninety (90) calendar days except as provided in Section 2.2-4430, Procedure 1, Code of Virginia, which states the bidder shall give notice in writing of his claim to withdraw his bid within two (2) business days after the conclusion of the bid opening procedure and shall submit original work papers with such notice.

Any contract amount over \$25,000.00, the contractor must supply the Purchasing Department a copy of their Colonial Heights Business License.

Questions relating to this Invitation for Bid should be directed to Mr. Larry H. Melvin, Purchasing Agent, telephone (804) 520-9333, melvinL@colonialheightsva.gov. Questions relating to the Nature of Services and/or additional information should be directed to Mr. Matthew Spruill, Director of Parks and Recreation, Office: 804-520-9390, Cell: 804-520-9392, spruillm@colonialheightsva.gov

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Examination of Facilities – Mandatory Pre-Bid Conference.

It shall be the full responsibility of all bidders to conduct a thorough and complete examination of the field conditions prior to submitting their bids. Failure of bidders to completely familiarize themselves with the conditions and requirements prior to submission of bid, shall in no way relive the contractor of the responsibility of performing in such a manner as to meet or exceed the intent of the specifications. **A pre-bid conference will be held at the Violet Bank Museum, 303 Virginia Avenue, Colonial Heights, VA on June 4, 2025 at 10:00 AM. The City's architect will be on site to talk about the project and answer any questions. Any questions after the pre-bid needs to be emailed to Larry Melvin, City Purchasing Agent, melvinL@colonialheightsva.gov by June 6, 2025. An addendum will be issued to ask all questions.**

Time Limit to Commence and Complete Work

The successful bidder shall commence work within seven (7) days after the Notice to Proceed is given to him by the City. **Once the Notice to Proceed has been issued, the successful bidder shall complete all the work within 120 calendar days.** Liquidated damages, in the amount of three hundred & fifty dollars (\$350) will be assessed for each and every calendar day that the work remains uncompleted.

Guarantee of Work

The contractor shall assemble and duly guarantee all warranties as required by these specifications. He shall assemble and deliver to the City all bonds, guarantees, releases, etc. required by these specifications before final payment is made.

The contractor shall guarantee all work against defective workmanship and materials for a period of one (1) year after acceptance of the project the City. The contractor at no cost shall make any equipment or work found to be faulty during this period good to the City.

Proprietary Information

The Code of Virginia states: "Trade secrets or proprietary information submitted by a bidder, offeror, or contractor in connection with a procurement transaction shall not be subject to public disclosure under the Virginia Freedom of Information Act; however, the bidder, offeror, or contractor must invoke the protections of this section prior to or upon submission of the data or other materials, and must identify the data or other materials to be protected and state the reasons why protection is necessary."

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Minority Bidders

The City of Colonial Heights Purchasing Department encourages all businesses, including minority and women-owned business to respond to all invitations to Bid and Requests for Proposals.

Availability of Funds

It is understood and agreed between the parties that the City of Colonial Heights shall be bound hereunder only to the extent of the funds available or which may hereafter become available for the purpose of this agreement.

Choice of Law and Venue

Any disputes under a resulting contract, that cannot be resolved between the City of Colonial Heights and the contractor, must be resolved in the Circuit Court of the City of Colonial Heights. Any resulting contract shall be governed by the laws of the Commonwealth of Virginia. The contractor shall comply with all applicable federal, state and local laws and regulations.

Bid Guarantee - (Bid Bond Form Provided Must be Used)

Each proposal must be accompanied by a certified check equal or a bid bond equal 5% of the bid amount. Such Bid Bond or check shall be submitted with the understanding that it shall guarantee that the bidder will not withdraw his bid for a period of ninety (90) days after the scheduled closing time for receipt of bids, and that if his bid is accepted, he will enter into an agreement with the owner in accordance with the Form of Agreement as indicated herein. Any mistakes or error on the part of the bidder in preparing his bid confers no right upon the bidder to withdraw his bid after the designated time in said Contract and give stipulated Guarantee Bond within fifteen (15) days after written notification of award, the bidder in any particular hereof. Checks will be returned to the unsuccessful bidders promptly after it is determined who the successful bidder is and the award has been made.

Noncollusion Affidavit of Prime Bidder – (Form Provided Must be Used)

Each proposal must be accompanied by a properly executed and notarized copy of the Non-collusion Affidavit of Prime Bidder.

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Guarantee Bond – (Form Provided Must be Used)

If awarded the contract, the contractor shall furnish a performance bond and a labor and material payment bond, in the amount of the total contract price. (2 separate bonds) These bonds will stay into effect, until the one year warranty period is complete. The performance bond and labor and material payment bond shall be approved by the City Attorney.

In lieu of a bid, performance or payment bond, a bidder may furnish a certified check or cash escrow in the face amount required for the bond. Upon approval of the City Attorney, a bidder may furnish a personal bond, property bond or bank or saving and loan associations letter of credit on certain designated funds in the face amount required. Approval shall be granted only upon a determination that the alternative form of surety affords protection to the City equivalent to the corporate surety's bond.

The contractor **may** require as part of the agreement between the subcontractor and the contractor, a payment bond with surety thereon in the amount of 100% of the work sublet to the subcontractor. Each such bond shall be constructed, regardless of language, as incorporating, within its provisions, the obligation to pay those persons who furnish labor or material as aforesaid; provided however, that subcontracts between the Contractor and the manufacture or a fabricator shall be exempt from the provision required a payment bond and provided further that subcontracts for less than \$10,000 are also exempt hereunder.

Other Contract Documents – (Forms Provided Must be Used)

The Hold Harmless Agreement and Non-collusion Affidavit of Subcontractors shall be submitted by the successful bidder upon execution of the agreement. The Contractor's Affidavit and Statement of Surety Company shall be submitted by the contractor with the request for final payment.

Termination of Contract

It shall be the sole right of the City to terminate any contract upon written thirty (30) day notification to the contractor.

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 Colonial Heights, VA 23834-9001
 Larry H. Melvin, Purchasing Agent
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MelvinL@colonialheightava.gov

May 19, 2025

#25-061102-7155

Nondiscrimination Clause

In accordance with Section 2.2-4311 of the *Code of Virginia*, every contract for goods or services over \$10,000 shall include the following provisions:

1. The contractor will not discriminate against any employee or applicant for employment because of disability, race, religion, sex or national origin except where religion, sex or national origin is a bona fide occupational qualification reasonably necessary to the normal operation of the contractor. The contractor agrees to post in conspicuous places, available to employees and applicants for employment, notices setting forth the provisions of this nondiscrimination clause.
2. The contractor, in all solicitations or advertisements for employees placed by or on behalf of the contractor, will state that such contractor is an equal opportunity employer.
3. Notices, advertisements and solicitations placed in accordance with federal law, rule or regulation shall be deemed sufficient for the purpose of meeting the requirements of this section.

The contractor shall include the provisions of the foregoing paragraphs, 1, 2 and 3 in every subcontract or purchase order over \$10,000 so that the provision will be binding upon each subcontractor or vendor.

Drug Free Workplace

In accordance with Section 2.2-4312 of the Code of Virginia, during the performance of this contract, the contractor agrees to:

1. Provide a drug-free workplace for the contractor's employees
2. Post in conspicuous places, available to employees and applicants for employment, a statement notifying employees that the unlawful manufacture, sale, distribution, possession, or use of a controlled substance or marijuana is prohibited in the contractor's workplace and specifying the actions that will be taken against employees for violations of such prohibition.
3. State in all solicitations or advertisements for employees placed by or on behalf of the contractor that the contractor maintains a drug-free workplace
4. Include the provisions of the foregoing clauses in every subcontract or purchase order over \$10,000, so that the provisions will be binding upon each subcontractor or vendor.

For the purpose of this section, "drug free workplace" means a site for the performance of work done in connection with a specific contract awarded to a contractor.

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Faith-Based Organizations

In accordance with Code of Virginia, Section 2.2-4343.1, the City of Colonial Heights does not discriminate against faith-based organization.

Contractor's Insurance

The Contractor shall purchase and maintain in force, at his own expense, such insurance as will protect him and the City from claims which may arise out of or result from the Contractor's execution of the work, whether such execution be by himself, his employees, agents, subcontractors or by anyone for whose acts any of them may be liable. The insurance coverage shall be such as to fully protect the Owner, the Engineer (if applicable) and the general public from any and all claims for injury and damage resulting by any actions on the part of the contractor or his forces as enumerated above. If awarded the contract, the Contractor shall furnish an original Certificate of Insurance, naming the City of Colonial Heights as an additional insured. Should any of the policies be canceled before the expiration date, the issuing company will mail 30 days written notice to the certificate holder.

The Contractor shall furnish insurance in satisfactory limits and on forms and of companies that are acceptable to the Owner's Attorney and/or Risk Management and shall require and show evidence of insurance coverage on behalf of any subcontractors (if applicable), before entering into any agreement to sublet any part of the work to be done under this contract. The contractor will provide a minimum of liability insurance as follows:

- Workmen's Compensation – Statutory Limits
- Contractor's liability covering all operations performed by the contractor or any subcontractor with limits of not less than \$1,000,000 combined single limit. Sub contractors are subject to the same limits and must submit certificates of insurance to this office. All certificates of insurance must name the City of Colonial Heights as additionally insured.
- Automobile liability insurance-all owned, non-owned and hired automobiles with same limits as in (b) above.

Certification of above insurance requirements will be required before the issuance of an award. Also required to be submitted with the insurance certificate is the complete address, phone number and contact person for the insurance company. The authorized agent signing on behalf of the insurance company must submit certification that they are a licensed agent to do business for the Company within the State of Virginia.

Certificate holder should be listed as – City of Colonial Heights, c/o Purchasing Department, 201 James Avenue, 2nd floor, P.O. Box 3401, Colonial Heights, VA 23834-9001.

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If the Certificate of Insurance Form being furnished is other than the City Form, the certificate of insurance must be modified by striking the words “endeavor to” in the second line and by striking the clause ‘but failure to mail such notice shall impose no obligation or liability of any kind upon the company, its agents or representatives.

Qualification of Bidders

The owner may make such investigations as he deems necessary to determine the ability of the bidder to perform the work and the bidder shall furnish to the owner all such information and data for this purpose as the owner may request. The owner reserves the right to reject any bid if evidence submitted by or investigation of such bidder fails to satisfy the owner that such bidder is properly qualified to carry out the obligations of the contract and to complete the work contemplated therein. Conditionals bids will not be accepted.

Contractor Registration

Contractors must be classified according to section 54.1-1100 of the Code of Virginia:

- “Class A contractors” perform or manage construction, removal, repair or improvement projects when (i) the total value referred to in a single contractor or project is \$120,000 or more, or (ii) the total value of all such construction, removal, repair, or improvements undertaken by such person within any 12 month period is \$750,000 or more
- “Class B contractors” perform or manage construction, removal, repair, or improvements when (i) the total value referred to in a single contract or project is \$7,500 or more, but less than \$120,000, or (ii) the total value of all such construction, removal, repair or improvements undertaken by such person within any 12 month period is \$150,000 or more, but less than \$750,000.
- “Class C contractors” perform or manage construction, removal, repair, or improvements when (i) the total value referred to in a single contract or project is over \$1,000 but less than \$7,500, or (ii) the total value of all such construction, removal, repair, or improvements undertaken by such person within any 12 month period is less than \$150,000.

The bidder shall place on the outside of the envelope containing the bid and shall place in the bid over his signature, the contractor’s class and license number.

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Proposal

Furnish all material, labor, equipment, fees and insurance coverage for the Violet Bank Museum – Phase II Exterior Restoration, located at 303 Virginia Avenue, Colonial Heights VA

\$ _____
 Lump Sum

All work to be accomplished as outlined in this sealed bid, specifications and drawings.

Please return your bid in a sealed envelope.

Please mark on the outside of your bid:

Invitation for Bid: 25-061102-7155
 Violet Bank Museum – Phase II Exterior Restoration
 Closing Date/Time: June 11, 2025, 2:00 PM EDT

Bids should be sent to:

City of Colonial Heights VA
 Finance/Purchasing Department
 201 James Avenue -2nd Floor
 P.O. Box 3401 (Mail Address)
 Colonial Heights VA 23834
 Larry H Melvin – Purchasing Agent

Per VA Code 2.2-403, contractors may now submit their bid electronically by submitting their complete bid package to Larry Melvin, Purchasing Agent, by 2:00 PM EDT on June 11, 2025. Please contact Larry Melvin at 804-895-3316. If the bid is submitted via email, please do not wait until the last minute as it must clear the sender's server and be received by the Purchasing Agent's server by 2:00 PM EDT.

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#25-061102-7155

If Signature is other than the President, please furnish this office a letter of explanation for authority to sign for the President.

In compliance with Invitation for Bid 25-061102-7155 and subject to all conditions thereof and attached thereto, the undersigned offers and agrees, if this Bid be accepted within 90 calendar days from the date of opening, to furnish any and all of the items upon which the prices are quoted.

My signature certifies that the accompanying proposal is not the result of or affected by, any unlawful act of collusion with another person or company engaged in the same line of business or commerce, or any act of fraud punishable under Title 18.2, Chapter 12, Article 1.1 of the Code of Virginia, 1950 as amended. Furthermore, I understand that fraud and unlawful collusion are crimes under the Virginia Governmental Frauds Act, the Virginia Government Bid Rigging Act, and Virginia Antitrust Act and Federal Law and can result in fines, prison sentences and civil damage awards.

My signature also certifies that this firm has no business or personal relationships with any other companies or personal that could be considered as a conflict of interest to the City of Colonial Heights, and that there are no principals, officers, agents, employees, or representatives of this firm that have any business or personal relationship with any other companies or persons that could be considered as a conflict of interest or a potential conflict of interest to the City of Colonial Heights, pertaining to any and all work or services to be performed as a result of this request and any resulting contract with the City of Colonial Heights.

I herby certify that I am authorized to sign as a Representative for the Firm.

Name of Contractor _____

Bidder's Name _____ Title _____

Address _____

Office number (____) _____ Cell Number (____) _____ Date _____

Contractor's Classification _____ Contractor's Number _____

Bid Bond

KNOW ALL MEN BY THE PESENTS:

That we _____

(hereinafter called "Principal") , as Principal and _____

a corporate duly organized under the laws of the State of _____

(hereinafter called "Surety"), as Surety are held and firmly bound unto the City of Colonial Heights, Virginia

(hereinafter called "Oblige") as obligee, in the sum of _____

(\$ _____) for the payment of which sum well and truly to be made, the said Principal and the said Surety,

bind ourselves, our heirs, executors, administrators, successors and assigns , jointly and severally firmly by these presents.

Now, therefore, if the obligee shall accept the bid of the Principal and the Principal shall enter into a contract with the terms of such bid and give such bond or bonds as may be specified in the bidding or contract documents with goods and sufficient surety for the faithful performance of such contract and for the prompt payment of labor and materials furnished in the prosecution thereof, or in the event of the failure of the principal to enter into such contract and give such bond or bonds, if the Principal shall pay to the Oblige the difference not exceed the penalty hereof between the amount specified in said bid and such larger amount for which the Oblige may in good faith contract with another party to perform the work covered by said bid, then this obligation shall be null and void, otherwise to remain in full force and effect.

Signed and seal this _____ day of _____ . 20 _____

Attest:

Principal (Seal)

Attest:

By _____ Title _____ Surety (Seal)

Surety Countersigned:

By _____ BY _____
Attorney-in Fact

NONCOLLUSION AFFIDAVIT OF PRIME BIDDER

State of _____

City of _____

County of _____

_____ being first duly sworn, deposes and says that

- (1) He is _____
(owner, partner, officer, representative or agent)
- (2) He is fully informed respecting the preparation and contents of the attached bid and all pertinent circumstances respecting such Bid.
- (3) Such Bid is genuine and is not a collusive or sham Bid:
- (4) Neither the said Bidder nor any of its officers, partners, owners, agents, representatives, employees or parties in interest, including this affiant, has in any way colluded, conspire, connived or agreed, directly or indirectly with any other Bidder, firm or person to submit a collusive or Sham Bid in connection with the Contract for which the attached Bid has been submitted or to refrain from bidding in connection with such contract or has in any manner, directly or indirectly, sought by agreement or collusion or communication or conference with any other Bidder, firm or person to fix the price or prices in the Bid price or the Bid price of any other Bidder, or to secure through any collusion, conspiracy, connivance or unlawful agreement any advantage against the City of Colonial Heights or any person interested in the proposed Contract; and
- (5) The price or prices quoted in the attached Bid are fair and proper are not tainted by any collusion, conspiracy, connivance, or unlawful agreement on the part of the Bidder or any of its agents, representatives, owners, employees, or parties in interest, including this affiant.

(Name)

(Title)

Subscribe and sworn to before me this _____ day of _____, 20_____

(Title)

My commission expires _____

Hold Harmless Agreement

I (we) _____ agree to the following provision relating to
Indemnification of the City of Colonial Heights, whereby:

- (a) The Contractor shall indemnify and save harmless the City, its agents and employees from and against all claims, damages, losses to persons or to property and expenses including attorneys' fees alleged to have been caused through the negligent performance of any part of the work herein, whether such default be asserted to have been in the performance of any part of the work herein, whether such default be asserted to have been in the performance of a duty of employees, to the owners of property or to members of the public. Contractor shall be responsible to City for the acts and omissions of all person, firms or corporations directly or indirectly employed by contractor in connection with the work.
- (b) In any and all claims against the City or any of their agents or employees by any employee of the Contractor or anyone directly or indirectly employed by them may be liable, the indemnification obligation under paragraph (a) shall not be limited in any way by any limitation on the amount or type of damages, compensation or benefits payable by or for the Contractor under workmen's compensation act, disability benefit acts or other employee benefit acts. Insurance coverage specified in any part of this contract constitutes the minimum requirements and said requirements shall in no way lessen or limit the liability of contractor under the terms of the contract.

Contractor: _____

By: _____

STATE OF _____ of _____

To WIT: I _____ a Notary Public in and for the _____

_____ Aforesaid in the State aforesaid, do certify that _____

_____ Whose name is signed to the above agreement bearing the date of _____

_____ Day of _____ 20 _____, personally appeared before me in my

_____ And State aforesaid and acknowledged the same as his / her act and deed.

My commission expires the _____ day of _____ 20 _____

Given under my hand this _____ day of _____ 20 _____

City of Colonial Heights – Colonial Heights Virginia

PERFORMANCE BOND

KNOW ALL MEN BY THESE PRESENTS, That we _____ and _____
 _____ are held and firmly bound unto the City of Colonial Heights and to the persons
 performing labor and furnishing materials in the just and full sum of _____ Dollars; to the payment whereof, well and
 truly made to the said City we bind ourselves and each of us jointly and severally, firmly by these presents. Sealed with the seals of
 the parties hereto and dated this _____ day of _____ in the year A.D., 20_____.

The condition of the above obligation is such that whereas the above bound _____
 _____ did, on the _____ day of _____, 20_____
 enter into a contract with the City of colonial Heights for _____ which contract is by
 reference thereto hereby expressly made a part of this bond..

Now if the said _____ shall well and faithfully perform said contract, and each and every
 condition, stipulation and requirement thereof, without default, and shall indemnify and save harmless the City of Colonial Heights
 from any and all claims against the City under the Virginia Workman's compensation Act, arising out of the performance of said
 contract or any work done in connection therewith, and from any and all damages, either directly or indirectly arising out of any
 failure to perform the same, and shall pay all cost for labor, equipment, vehicles, tools, appliances and materials any and all patent
 fees, and from any and all damages occasioned any party or parties, in person or property, by the negligent doing of the work provide
 for by said contract, or negligent failure to perform the conditions and requirements thereof, then the above obligation is to be void;
 otherwise the same shall remain in full force and virtue.

The same (Bonding Co.) _____ for value received, hereby stipulates and agrees
 that no change, extension of time, alteration or addition to the terms of the contract or to the work to be performed there under or the
 specifications accompanying the same shall in anywise affect its obligations of this bond, and it does hereby waive notice of any such
 change, extension of time, alteration or addition to the terms of the contract or to the work to be performed there under or the
 specifications accompanying the same. (N.B. – Where a firm gives bond, all members of the firm should sign individually.)

IF A CORPORATION

 President (Affix Corporate Seal)

 Attest – Secretary Attorney-in Fact

OTHER THAN A CORPORATION

 Countersigned

Resident Agent

Approved as to Form _____
City Attorney

Bond – Continued (Acknowledgment – Corporate Principal)

State of _____ of _____

To wit: I _____ a Notary Public in and for the _____

_____ aforesaid in the State aforesaid do certify that _____

and _____ whose names as _____

and _____ respectively, of _____

are signed to the foregoing bond bearing date the _____ day of _____, 20 _____

personally appeared before me in my _____ and State aforesaid and acknowledged the same

in behalf of the said corporation, as its act and deed.

My commission expires the _____ day of _____, 20 _____.

Given under my hand this _____ day of _____, 20 _____

Notary Public

(Affidavit and Acknowledgment of Surety)

State of _____ of _____ To wit:

I _____ a Notary Public in and for the _____ and State aforesaid,

Do certify that _____ whose name is signed to the foregoing bond bearing date this

_____ day of _____ 20 _____, personally appeared before me in my

_____ and State aforesaid and made oath that he is _____ of

_____ ; that he is duly authorized to execute the foregoing bond by virtue of

a certain power of attorney of the said company dated the _____ day of _____ 20 _____,

and recorded in the Office of the Clerk of the _____ Court of _____

of Virginia, in Deed book _____ page _____ ; that the said Power of Attorney has not

been revoked; and that the said company has complied with all the requirements of law regulating such companies in the transaction

of business in the State of Virginia. And the said _____ thereupon, the in name and on behalf of the said

company, acknowledged the foregoing bond as its act and deed.

My commission expires the _____ day of _____ 20____.

Given under my hand this _____ day of _____ 20____.

Approves as to form _____

City Attorney

Notary Public

CONTRACTOR'S AFFIDAVIT

PROJECT:
(NAME, ADDRESS)

STATE OF

COUNTY/CITY OF

Before me _____, a Notary Public in and for said County/City

Personally appeared _____

(name of duly authorized representative). (Title)

who being duly sworn according to law, deposes and says that all labor, material, and outstanding claims and I

indebtedness of whatever nature arising out of the performance of the contract between the CITY OF

COLONIAL HEIGHTS, VIRGINIA and

(Contractor) have been paid in full.

CONTRACTOR:
Address:

Signature

Subscribed and sworn to before me this day of ,

Notary Public _____

My commission Expires _____

STATEMENT OF SURETY COMPANY

PROJECT:
(name, address)

Bond NO:

Contract Amount: \$

Contract Date:

In accordance with the provisions of the Contract between the CITY OF COLONIAL HEIGHTS, VIRGINIA, Owner, and _____ (Contractor), the

(insert name and address of Surety Company), surety on the bond of said contractor, certifies that after a careful examination of the books and records of said Contractor, or after receipt of an affidavit from said Contractor, which examination or affidavit satisfies this company that all claims for labor and materials have been satisfactorily settled, hereby approves of the final payment to said Contractor, and by these presents witnesseth the payment to said Contractor of the final estimates shall not relieve the Surety Company of its obligations to the CITY OF COLONIAL HEIGHTS, as set forth in the said Surety Company's Bond.

IN WITNESS WHEREOF, the said Surety Company has hereunto set its hand and seal this

_____ day of _____, 20_____.

Surety Company

Attest:

(Seal): _____
Signature of Authorized Representative

Title

Note: This statement, if executed by any person other than the President or Vice President of the Company, must be accompanied by a certificate of even date showing authority conferred upon the person so signing to execute such instruments on behalf of the Company represented.

CITY OF COLONIAL HEIGHTS STANDARD CONTRACT FOR SERVICES

This Contract is entered into this _____ day of _____, 20____, by and between the City Council of Colonial Heights, Virginia, or its authorized agents, and the Contractor identified below, for services identified herein, on the following terms and conditions.

1. Definitions.

(a) As used in this Contract, the term “City” shall mean the City Council of Colonial Heights, Virginia, or the using department identified below and authorized by the Purchasing Regulations or other law to enter contracts.

(b) As used in this Contract, the term “Contractor” shall mean:

2. Provision of Services.

(a) The Contractor hereby agrees to provide the following services to the City:

(b) The time, manner and place for performance of such services shall be:

3. Time and Essence.

Time shall be of the essence in this Contract, except where it is herein specifically provided to the contrary.

4. City Obligations.

(a) In return for the services identified above, the City shall pay the Contractor the following amount:

(b) In addition to any provision of Paragraph 5 hereof, the Contractor agrees to grant the City a two percent (2%) discount for all invoices, provided that the City pays any invoice or other billing within ten (10) working days of receipt thereof.

5. Termination for Convenience of the City.

(a) The parties agree that the City may terminate this Contract, or any work or delivery required hereunder, from time to time either in whole or in part, whenever the City Manager or the Purchasing Agent of Colonial Heights determines that such termination is in the best interest of the City.

(b) Termination, in whole or in part, shall be effected by delivery of a Notice of Termination signed by the City Manager or the Purchasing Agent, mailed or delivered to the Contractor and specifically setting forth the effective date of termination.

(c) Upon receipt of such Notice, the Contractor shall:

(i) cease any further deliveries or work due under this Contract, on the date, and to the extent, which may be specified in the Notice;

(ii) place no further orders with any subcontractors except as may be necessary to perform that portion of this Contract not subject to the Notice;

(iii) terminate all subcontracts except those made with respect to contract performance not subject to the Notice;

(iv) settle all outstanding liabilities and claims which may arise out of such termination, with the ratification of the City Purchasing Agent; and

(v) use its best efforts to mitigate any damages which may be sustained by him as a consequence of termination under this clause.

(d) After complying with the provisions of subparagraph (c), above, the Contractor shall submit a termination claim, in no event later than six months after the effective date of their termination, unless one or more extensions of three months each are granted by the Purchasing Agent.

(e) The Purchasing Agent, with the approval of the City's signatory to this Contract, shall pay from the using department's budget reasonable costs of termination, including a reasonable amount for profit on supplies or services delivered or completed. In no event shall this amount be greater than the original contract price, reduced by any payments made prior to Notice of Termination, and further reduced by the price of the supplies not delivered, or the service not provided. This Contract shall be amended accordingly, and the Contractor shall be paid the agreed amount.

(f) In the event that the parties cannot agree on the whole amount to be paid to the Contractor by reason of termination under this clause, the Purchasing Agent shall pay to the Contractor the amounts determined as follows, without duplicating any amounts which may have already been paid under the preceding paragraph of this clause:

(i) with respect to all Contract performance prior to the effective date of Notice of Termination, the total of:

(A) cost of work performed or supplies delivered;

(B) the cost of settling and paying any reasonable claims as provided in paragraph 6 (c) (iv), above;

(C) a sum as profit on (A) determined by the Purchasing Agent to be fair and reasonable.

(ii) the total sum to be paid under (i) above shall not exceed the contract price, as reduced by the amount of payments otherwise made, and as further reduced by the contract price of work or supplies not terminated.

(g) In the event that the Contractor is not satisfied with any payments which the Purchasing Agent shall determine to be due under this clause, the Contractor may appeal any claim to the City Council in accordance with Paragraph 15 of this contract concerning Disputes.

(h) The Contractor shall include similar provisions in any subcontract, and shall specifically include a requirement that subcontractors make all reasonable efforts to mitigate damages which may be suffered. Failure to include such provision shall bar the Contractor from any recovery from the City whatsoever of loss or damage sustained by a subcontractor as a consequence of termination for convenience.

6. Termination for Default

Either party may terminate this Contract, without further obligation, for the default of the other party or its agents or employees with respect to any agreement or provision contained herein.

7. Examination of Records.

(a) The Contractor agrees that the City, or any duly authorized representative, shall, until the expiration of three (3) years after final payment hereunder, have access to and the right to examine and copy any directly pertinent books, documents, papers and records of the Contractor involving transactions related to this Contract.

(b) The Contractor further agrees to include in any subcontract for more than \$10,000 entered into as a result of this Contract, a provision to the effect that the subcontractor agrees that the City or any duly authorized representative shall, until the expiration of three (3) years after final payment under the subcontract, have access to and the right to examine and copy any pertinent books, documents, papers and records of such Contractor involved in transactions related to such subcontract, or this Contract. The term subcontract as used herein shall exclude subcontracts or purchase orders for public utility services at rates established for uniform applicability to the general public.

(c) The period of access provided in subparagraphs (a) and (b) above for records, books, documents and papers which may relate to any arbitration, litigation, or the settlement of claims arising out of the performance of this contract or any subcontract shall continue until any appeals, arbitration, litigation, or claims shall have been finally disposed of.

8. Termination for Non-Appropriation of Funds.

(a) If funds are not appropriated for any succeeding fiscal year subsequent to the one in which this Contract is entered into, for the purposes of this Contract, then the City may terminate this Contract upon thirty (30) days prior written notice to the Contractor. Should termination be accomplished in accordance with this Section, the City shall be liable only for payments due through the date of termination.

(b) The City agrees that should it terminate in accordance with this Section, it shall not obtain services which are substantially equal to or similar to those for which this Contract was entered into. This provision shall survive any termination of the Contract.

9. **Insurance.**

The Contractor shall maintain insurance, in an amount and a form set forth herein, to insure against the risks which are identified herein. The insurance required hereby shall be: **pursuant to attached certificate of insurance**. The Contractor shall provide a Certificate of Insurance, naming the City as additionally insured.

10. **Assignability of Contract.**

Neither this Contract, nor any part hereof, may be assigned by the Contractor to any other party without the express written permission of the City Manager.

11. **Modifications or Changes to this Contract.**

(a) Change Orders. The Purchasing Agent, with the concurrence of the City's signatory to this Contract, shall without notice to any sureties, have the authority to order changes in this Contract which affect the cost or time of performance. Such changes shall be ordered in writing specifically as a change order. Such orders shall be limited to reasonable changes in the services to be performed or the time of performance; provided that no Contractor shall be excused from performance under the then changed Contract by failure to agree to such changes, and it is the express purpose of this provision to permit unilateral changes in the Contract subject to the conditions and limitations herein.

(b) The Contractor need not perform any work described in any change order unless it has received a certification from the City that there are funds budgeted and appropriated sufficient to cover the cost of such changes.

(c) The Contractor shall make a demand for payment for changed work within thirty (30) days of receipt of a change order, unless such time period is extended in writing, or unless the Purchasing Agent required submission of a cost proposal prior to the initiation of any changed work or supplies. Later notification shall not bar the honoring of such claim or demand unless the City is prejudiced by such delay.

(d) No claim for changes ordered hereunder shall be considered if made after final payment in accordance with the Contract.

12. **Warranties:**

13. **Additional Bond Security.**

If any surety upon any bond furnished in connection with this Contract becomes unacceptable to the City, the Contractor shall promptly furnish such additional security as may be required from time to time to protect the interest of the City and a person supplying labor and materials in the prosecution of work contemplated by this Contract.

14. **Disputes.**

Contractual claims, whether for money or other relief, shall be submitted in writing no later than 60 days after final payment to the Contractor. However, written notice of the Contractor's intention to file a claim shall be given at the time of the occurrence or the beginning of the work upon which the claim will be based. Contractual claims shall be addressed to the Purchasing Agent and shall clearly designate the correspondence as a contractual claim, the contract to which it is referring, and the basis for the claim. The City Manager or his designee shall respond in writing to the Contractor with his final decision within 90 days of the claim's submission. The written decision of the City Manager or his designee shall be final and conclusive unless the Contractor appeals within six months of the date of the decision by instituting legal action as specified in §2.2-4364 of the Code of Virginia.

15. Nondiscrimination.

During the performance of this contract, the Contractor agrees as follows:

(a) The Contractor will not discriminate against any employee or applicant for employment because of race, religion, color, sex or national origin, except where religion, sex or national origin is a bona fide occupational qualification reasonably necessary to the normal operation of the Contractor. The Contractor agrees to post in conspicuous places, available to employees and applicants for employment, notices setting forth the provisions of this nondiscrimination clause.

(b) Contractor shall state in all solicitations or advertisements for employees placed by or on behalf of the Contractor that the Contractor is an equal opportunity employer.

(c) Notices, advertisements and solicitations placed in accordance with federal law, rule or regulation shall be deemed sufficient compliance with this provision. Contractor shall include the provisions of the foregoing subparagraphs (a), (b), and (c) in every subcontract or purchase order of over \$10,000 so that the provisions will be binding upon each subcontractor or vendor.

16. Drug Free Workplace.

During the performance of this contract, the Contractor agrees to (i) provide a drug-free workplace for the Contractor's employees; (ii) post in conspicuous places, available to employees and applicants for employment, a statement notifying employees that the unlawful manufacture, sale, distribution, dispensation, possession or use of a controlled substance or marijuana is prohibited in the workplace and specifying the actions that will be taken against employees for violations of such prohibition; (iii) state in all solicitations or advertisements placed by or on behalf of the Contractor that the Contractor maintains a drug-free workplace; and (iv) include the provisions of the above clauses in every contract or purchase order over \$10,000, so that the provisions will be binding upon each subcontractor or vendor. "Drug-free workplace" means a site for the performance of work done in connection with this contract and at which employees are subject to the prohibitions in (ii) above.

17. Interest.

Unless otherwise provided under the terms of this contract, interest shall accrue at the rate of one percent per month on all amounts the City owes to the Contractor.

18. Payments to Subcontractors.

The Contractor agrees to take one of the following actions within seven days after receipt of payment from the City for work performed by a subcontractor under the Contract:

- a. Pay the subcontractor the proportionate share of the total payment received from the City attributable to the work performed by the subcontractor under the Contract; or
- b. Notify the City and the subcontractor, in writing, of his intention to withhold all or a part of the payment with the reasons for nonpayment.
- c. The Contractor agrees to pay interest to the subcontractor on all amounts owed by the Contractor that remain unpaid after seven days following receipt by the Contractor of payment from the City for work performed by the subcontractor under the Contract, except for amounts withheld under subsection 1(b).
- d. The Contractor agrees to include language in its subcontracts and with lower-tier subcontractors which states that unless otherwise provided under the terms of the Contract, interest shall accrue at the rate of one percent per month.

19. Social Security or Employer Identification Number.

Prior to any payment being made by the City under the Contract, the Contractor shall provide the City his or her social security number (if an individual) or the federal employer identification number (if a proprietorship, partnership or corporation).

20. Payment and Performance Bonds (Construction Contracts Only).

The City shall have the right to require the Contractor to furnish bonds covering faithful performance of the Contract and payment of obligations arising thereunder as stipulated in bidding requirements or specifically required in the Contract Documents on the date of execution of the Contract. The Contractor shall provide a Performance Bond and a Payment Bond (AIA Document A312) each for one hundred percent (100%) of the Contract including all adjustments as authorized by change order. Bond premiums for the initial Contract shall be paid by the Contractor. Any subsequent bond premium costs shall be as authorized by change order.

Upon the request of any person or entity appearing to be a potential beneficiary of bonds covering payment of obligations arising under the contract, the Contractor shall promptly furnish a copy of the bonds or shall permit a copy to be made.

21. Worker's Compensation (Construction Contracts Only).

No Contractor shall perform any work on a construction contract unless he (i) has obtained, and continues to maintain for the duration of the work, worker's compensation coverage required pursuant to Chapter 8 (§65.2-800 et seq.) of Title 65.2 of the Code of Virginia and (ii) provides prior to the award of contract, on a form furnished by the City, evidence of such coverage.

22. Additional Terms and Conditions.

23. Integration Clause.

This Contract shall constitute the whole agreement between the parties. There are no promises, terms, conditions, or obligations other than those contained herein, and this contract shall supersede all previous communications, representations, or agreements, written or verbal, between the parties hereto.

24. Legal Status

All individuals performing work pursuant to this contract must be U.S. citizens or possess documents that allow them to be employed and work in the United States.

25. Faith-Based Provisions.

The City does not discriminate against faith-based organizations. For the purpose of this section, “faith-based organization” means a religious organization that is or applies to be a Contractor to provide goods and services for programs funded by the block grant provided pursuant to the Personal Responsibility and Work Opportunity Reconciliation Act of 1996, P.L. 104-193.

26. City Ownership of Contract Product.

Drawings, specifications and other documents, including those in electronic form, prepared by the Contractor are Instruments of Service. The Contractor shall be deemed the author and owner of the instruments until such time as payment is made therefore, at which time the City shall become the owner of the Instruments of Service. The Owner, upon completion or termination of this Contract, shall have full and exclusive rights to use the Instruments of Service in any manner not inconsistent with state law. The Contractor shall not use the Instruments of Service on any other work or release information about the Instruments of Service without the express written consent of the City.

Contractor or Duly Authorize Representative

Title

Date

City Representative

Title

Date

BIDDER QUALIFICATION FORM FOR RESTORATION WORK

(To be fully completed by Bidder for Exterior Restoration Work and submitted together with Bid Form)

VIOLET BANK MUSEUM – PHASE II EXTERIOR RESTORATION

VIOLET BANK MUSEUM is a significant historic building. Each Bidder must demonstrate, to the satisfaction of the Owner, that their firm and the personnel to be employed in the execution of the work possess requisite experience in comparable work on other buildings listed on the National Register of Historic Places.

The submission of this signed and notarized form is a requirement of the Bidding Documents. All items must be answered, and the data given must be clear and comprehensive. Failure to answer these questions in a complete manner will result in rejection of the bid. The Owner reserves the right to reject any bidder who, in the judgement of the Owner and based on a review of the Qualification Forms, is not qualified to perform the work of the Contract as specified. The Owner's decisions regarding rejection of the bids based on bidder's qualifications shall be final. Each contractor must use all contractors and craftsmen listed on this Form unless specific permission has been granted by the Owner to substitute personnel. Failure to use those contractors and craftsmen listed on this Form will be in breach of contract.

All the following questions must be answered. Questions No. 1 through 4 refer specifically to the General Contractor's firm and shall be used to determine ability of General Contractor to manage and perform the quality of work required under this Contract. Questions 5 through 7 refer to the Restoration Specialist that will be performing the indicated work, should your firm be awarded the Contract. Data given must be clear and comprehensive. If needed, answers may be on separate attached sheets. Photographic data may be furnished on jobs listed.

1. How many years has your organization been in business under its present name?

2. How many years under previous business names (if any)? _____

List previous names: _____

3. List projects on which historic preservation/restoration/renovation work of a similar size, scope, and nature to Work of this Contract was performed within the past five (5) years on buildings listed on the National Register of Historic Places. A contractor need not have performed all of the above types of construction on a single project. Provide a brief description of each of the listed projects.

Project Name & Address	Year	Cost	Owner (Tel.#)	Architect (Tel.#)
------------------------	------	------	---------------	-------------------

1. _____

2. _____

3. _____

4. _____

Provide the names of proposed supervisors and foremen to be employed on this job. Indicate on which job, of the ones listed above, they have worked. On separate sheet, give brief resume of each describing their specific qualifications and past experience in supervising, directing and executing work comparable to that required in this project.

Name	Number of years assoc. with firm	Jobs on which they have worked (selected from above)
------	-------------------------------------	---

1. _____
2. _____
3. _____
4. _____
5. _____
6. _____

4. Will you subcontract any part of the work? _____

If so, list subcontractors and their trade:

1. _____
2. _____
3. _____
4. _____
5. _____

5. List at least three (3) jobs involving comparable HISTORIC WOOD REPAIR AND CARPENTRY WORK that your firm (or subcontractor) has executed in the past five (5) years on buildings listed on the National Register of Historic Places.

Project Name & Address	Year	Cost	Owner (Tel.#)	Architect (Tel.#)
------------------------	------	------	---------------	-------------------

1. _____
2. _____
3. _____
4. _____

6. List at least three (3) jobs involving comparable WOOD WINDOW RESTORATION WORK that your firm (or subcontractor) has executed in the past five (5) years on buildings listed on the National Register of Historic Places.

Project Name & Address	Year	Cost	Owner (Tel.#)	Architect (Tel.#)
------------------------	------	------	---------------	-------------------

- | | | | | |
|----|-------|--|--|--|
| 1. | _____ | | | |
| 2. | _____ | | | |
| 3. | _____ | | | |
| 4. | _____ | | | |

7. List at least three (3) jobs involving comparable LIME PLASTER WORK that your firm (or subcontractor) has executed in the past five (5) years on buildings listed on the National Register of Historic Places.

Project Name & Address	Year	Cost	Owner (Tel.#)	Architect (Tel.#)
------------------------	------	------	---------------	-------------------

- | | | | | |
|----|-------|--|--|--|
| 1. | _____ | | | |
| 2. | _____ | | | |
| 3. | _____ | | | |
| 4. | _____ | | | |

Submitted by:

_____	Seal: (If firm is a corporation)
Legal name of firm (please type)	

Address (please type)

Name and title of signer (please type)

_____	_____	_____
Signature	Date	

_____	_____	_____
Notary Public	Date	

**VIOLET BANK MUSEUM
PHASE II – EXTERIOR RESTORATION**

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. This Section includes the following:
 - 1. Work covered by the Contract Documents.
 - 2. Type of the Contract.
 - 3. Products ordered in advance.
 - 4. Use of premises.
 - 5. Owner's occupancy requirements.
 - 6. Work restrictions.
 - 7. Specification formats and conventions.
- B. Related Sections include the following:
 - 1. Division 01 Section "Temporary Facilities and Controls" for limitations and procedures governing temporary use of Owner's facilities.

1.3 WORK COVERED BY CONTRACT DOCUMENTS

- A. Project Identification: Violet Bank Museum – Phase II Exterior Restoration
 - 1. Project Location: 303 Virginia Avenue, Colonial Heights, Virginia.
- B. Owner: City of Colonial Heights
 - 1. Owner's Representative: Matthew Spruill, Director of Recreations and Parks, City of Colonial Heights
- C. Architect: Mesick Cohen Wilson Baker Architects, LLP, 388 Broadway, Albany, NY 12207
 - 1. Partner-in-Charge: M. Jeffrey Baker
- D. The Work of Project is defined by the Contract Documents and consists of the following:
 - 1. Repair and replacement of the decking system at the front porch and restoration of the existing front porch columns and pilasters.
 - 2. Repair and replacement of the decking system at the rear porch and replacement of the rear porch columns and pilasters.
 - 3. Replacement of the railing system at the rear porch and stairwell.
 - 4. Restoration of the existing wood windows and frames.
 - 5. Replacement of the existing wood basement windows and frames.
 - 6. Restoration of the exterior doors and frames, including sidelights and transoms.
 - 7. Repair of deteriorated wood elements on the exterior envelope.

**VIOLET BANK MUSEUM
PHASE II – EXTERIOR RESTORATION**

8. Scraping, preparing, and painting all exterior wood elements, including existing wood siding, porch ceilings, and cornices.
9. Preparing and painting existing concrete exterior steps to remain.
10. Preparing and painting existing metal handrails to remain.

1.4 TYPE OF CONTRACT

- A. Project will be constructed under a single prime contract.
 1. The Work shall be conducted in a single phase.
 2. Final completion of the project shall be no later than **DATE**.

1.5 PRODUCTS ORDERED IN ADVANCE

- A. General: Under direction of the Contractor, the Owner will negotiate Purchase Orders with suppliers of all materials to be incorporated into the Work. Owner will assign these Purchase Orders to Contractor. Costs for receiving, handling, storage if required, and installation of material and equipment shall be included in the Contract Sum.
 1. Contractor's responsibilities are same as if Contractor had negotiated Purchase Orders, including responsibility to renegotiate purchase and to execute final Purchase-Order agreements.

1.6 CONTRACTOR'S USE OF PREMISES

- A. Restricted Use of Site: Contractor shall Limit use of premises to areas within the Contract limits as indicated on Drawings by the Contract limits, and as indicated by requirements of this section.
 1. Confine construction operations to minimize disruption of campus activities and operations during the course of the work.
 2. Limit site disturbance to a maximum of 20 feet beyond building perimeter; 10 feet beyond surface walkways, surface parking, and utilities less than 12 inches in diameter; 15 feet beyond primary roadway curbs and main utility branch trenches; and 25 feet beyond constructed areas with permeable surfaces (such as pervious paving areas, storm water detention facilities, and playing fields) that require additional staging areas in order to limit compaction in the constructed area.
 3. Driveways 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 use of driveways and entrances.
 - b. Schedule deliveries to minimize space and time requirements for storage of materials and equipment on-site.

**VIOLET BANK MUSEUM
PHASE II – EXTERIOR RESTORATION**

1.7 OWNER'S OCCUPANCY REQUIREMENTS

- A. Partial Owner Occupancy: Owner will occupy the premises immediately adjacent to the building site during entire construction period, with the exception of areas under construction. Cooperate with Owner during construction operations to minimize conflicts and facilitate Owner usage. Perform the Work so as not to interfere with Owner's operations.
 - 1. Maintain access to existing walkways and other adjacent occupied or used facilities. Do not close or obstruct walkways or other occupied or used facilities without written permission from Owner.
 - 2. Provide not less than 72 hours' notice to Owner of activities that will affect Owner's operations.

1.8 WORK RESTRICTIONS

- A. On-Site Work Hours: Work shall be generally performed during normal business working hours of 7 a.m. to 6 p.m., Monday through Friday, unless otherwise approved by Owner.
- B. Existing Utility Interruptions: Do not interrupt utilities serving project site and adjacent existing 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 Owner not less than two (2) days in advance of proposed utility interruptions.
 - 2. Do not proceed with utility interruptions without Owner's written permission.
- C. Nonsmoking Campus: Smoking is not permitted on the grounds of Violet Bank Museum.

1.9 SPECIFICATION FORMATS AND CONVENTIONS

- A. Specification Format: The Specifications are organized into Divisions and Sections using the 50-division format and CSI/CSC's "MasterFormat" numbering system.
 - 1. Section Identification: The Specifications use Section numbers and titles to help cross-referencing in the Contract Documents. Sections in the Project Manual are in numeric sequence; however, the sequence is incomplete because all available Section numbers are not used. Consult the table of contents at the beginning of the Project Manual to determine numbers and names of Sections in the Contract Documents.
 - 2. Division 01: Sections in Division 01 govern the execution of the Work of all Sections in the Specifications.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 011000

**VIOLET BANK MUSEUM
PHASE II – EXTERIOR RESTORATION**

SECTION 012100 - ALLOWANCES

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 governing allowances.
- B. Types of allowances include the following:
 - 1. Lump-sum allowances.
- C. Related Requirements:
 - 1. Section 012200 "Unit Prices" for procedures for using unit prices, including adjustment of quantity allowances when applicable.

1.3 DEFINITIONS

- A. Allowance: A quantity of work or dollar amount included in the Contract, established in lieu of additional requirements, used to defer selection of actual materials and equipment to a later date when direction will be provided to Contractor. If necessary, additional requirements will be issued by Change Order.

1.4 SELECTION AND PURCHASE

- A. At Architect's request, obtain proposals for each allowance for use in making final selections. Include recommendations that are relevant to performing the Work.

1.5 ACTION SUBMITTALS

- A. Submit proposals for purchase of products or systems included in allowances in the form specified for Change Orders.

1.6 INFORMATIONAL SUBMITTALS

- A. Submit invoices or delivery slips to show actual quantities of materials delivered to the site for use in fulfillment of each allowance.
- B. Submit time sheets and other documentation to show labor time and cost for installation of allowance items that include installation as part of the allowance.

**VIOLET BANK MUSEUM
PHASE II – EXTERIOR RESTORATION**

1.7 LUMP-SUM ALLOWANCES

- A. Unless otherwise indicated, Contractor's costs for receiving and handling at Project site, labor, installation, overhead and profit, and similar costs related to products and materials ordered by Owner or selected by Architect under allowance shall be included as part of the Contract Sum and not part of the allowance.
 - 1. Submit substantiation of a change in scope of Work, if any, claimed in Change Orders related to unit-cost allowances.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine products covered by an allowance promptly on delivery for damage or defects. Return damaged or defective products to manufacturer for replacement.

3.2 PREPARATION

- A. Coordinate materials and their installation for each allowance with related materials and installations to ensure that each allowance item is completely integrated and interfaced with related work.

3.3 SCHEDULE OF ALLOWANCES

- A. Allowance No. 1: Lump-Sum Allowance: Include the sum of \$5,000.00 for window and door hardware replacement.
 - 1. This allowance includes replacement of existing window sash locks and door hardware. Replacement hardware to be reproduction hardware to be determined based on field investigation and evidence discovered during paint removal processes.

END OF SECTION 012100

**VIOLET BANK MUSEUM
PHASE II – EXTERIOR RESTORATION**

SECTION 012200 - UNIT PRICES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. This Section includes administrative and procedural requirements for unit prices.
- B. Related Sections include the following:
 - 1. Division 01 Section "Contract Modification Procedures" for procedures for submitting and handling Change Orders.

1.3 DEFINITIONS

- A. Unit price is an amount proposed by bidders, stated on the Bid Form, as a price per unit of measurement for materials or services added to or deducted from the Contract Sum by appropriate modification, if estimated quantities of Work required by the Contract Documents are increased or decreased.

1.4 PROCEDURES

- A. Unit prices include all necessary Owner-supplied materials, plus cost for delivery, installation, insurance, overhead, and profit.
- B. Measurement and Payment: Refer to individual Specification Sections for the work that requires establishment of unit prices. Methods of measurement and payment for unit prices are specified in the General Conditions for Construction Contracts.
- C. Owner reserves the right to reject Contractor's measurement of work-in-place that involves use of established unit prices and to have this work measured, at Owner's expense, by an independent surveyor.
- D. List of Unit Prices: A list of unit prices is included in Part 3. Specification Sections referenced in the schedule contain requirements for materials described under each unit price.

**VIOLET BANK MUSEUM
PHASE II – EXTERIOR RESTORATION**

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION

3.1 LIST OF UNIT PRICES

A. Unit Price No. 1 – Wood Siding Replacement.

1. Description: Remove existing deteriorated section of wood siding and replace with new wood siding matching the existing profile as described in Specification Section 062013 "Exterior Finish Carpentry".
 - a. Include replacement of 50 board feet of wood siding as part of the base contract.
 - b. Unit of Measurement: Board Foot.

B. Unit Price No. 2 – Wood Dutchmen Repair.

1. Description: Remove existing deteriorated section of wood and repair with new wood dutchman matching the existing profile to be repaired as described in Specification Section 062100 "Wood Consolidation & Repair".
 - a. Include 30 units as part of the base contract.
 - b. Unit of Measure: $\frac{1}{2}$ " deep x 1" wide x 2" long = 1 unit

C. Unit Price No. 3 – Finish Wood Replacement.

1. Description: Remove existing deteriorated section of wood and replace with new wood matching the existing profile as described in Specification Section 062013 "Exterior Finish Carpentry".
 - a. Include replacement of 30 board feet of finish wood as part of the base contract.
 - b. Unit of Measurement: Board Foot.

D. Unit Price No. 4 – Glass Replacement.

1. Description: Remove existing broken and replace with new restoration glass as described in Specification Section 080152 "Wood Windows & Shutters".
 - a. Include replacement of 10 square feet as part of the base contract.
 - b. Unit of Measurement: Square Foot.

E. Unit Price No. 5 – Deteriorated Porch Framing Replacement.

1. Description: Remove existing deteriorated wood framing and replace with new wood framing. See Specification Section 061000 "Rough Carpentry" for specified wood material to be used for wood framing replacement work.
 - a. Include replacement of 10 board feet as part of the base contract.
 - b. Unit of Measurement: Board Foot.

**VIOLET BANK MUSEUM
PHASE II – EXTERIOR RESTORATION**

F. Unit Price No. 6 – Brick Masonry Pointing.

1. Description: Remove existing deteriorated brick mortar and replace with new brick pointing mortar. The new mortar joint shall match the existing adjacent remaining mortar joint. See Specification Section 040140 "Brick Masonry Repointing" for specified pointing materials and methods to be used for brick repointing work.
 - a. Include 10 linear feet of repointing as part of the base contract.
 - b. Unit of Measure: Linear foot.

G. Unit Price No. 7 – Lime Stucco Repair.

1. Description: Repair existing cracked and damaged areas of lime stucco as described in Specification Section 092400 "Lime Plaster & Restoration".
 - a. Include repair of 5 square feet as part of the base contract.
 - b. Unit of Measurement: Square foot.

H. Unit Price No. 8 – Plaster Repair.

1. Description: Repair existing damaged areas of interior plaster as described in Specification Section 092400 "Lime Plaster & Restoration".
 - a. Include repair of 10 square feet, beyond what is identified in the drawing, as part of the base contract.
 - b. Unit of Measurement: Square foot.

END OF SECTION 012200

**VIOLET BANK MUSEUM
PHASE II – EXTERIOR RESTORATION**

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. This Section specifies administrative and procedural requirements for handling and processing Contract modifications.
- B. Related Sections include the following:
 - 1. Division 01 Section "Product Requirements" for administrative procedures for handling requests for substitutions made after 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.

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. Proposal Requests issued by Architect are for information only. Do not consider them instructions either to stop work in progress or to execute the proposed change.
 - 2. Within 7 days 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 unforeseen conditions require modifications to the Contract, Contractor may propose changes by submitting a request for a change to Architect.

**VIOLET BANK MUSEUM
PHASE II – EXTERIOR RESTORATION**

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.

1.5 CHANGE ORDER PROCEDURES

- A. On Owner's approval of a Proposal Request, Architect will issue a Change Order for signatures of Owner and Contractor on AIA Document G701.

1.6 CONSTRUCTION CHANGE DIRECTIVE

- A. Construction Change Directive: Architect may issue a Construction Change Directive which instructs Contractor to proceed with a change in the Work, for subsequent inclusion in a Change Order.
 1. Construction 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 Construction 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

**VIOLET BANK MUSEUM
PHASE II – EXTERIOR RESTORATION**

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. This Section specifies administrative and procedural requirements necessary to prepare and process Applications for Payment.
- B. Related Sections include the following:
 - 1. Division 01 Section "Contract Modification Procedures" for administrative procedures for handling changes to the Contract.

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.
 - 1. Correlate 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. Submittals Schedule.
 - c. Contractor's Construction Schedule.
 - 2. Submit the Schedule of Values to Architect at earliest possible date but no later than 7 days before the date scheduled for submittal of initial Applications for Payment.
- B. Format and Content: Use the Project Manual table of contents as a guide to establish line items for the Schedule of Values.
 - 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.

VIOLET BANK MUSEUM
PHASE II – EXTERIOR RESTORATION

2. Arrange the Schedule of Values in tabular form with separate columns.
3. Provide a breakdown of the Contract Sum in enough detail to facilitate continued evaluation of Applications for Payment and progress reports. Coordinate with the Project Manual table of contents. Provide several line items for principal subcontract amounts, where appropriate.
4. Round amounts to nearest whole dollar; total shall equal the Contract Sum.
5. Each item in the Schedule of Values and Applications for Payment shall be complete. Include total cost and proportionate share of general overhead and profit for each item.
 - 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.
6. 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 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.
- C. Payment Application Forms: Use AIA Document G702 and AIA Document G703 Continuation Sheets
- D. 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 of Change Orders and Construction Change Directives issued before last day of construction period covered by application.
- E. Transmittal: Submit 3 signed and notarized original copies of each Application for Payment to Architect by a method ensuring receipt within 24 hours.
 1. Transmit each copy with a transmittal form listing attachments and recording appropriate information about application.
- 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. Products list.
 5. Schedule of unit prices.

**VIOLET BANK MUSEUM
PHASE II – EXTERIOR RESTORATION**

6. Submittals Schedule.
 7. Copies of authorizations and licenses from authorities having jurisdiction for performance of the Work such as building permits.
 8. Report of preconstruction conference.
 9. Certificates of insurance and insurance policies.
- G. Application for Payment at Substantial Completion: After issuing 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 Certificates of Partial Substantial Completion issued previously for Owner occupancy of designated portions of the Work.
- H. Final Payment Application: 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.
 2. Updated final statement, accounting for final changes to the Contract Sum.
 3. AIA Document G706, "Contractor's Affidavit of Payment of Debts and Claims."
 4. AIA Document G706A, "Contractor's Affidavit of Release of Liens" for the General Contractor, all Subcontractors and all major material suppliers.
 5. Evidence that claims have been settled.
 6. Consent of Surety if Performance and Payment Bonds are required for the Project.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 012900

**VIOLET BANK MUSEUM
PHASE II – EXTERIOR RESTORATION**

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. This Section includes administrative provisions for coordinating construction operations on the Project including, but not limited to, the following:
 - 1. Coordination Drawings.
 - 2. Administrative and supervisory personnel.
 - 3. Project meetings.
 - 4. Requests for Interpretation (RFIs).
 - 5. Job Mock-ups.
- B. Related Sections include the following:
 - 1. Division 01 Section "Construction Progress Documentation" for preparing and submitting Contractor's Construction Schedule.
 - 2. Division 01 Section "Closeout Procedures" for coordinating closeout of the Contract.

1.3 DEFINITIONS

- A. RFI: Request from Contractor seeking interpretation or clarification of the Contract Documents.

1.4 COORDINATION

- 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 with other contractors to ensure maximum accessibility for required maintenance, service, and repair.
 - 3. Make adequate provisions to accommodate items scheduled for later installation.
 - 4. Where availability of space is limited, coordinate installation of different components to ensure maximum performance and accessibility for required maintenance, service, and repair of all components, including electrical and site improvements.

**VIOLET BANK MUSEUM
PHASE II – EXTERIOR RESTORATION**

- B. Prepare memoranda for distribution to each party involved, outlining special procedures required for coordination. Include such items as required notices, reports, and list of attendees at meetings.
 - 1. Prepare similar memoranda for Owner and separate contractors when coordination of their Work is required.
- C. Administrative Procedures: Coordinate scheduling and timing of required administrative procedures with other construction activities and activities of other contractors 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. Preinstallation conferences.
 - 7. Project closeout activities.
 - 8. Startup and adjustment of mechanical and electrical systems.
 - 9. Project closeout activities.

1.5 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: Architect shall prepare and distribute meeting minutes. Such minutes shall be used for determining the agenda for the following job meeting.
- B. Preconstruction Conference: Schedule 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. Hold the conference at Project site or another convenient location. Conduct the meeting to review responsibilities and personnel assignments.
 - 1. Attendees: Authorized representatives of Owner, Architect, and their consultants; Contractor and its superintendent; major subcontractors; suppliers; and other concerned parties shall attend the conference. All participants at the conference shall be familiar with Project and authorized to conclude matters relating to the Work.
 - 2. Agenda: Discuss items of significance that could affect progress, including the following:
 - a. Tentative construction schedule.
 - b. Critical work sequencing and long-lead items.
 - c. Designation of key personnel and their duties.
 - d. Procedures for processing field decisions and Change Orders.
 - e. Procedures for RFIs.
 - f. Procedures for testing and inspecting.
 - g. Procedures for processing Applications for Payment.
 - h. Distribution of the Contract Documents.
 - i. Submittal procedures.

**VIOLET BANK MUSEUM
PHASE II – EXTERIOR RESTORATION**

- j. Preparation of Record Documents.
 - k. Use of the premises.
 - l. Work restrictions.
 - m. Owner's occupancy requirements.
 - n. Responsibility for temporary facilities and controls.
 - o. Construction waste management and recycling.
 - p. Parking availability.
 - q. Office, work, and storage areas.
 - r. Equipment deliveries and priorities.
 - s. First aid.
 - t. Security.
 - u. Progress cleaning.
 - v. Working hours.
3. Minutes: Architect will record and distribute meeting minutes.
- C. Progress (Job) Meetings: Conduct progress meetings at bi-weekly intervals and/or as required by the demands of the Work. Coordinate dates of meetings with preparation of payment requests.
- 1. Attendees: In addition to representatives of Owner and Architect, each contractor, subcontractor, supplier, and other entity concerned with current progress or involved in planning, coordination, or performance of future activities shall be represented at these meetings. All participants at the conference shall be familiar with Project and authorized to conclude matters relating to the Work.
 - 2. 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.
 - 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 requiring Owner purchasing.
 - 5) Off-site fabrication.
 - 6) Access.
 - 7) Site utilization.
 - 8) Temporary facilities and controls.
 - 9) Status of correction of deficient items.
 - 10) Field observations.
 - 11) RFIs.
 - 12) Status of proposal requests.
 - 13) Pending changes.
 - 14) Status of Change Orders.
 - 15) Pending claims and disputes.
 - 16) Documentation of information for payment requests.
3. Minutes: Architect will record and distribute to Contractor the meeting minutes.

**VIOLET BANK MUSEUM
PHASE II – EXTERIOR RESTORATION**

4. Reporting: Distribute minutes of the meeting to each party present and to parties who should have been present.
 - a. Schedule Updating: Revise 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.

1.6 REQUESTS FOR INTERPRETATION (RFIs)

- A. Procedure: Immediately on discovery of the need for interpretation of the Contract Documents, and if not possible to request interpretation at Project meeting, prepare and submit an RFI in the form specified.
 1. RFIs shall originate with Contractor. RFIs submitted by entities other than Contractor will be returned 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 interpretation and the following:
 1. Project name.
 2. Date.
 3. Name of Contractor.
 4. Name of Architect.
 5. RFI number, numbered sequentially.
 6. Specification Section number and title and related paragraphs, as appropriate.
 7. Drawing number and detail references, as appropriate.
 8. Field dimensions and conditions, as appropriate.
 9. Contractor's suggested solution(s). If Contractor's solution(s) impact the Contract Time or the Contract Sum, Contractor shall state impact in the RFI.
 10. Contractor's signature.
 11. Attachments: Include drawings, descriptions, measurements, photos, Product Data, Shop Drawings, and other information necessary to fully describe items needing interpretation.
- C. Architect's Action: Architect will review each RFI, determine action required, and return it. Allow 10 working days for Architect's response for each RFI. RFIs received after 1:00 p.m. will be considered as received the following working day.
 1. The following RFIs will be returned without action:
 - a. Requests for approval of submittals.
 - b. Requests for approval of substitutions.
 - c. Requests for coordination information already indicated in the Contract Documents.
 - d. Requests for adjustments in the Contract Time or the Contract Sum.
 - e. Requests for interpretation of Architect's actions on submittals.
 - f. Incomplete RFIs or RFIs with numerous errors.
 2. Architect's action may include a request for additional information, in which case Architect's time for response will start again.
 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 Division 01 Section "Contract Modification Procedures."

**VIOLET BANK MUSEUM
PHASE II – EXTERIOR RESTORATION**

- 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.
- D. 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 5 days if Contractor disagrees with response.
- E. RFI Log: Prepare, maintain, and submit a tabular log of RFIs organized by the RFI number. Submit log monthly. Include the following:
 - 1. Project name.
 - 2. Name and address of Contractor.
 - 3. Name and address of Architect.
 - 4. RFI number including RFIs that were dropped and not submitted.
 - 5. RFI description.
 - 6. Date the RFI was submitted.
 - 7. Date Architect's response was received.
 - 8. Identification of related Minor Change in the Work, Construction Change Directive, and Proposal Request, as appropriate.

1.7 JOB MOCK-UPS

- A. Mockups: Before installing portions of the Work requiring mockups as specified under Quality Control of individual specifications sections, build mockups for each form of construction and finish required to comply with the following requirements, using materials indicated for the completed Work:
 - 1. Build mockups in location and size of indicated or, if not indicated, as directed by the Architect
 - 2. Notify Architect seven days in advance of dates and times when mockups will be constructed.
 - 3. Demonstrate the proposed range of aesthetic effects and workmanship.
 - 4. Obtain Architect's approval of mockups before starting work, fabrication or construction.
 - a. Allow seven days for initial review and each re-review of each mockup.
 - 5. Maintain mockups during construction in an undisturbed condition as a standard for judging the completed Work.
 - 6. Demolish and remove mockups when directed, unless in Architect's opinion mockup may be used as part of the finished Work, or as otherwise indicated.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 013100

**VIOLET BANK MUSEUM
PHASE II – EXTERIOR RESTORATION**

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. This 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. Subcontractors list.
 - 3. Submittals Schedule.
- B. Related Sections include the following:
 - 1. Division 01 Section "Payment Procedures" for submitting the Schedule of Values.
 - 2. Division 01 Section "Submittal Procedures" for submitting schedules and reports.
 - 3. Division 01 Section "Photographic Documentation"
 - 4. Division 01 Section "Closeout Procedures" for submitting final Project closeout documentation.

1.3 SUBMITTALS

- A. Subcontractor's List: Within 48 hours of the Award of Contract, submit to the Architect for review and approval, a list of all Subcontractors proposed for use on the Project.
 - 1. Approval of Subcontractors: Owner and Architect reserve the right to reject any Subcontractor if they deem the Subcontractor to be unqualified to perform the Work as specified.
 - 2. Use of Subcontractors: Once Subcontractors are approved, the Contractor shall make no substitutions unless any proposed substitution is submitted in writing to the Architect and approval is obtained from the Architect.
- B. Submittals Schedule: Within 7 days of the Award of Contract, Submit 2 copies of schedule. Arrange the following information in a tabular format:
 - 1. Scheduled date for first submittal.
 - 2. Specification Section number and title.
 - 3. Submittal category (action or informational).
 - 4. Name of subcontractor.
 - 5. Description of the Work covered.
- C. Contractor's Construction Schedule: Within 14 days of the Award of Contract, submit three printed copies of initial schedule, large enough to show entire schedule for entire construction

VIOLET BANK MUSEUM PHASE II – EXTERIOR RESTORATION

period. Schedule shall be in the form of a horizontal bar chart clearly indicating activities, time schedule and project milestones.

1. Activity report: List of all activities required for the project separated by different trades known.
2. Time Schedule: Indicate starting date and completion date in bar form with identification of date milestones. Allow for float time to compensate for potential delays in the Work. Indicate dates for Substantial Completion and Final Completion allowing for project closeout procedures specified.

1.4 QUALITY ASSURANCE

- A. Prescheduling Conference: Conduct conference at Project site to comply with requirements in Division 1, Section "Project Management and Coordination." Review methods and procedures related to Contractor's Construction Schedule.

1.5 COORDINATION

- A. Coordinate Contractor's Construction Schedule with the Schedule of Values, list of subcontracts, Submittals Schedule, progress reports, payment requests, and other required schedules and reports.
 1. Secure time commitments for performing critical elements of the Work from parties involved
 2. Coordinate each construction activity in the network with other activities and schedule them in proper sequence.

PART 2 - PRODUCTS

2.1 SUBMITTALS SCHEDULE

- A. Preparation: Submit a schedule of submittals required by individual Sections of the Specifications in the Project Manual, arranged in chronological order by dates required by construction schedule and identified by the applicable Section of the Specifications. Include time required for review, resubmittal, ordering, manufacturing, fabrication, and delivery when establishing dates.
 1. Coordinate Submittals Schedule with list of subcontracts, the Schedule of Values, and Contractor's Construction Schedule.

2.2 CONTRACTOR'S CONSTRUCTION SCHEDULE

- A. Activities: Treat each story or separate area as a separate numbered activity for each principal element of the Work. Comply with the following:
 1. Submittal Review Time: Include review and resubmittal times indicated in Division 01 Section "Submittal Procedures" in schedule. Coordinate submittal review times in Contractor's Construction Schedule with Submittals Schedule.

**VIOLET BANK MUSEUM
PHASE II – EXTERIOR RESTORATION**

2. Procurement Activities: include procurement process activities for long lead items and major items, requiring a cycles of more than 60 days, as separate activities in schedule. Procurement cycles activities include but are not limited to, submittals, approvals, purchasing, fabrication and delivery.
 3. 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.
- B. 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.
- C. Milestones: Include milestones indicated in the Contract Documents in schedule, including, but not limited to, the Notice to Proceed, Substantial Completion, and Final Completion.
- D. Extend schedule from date established for commencement of the Work to date of Substantial Completion, and Final Completion, allowing for project clout procedures specified.

PART 3 - EXECUTION

3.1 CONTRACTOR'S CONSTRUCTION SCHEDULE

- A. Contractor's Construction Schedule Updating: Revise schedule and resubmit to Architect if scheduled project completion is changed by delays or other circumstances.

END OF SECTION 013200

**VIOLET BANK MUSEUM
PHASE II – EXTERIOR RESTORATION**

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. This Section includes administrative and procedural requirements for the following:
 - 1. Preconstruction photographs.
 - 2. Periodic construction photographs.
 - 3. Final Completion construction photographs.
- B. Related Sections include the following:
 - 1. Division 01 Section "Submittal Procedures" for submitting photographic documentation.
 - 2. Division 01 Section "Closeout Procedures" for submitting photographic negatives and digital media as Project Record Documents at Project closeout.

1.3 SUBMITTALS

- A. Key Plan: Submit key plan of Project site and building with notation of anticipated vantage points marked for location and direction of each photograph. Include same label information as corresponding set of photographs
- B. Construction Photographs: Submit 1 print of each photographic view within 7 days of taking photographs.
 - 1. Format: Digital file.
 - 2. Identification: Provide the following information:
 - a. Name of Project.
 - b. Name of photographer.
 - c. Date photograph was taken.
 - d. Description of vantage point, indicating location and direction.
 - e. Unique sequential identifier.

1.4 USAGE RIGHTS

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

**VIOLET BANK MUSEUM
PHASE II – EXTERIOR RESTORATION**

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 and Time: Include date and time in filename for each image.
- C. Preconstruction Photographs: Before commencement of selective removals take color, digital photographs of Project site and surrounding properties, including existing items to remain during construction, from different vantage points.
 - 1. Take additional photographs as required to record settlement or cracking of adjacent structures, pavements, and improvements.
- D. Periodic Construction Photographs: Take 12 color, digital photographs weekly, with timing each month adjusted to coincide with the cutoff date associated with each Application for Payment. Select vantage points to show status of construction and progress since last photographs were taken.
- E. Final Completion Construction Photographs: Take 12 color photographs after date of Substantial Completion for submission as Project Record Documents. Use same vantage points as listed in E above.

END OF SECTION 013233

**VIOLET BANK MUSEUM
PHASE II – EXTERIOR RESTORATION**

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. This Section includes administrative and procedural requirements for submitting Shop Drawings, Product Data, Samples, and other submittals.
- B. Related Sections include the following:
 - 1. Division 01 Section "Payment Procedures" for submitting Applications for Payment and the Schedule of Values.
 - 2. Division 01 Section "Project Management and Coordination" for submitting Coordination Drawings and for mock-up requirements.
 - 3. Division 01 Section "Construction Progress Documentation" for submitting schedules, photographs and reports, including Contractor's Construction Schedule and the Submittals Schedule.
 - 4. Division 01 Section "Closeout Procedures" for submitting warranties.
 - 5. Divisions 02 through 31 Sections for specific requirements for submittals in those Sections.

1.3 DEFINITIONS

- A. Action Submittals: Written and graphic information that requires Architect's responsive action.
- B. Informational Submittals: Written information that does not require Architect's responsive action. Submittals may be rejected for not complying with requirements.

1.4 SUBMITTAL PROCEDURES

- A. General: Electronic copies of CAD Drawings of the Contract Drawings will be provided by Architect for Contractor's use in preparing submittals.
- 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. 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.

**VIOLET BANK MUSEUM
PHASE II – EXTERIOR RESTORATION**

- a. Architect reserves the right to withhold action on a submittal requiring coordination with other submittals until related submittals are received.
- C. Submittals Schedule: Comply with requirements in Division 01 Section "Construction Progress Documentation" for list of submittals and time requirements for scheduled performance of related construction activities.
- D. Processing Time: Allow enough time for submittal review, including time for resubmittals, as follows. Time for review shall commence on Architect's receipt of submittal.
 - 1. Initial Review: Allow 10 working 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. Intermediate Review: If intermediate submittal is necessary, process it in same manner as initial submittal.
 - 3. Resubmittal Review: Allow 10 working days for review of each resubmittal.
 - 4. Sequential Review: Where sequential review of submittals by Architect's consultants, Owner, or other parties is indicated, allow 15 working days for initial review of each submittal.
 - 5. No extension of the Contract Time will be authorized because of failure to transmit submittals enough in advance of the Work to permit processing.
- E. Deviations: Highlight or otherwise specifically identify deviations from the Contract Documents on submittals.
 - 1. The Contractor shall be responsible for replacing or correcting, at no additional cost, all work that may be subsequently rejected by the Architect for non-conformance due to such work containing deviations or omissions from the original requirements of the Contract Documents, and which was not specifically identified in advance by the Contractor on submittals.
- F. Identification: Place a permanent label or title block on each submittal for identification.
 - 1. Indicate name of firm or entity that prepared each submittal on label or title block.
 - 2. Include the following information on label for processing and recording action taken:
 - a. Project name.
 - b. Date.
 - c. Name and address of Architect
 - d. Name and address of Subcontractor.
 - e. Name and address of supplier.
 - f. Name of manufacturer.
 - g. Number and title of appropriate Specification Section.
 - h. Drawing number and detail references, as appropriate.
 - i. Other necessary identification.
- G. Additional Copies: Unless additional copies are required for final submittal, and unless Architect observes noncompliance with provisions in the Contract Documents, initial submittal may serve as final submittal.
 - 1. Additional copies submitted for maintenance manuals will not be marked with action taken and will be returned.

**VIOLET BANK MUSEUM
PHASE II – EXTERIOR RESTORATION**

- H. Transmittal: Package each submittal individually and appropriately for transmittal and handling. Transmit each submittal using a transmittal form. Architect will return submittals without review, received from sources other than Contractor.
 - 1. On transmittal or an attached separate sheet, prepared on Contractor's letterhead, record relevant information, requests for data, revisions other than those requested by Architect on previous submittals, and deviations from requirements in the Contract Documents, including minor variations and limitations. Include same label information as related submittal.
 - 2. Transmittal Form: Provide locations on the form for the following information:
 - a. Project name.
 - b. Date.
 - c. Destination (To:).
 - d. Source (From:)
 - e. Names of Subcontractor, manufacturer and supplier
 - f. Category and type of submittal.
 - g. Submittal purpose and description.
 - h. Submittal and transmittal distribution record.
 - i. Remarks.
 - j. Signature of transmitter.
- I. Resubmittals: Make resubmittals in same form and number of copies as initial submittal noting date and content of previous submittal and noting revision. Resubmit submittals until they are marked "no exception taken."
- J. Distribution: Furnish copies of final submittals to manufacturers, subcontractors, suppliers, fabricators, installers, authorities having jurisdiction, and others as necessary for performance of construction activities. Show distribution on transmittal forms.
- K. Use for Construction: Use only final submittals with mark indicating "no exception taken" action stamp taken by Architect.

PART 2 - PRODUCTS

2.1 ACTION SUBMITTALS

- A. General: Prepare and submit Action Submittals required by individual Specification Sections.
 - 1. Number of Copies: Submit copies of each submittal, as follows, unless otherwise indicated:
 - a. Submittal: Submit one digital copy. Retain a returned copy as a Project Record Document.
- 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 printed 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:

VIOLET BANK MUSEUM
PHASE II – EXTERIOR RESTORATION

- a. Manufacturer's written recommendations.
 - b. Manufacturer's product specifications.
 - c. Manufacturer's installation instructions.
 - d. Standard color charts.
 - e. Manufacturer's catalog cuts.
 - f. Compliance with specified referenced standards.
 - g. Testing by recognized testing agency.
 - h. Application of testing agency labels and seals.
 - i. Notation of coordination requirements.
- C. Shop Drawings: Prepare Project-specific information, drawn accurately to scale. Do not base Shop Drawings on reproductions of the Contract Documents or standard printed data.
 - 1. Preparation: Include the following information, as applicable:
 - a. Dimensions.
 - b. Identification of products.
 - c. Fabrication and installation drawings.
 - d. Shop work manufacturing instructions.
 - e. Templates and patterns.
 - f. Schedules.
 - g. Design calculations.
 - h. Compliance with specified standards.
 - i. Notation of coordination requirements.
 - j. Notation of dimensions established by field measurement.
 - k. Wiring Diagrams: Differentiate between manufacturer-installed and field-installed wiring.
- D. Samples: Prepare physical units of materials or products, including the following:
 - 1. 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.
 - 2. Samples for Verification: Submit full-size units or Samples of size indicated, prepared from same material to be used for the Work, cured and finished in manner specified, and physically identical with material or product proposed for use, and that show full range of color and texture variations expected. Samples include, but are not limited to, the following: partial sections of manufactured or fabricated components; small cuts or containers of materials; complete units of repetitively used materials; swatches showing color, texture, and pattern; color range sets; and components used for independent testing and inspection.
 - 3. Preparation: Mount, display or package Samples in manner specified to facilitate review of qualities indicated. Prepare Samples to match Architect's sample where so indicated. Attach label on unexposed side that includes the following:
 - a. Generic description of Sample.
 - b. Product name or name of manufacturer.
 - c. Sample source.
 - 4. Submit Samples for review of kind, color, pattern and texture for a final check of these characteristics with other elements and for a comparison of these characteristics between final submittal and actual component as delivered and installed.
 - a. Refer to individual Specification Sections for requirements for Samples that illustrate workmanship, fabrication techniques, details of assembly, connections, operation and similar construction characteristics.

**VIOLET BANK MUSEUM
PHASE II – EXTERIOR RESTORATION**

5. Number of Samples for Initial Selection: Submit one full set 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.
 6. Number of Samples for Verification: Submit two sets of Samples. Architect will retain one Sample set; remainder will be returned. Mark up and retain one returned Sample set as a Project Record Sample.
 - a. Submit a single Sample where assembly details, workmanship, fabrication techniques, connections and other similar characteristics are to be demonstrated.
 7. 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.
- E. Contractor's Construction Schedule: Comply with requirements specified in Division 01 Section "Construction Progress Documentation" for Construction Manager's action.
- F. Submittals Schedule: Comply with requirements specified in Division 01 Section "Construction Progress Documentation."
- G. Application for Payment: Comply with requirements specified in Division 01 Section "Payment Procedures."
- H. Schedule of Values: Comply with requirements specified in Division 01 Section "Payment Procedures."
- I. 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.

2.2 INFORMATIONAL SUBMITTALS

- A. General: Prepare and submit Informational Submittals required by other Specification Sections.
1. Number of Copies: Submit one copy of each submittal, unless otherwise indicated.
 2. Certificates and Certifications: 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.
- B. Contractor's Construction Schedule: Comply with requirements specified in Division 01 Section "Construction Progress Documentation."
- C. Qualification Data: Prepare written information that demonstrates capabilities and experience of firm or person. Include lists of completed projects with project names and addresses, names and addresses of architects and owners, and other information specified.
- D. Installer Certificates: Prepare 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.

**VIOLET BANK MUSEUM
PHASE II – EXTERIOR RESTORATION**

- E. Manufacturer Certificates: Prepare written statements on manufacturer's letterhead certifying that manufacturer complies with requirements in the Contract Documents. Include evidence of manufacturing experience where required.
- F. Product Certificates: Prepare written statements on manufacturer's letterhead certifying that product complies with requirements in the Contract Documents.
- G. Material Certificates: Prepare written statements on manufacturer's letterhead certifying that material complies with requirements in the Contract Documents.
- H. Material Test Reports: Prepare 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.
- I. Product Test Reports: Prepare written reports indicating 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.
- J. Field Test Reports: Prepare reports written by a qualified testing agency, on testing agency's standard form, 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.
- K. Maintenance Data: Prepare written and graphic instructions and procedures for operation and normal maintenance of products and equipment. Comply with requirements specified in Division 01 Section "Operation and Maintenance Data."
- L. Manufacturer's Instructions: Prepare written or published information that documents manufacturer's recommendations, guidelines, and procedures for installing or operating a product or equipment. Include name of product and name, address, and telephone number of manufacturer. Include the following, as applicable:
 - 1. Preparation of substrates.
 - 2. Required substrate tolerances.
 - 3. Sequence of installation or erection.
 - 4. Required installation tolerances.
 - 5. Required adjustments.
 - 6. Recommendations for cleaning and protection.
- M. Manufacturer's Field Reports: Prepare written information documenting factory-authorized service representative's tests and inspections. Include the following, as applicable:
 - 1. Name, address, and telephone number of factory-authorized service representative making report.
 - 2. Statement on condition of substrates and their acceptability for installation of product.
 - 3. Statement that products at Project site comply with requirements.
 - 4. Summary of installation procedures being followed, whether they comply with requirements and, if not, what corrective action was taken.
 - 5. Results of operational and other tests and a statement of whether observed performance complies with requirements.
 - 6. Statement whether conditions, products, and installation will affect warranty.
 - 7. Other required items indicated in individual Specification Sections.

**VIOLET BANK MUSEUM
PHASE II – EXTERIOR RESTORATION**

- N. Insurance Certificates and Bonds: Prepare written information indicating current status of insurance or bonding coverage. Include name of entity covered by insurance or bond, limits of coverage, amounts of deductibles, if any, and term of the coverage.
- O. Construction Photographs: Comply with requirements specified in Division 01 Section "Photographic Documentation."

PART 3 - EXECUTION

3.1 CONTRACTOR'S REVIEW

- A. 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. 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. General: Architect will not review submittals that do not bear Contractor's approval stamp and will return them without action.
- B. Action Submittals: Architect will review each submittal, make marks to indicate corrections or modifications required, and return it. Architect will stamp each submittal with an action stamp and will mark stamp appropriately to indicate action taken, as follows:
- C. Informational Submittals: Architect will review each submittal and will not return it, or will return it if it does not comply with requirements. Architect will forward each submittal to appropriate party.
- D. Partial submittals are not acceptable, will be considered nonresponsive, and will be returned without review.
- E. Submittals not required by the Contract Documents may not be reviewed and may be discarded.

END OF SECTION 013300

**VIOLET BANK MUSEUM
PHASE II – EXTERIOR RESTORATION**

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. This Section includes requirements for temporary utilities, support facilities, and security and protection facilities.
- B. Temporary utilities include, but are not limited to, the following:
 - 1. Water service and distribution.
 - 2. Sanitary facilities.
 - 3. Ventilation.
 - 4. Electric power service
 - 5. Lighting.
 - 6. Internet Service
- C. Support Facilities include, but are not limited to, the following:
 - 1. Dewatering facilities and drains.
 - 2. Waste disposal facilities.
 - 3. Lifts and hoists.
 - 4. Construction aids and miscellaneous services and facilities.
- D. Security and protection facilities include, but are not limited to, the following:
 - 1. Environmental protection.
 - 2. Storm water control.
 - 3. Tree and plan protection.
 - 4. Barricades, warning signs and lights.
 - 5. Temporary enclosures.
 - 6. Fire protection.
 - 7. Security protection.
- E. Related Sections include the following:
 - 1. Division 01 Section "Summary" for limitations on utility interruptions and other work.
 - 2. Division 01 Section "Submittal Procedures" for procedures for submitting copies of implementation and termination schedule and utility reports.
 - 3. All other applicable Sections in this specification for temporary heat, ventilation and humidity requirements for products in those Sections.
- F. Permanent Enclosure: As determined by Architect, permanent or temporary roofing is complete, insulated, and weathertight; exterior walls are insulated and weathertight; and all openings are closed with permanent construction or substantial temporary closures.

**VIOLET BANK MUSEUM
PHASE II – EXTERIOR RESTORATION**

1.3 USE CHARGES

- A. General: Cost or use charges for temporary facilities shall be paid by the Owner and shall not be included in the Contract Sum.
- B. Water Service: Use water from Owner's existing water system without metering and without payment of use charges.
- C. Electric Power Service: Use electric power if needed for the Work from Owner's existing system without metering and without payment of use charges.

1.4 SUBMITTALS

- A. Site Plan: Show temporary facilities, utility hookups, staging areas, and parking areas for construction personnel.

1.5 QUALITY ASSURANCE

- A. Electric Service: Comply with NECA, NEMA, and UL standards and regulations for temporary electric service. Install service to comply with NFPA 70.

1.6 PROJECT CONDITIONS

- A. Conditions of Use: The following conditions apply to use of temporary services and facilities by all parties engaged in the Work:
 - 1. Keep temporary services and facilities clean and neat.
 - 2. Relocate temporary services and facilities as required by progress of the Work.

PART 2 - PRODUCTS

2.1 MATERIALS

- A. General: Provide new materials. Undamaged, previously used materials in serviceable condition may be used if approved by Architect. Provide materials suitable for use intended.
- B. Tarpaulins: Fire-resistive labeled with flame-spread rating of 15 or less.
- C. Portable Chain-Link Fencing: Minimum 2-inch, 9-gage, galvanized steel, chain-link fabric fencing; minimum 6 feet high with galvanized steel pipe posts; minimum 2-3/8-inch OD line posts and 2-7/8-inch OD corner and pull posts, with 1-5/8-inch OD top and bottom rails. Provide concrete bases for supporting posts.
- D. Water: Potable.

2.2 TEMPORARY FACILITIES

- A. Field Offices, General: Prefabricated or mobile units with serviceable finishes, temperature controls, and foundations adequate for normal loading.

**VIOLET BANK MUSEUM
PHASE II – EXTERIOR RESTORATION**

- B. Common-Use Field Office: Of sufficient size to accommodate needs of construction personnel. Keep office clean and orderly. Furnish and equip offices as needed.

2.3 EQUIPMENT

- A. General: Provide equipment suitable for use intended.
- B. Fire Extinguishers: Portable, UL rated; with class and extinguishing agent as required by locations and classes of fire exposures.
 - 1. Comply with NFPA 10 and NFPA 241 for classification, extinguishing agent and size required by location and class of fire exposure.
- C. Electrical Outlets: Properly configured, NEMA-polarized outlets to prevent insertion of 110 to 120V plugs into higher-voltage outlets; equipped with ground-fault circuit interrupters, reset button and pilot light.
- D. Power Distribution System Circuits: Where permitted and overhead and exposed for surveillance, wiring circuits, not exceeding 125-V ac, 20-A rating and lighting circuits may be nonmetallic sheathed cable.

PART 3 - EXECUTION

3.1 INSTALLATION, GENERAL

- A. Locate facilities where they will serve Project adequately and result in minimum interference with performance of the Work. Relocate and modify facilities as required.
- B. Provide each facility ready for use when needed to avoid delay. Do not remove until facilities are no longer needed or are replaced by authorized use of completed permanent facilities.

3.2 TEMPORARY UTILITY INSTALLATION

- A. Water Service: Use of Owner's existing water service facilities will be permitted, as long as facilities are cleaned and maintained in a condition acceptable to Owner. At Substantial Completion, restore these facilities to condition existing before initial use.
 - 1. Provide rubber hoses as necessary to serve Project site.
- B. Sanitary Facilities: Provide temporary toilets on site in location as approved by the Owner. Comply with authorities having jurisdiction for type, number, location, operation, and maintenance of fixtures and facilities.
- C. Heating: Provide temporary heating 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.
- D. Ventilation and Humidity Control: Provide temporary ventilation required by construction activities for curing or drying of completed installations or for protecting installed construction from adverse effects of high humidity. Select equipment that will not have a harmful effect on

**VIOLET BANK MUSEUM
PHASE II – EXTERIOR RESTORATION**

completed installations or elements being installed. Coordinate ventilation requirements to produce ambient condition required and minimize energy consumption.

- E. Electric Power Service: Use of Owner's existing electric power service will be permitted, as long as equipment is maintained in a condition acceptable to Owner.
 - 1. Connect temporary service to Owner's existing power source, as directed by Owner.
 - 2. Electrical Distribution: Provide receptacle outlets adequate for connection of power tools and equipment.
 - a. Provide waterproof connectors to connect separate lengths of electrical power cords if single lengths will not reach areas where construction activities are in progress. Do not exceed safe length-voltage ratio.
 - b. Provide warning signs at power outlets other than 110 to 120V.
- F. Lighting: Provide temporary lighting with local switching 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.
 - 2. Install lighting for Project identification sign.
 - 3. Provide cable lines with internet access for the following:
 - a. Provide a computer for dedicated e-mail service for facilitating communication with Architect.
 - 4. Post a list of important telephone numbers on the job site.
 - a. Police and fire departments.
 - b. Ambulance service.
 - c. Contractor's home office.
 - d. Architect's office.
 - e. Engineers' offices.
 - f. Owner's office.
 - g. Principal subcontractors' field and home offices.
 - 5. Provide superintendent with cellular telephone and voicemail for use in making and receiving telephone calls in field office and when away from field office.

3.3 SUPPORT FACILITIES INSTALLATION

- A. General: Comply with the following:
 - 1. Locate field office, storage enclosures and other temporary construction and support facilities for easy access in locations indicated or as approved by the Owner.
 - 2. Maintain support facilities until near Substantial Completion. Remove before Substantial Completion. Personnel remaining after Substantial Completion will be permitted to use permanent facilities, under conditions acceptable to Owner.
- B. Temporary Roads and Paved Areas: Construct and maintain temporary roads and paved areas adequate for construction operations. Locate temporary roads and paved areas.

VIOLET BANK MUSEUM
PHASE II – EXTERIOR RESTORATION

1. Provide dust-control treatment that is non-polluting and non-tracking. Reapply treatment as required to minimize dust.
- C. Traffic Controls: Comply with requirements of authorities having jurisdiction.
 1. Protect existing site improvements to remain including curbs, pavement, and utilities.
 2. Maintain access for fire-fighting equipment and access to fire hydrants.
- D. Parking: Use designated areas of Owner's existing parking areas for construction personnel.
- E. Dewatering Facilities and Drains: Comply with requirements of authorities having jurisdiction. Maintain Project site, excavations, and construction free of water.
 1. Dispose of rainwater in a lawful manner that will not result in flooding Project or adjoining properties nor endanger permanent Work or temporary facilities.
 2. Before connection and operation of permanent drainage piping system, provide temporary drainage where roofing or similar waterproof deck construction is completed.
- F. Project Identification and Temporary Signs: Provide Project identification as specified by Owner and install other signs as required. Install signs where indicated to inform public and individuals seeking entrance to Project. Unauthorized signs are not permitted.
 1. Provide temporary, directional signs for construction personnel and visitors.
 2. Maintain and touchup signs so they are legible at all times.
- G. Waste Disposal Facilities: Provide waste-collection containers in sizes adequate to handle waste from construction operations. Comply with requirements of authorities having jurisdiction.
- H. Lifts and Hoists: Provide facilities necessary for hoisting materials and personnel.
 1. Truck cranes and similar devices used for hoisting materials are considered "tools and equipment" and not temporary facilities.

3.4 SECURITY AND PROTECTION FACILITIES INSTALLATION

- A. Environmental Protection: Provide protection, operate temporary facilities, and conduct construction in ways and by methods that comply with environmental regulations and that minimize possible air, waterway, and subsoil contamination or pollution or other undesirable effects.
- B. Temporary Erosion and Sedimentation Control: Provide measures to prevent soil erosion and discharge of soil-bearing water runoff and airborne dust to adjacent properties and walkways, according to requirements of authorities having jurisdiction.
- C. Storm water Control: Comply with authorities having jurisdiction. Provide barriers in and around excavations and sub-grade construction to prevent flooding by runoff of storm water from heavy rains.
- D. Site Enclosure Fence: Before construction operations begin, furnish and install site enclosure fence in a manner that will prevent people and animals from easily entering site except by entrance gates.

VIOLET BANK MUSEUM
PHASE II – EXTERIOR RESTORATION

1. Extent of Fence: As required to enclose entire Project site or portion determined sufficient to accommodate construction operations.
 2. Maintain security by limiting number of keys and restricting distribution to authorized personnel. Provide Owner with one set of keys.
- E. Security Enclosure and Lockup: Install substantial temporary enclosure around partially completed areas of construction. Provide lockable entrances to prevent unauthorized entrance, vandalism, theft, and similar violations of security.
- F. Barricades, Warning Signs, and Lights: Comply with requirements of authorities having jurisdiction for erecting structurally adequate barricades, including warning signs and lighting.
- G. Temporary Enclosures: Provide temporary enclosures for protection of construction, in progress and completed, from exposure, foul weather, other construction operations, and similar activities. Provide temporary weather-tight enclosure for building exterior.
- H. Temporary Partitions/Protection for Adjacent Openings: Provide dustproof partitions to limit dust and dirt migration and to adjacent buildings occupied by Owner from fumes, dust and noise.
- I. Temporary Fire Protection: Install and maintain temporary fire-protection facilities of types needed to protect against reasonably predictable and controllable fire losses. Comply with NFPA 241.
1. Provide fire extinguishers, visible and accessible from space being served, with signage mounted above.
 - a. Field Office: Class A stored-pressure water-type extinguishers.
 - b. Other locations: Class ABC dry-chemical extinguishers or a combination of extinguishers of NPFA- recommended classes for exposures.
 - c. Locate fire extinguishers where convenient and effective for their intended purpose; provide not less than one extinguisher on each area of construction.
 2. Store combustible materials in containers in fire-safe locations.
 3. Maintain unobstructed access to fire extinguishers, fire hydrants, temporary fire protection facilities and other access routes for firefighting.
 4. Prohibit smoking in construction areas.
 5. Supervise welding operations, combustion-type temporary heating units, and similar sources of fire ignition according to requirements of authorities having jurisdiction.
 6. Develop and supervise an overall fire-prevention and -protection program for personnel at Project site. Review needs with local fire department and establish procedures to be followed. Instruct personnel in methods and procedures. Post warnings and information.

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.
1. Maintain operation of temporary enclosures, heating, cooling, humidity control, ventilation, and similar facilities on a 24-hour basis where required to achieve indicated results and to avoid possibility of damage.

**VIOLET BANK MUSEUM
PHASE II – EXTERIOR RESTORATION**

- C. Operate Project-identification-sign lighting daily from dusk until 12:00 midnight.
- D. Temporary Facility Changeover: Do not change over from using temporary security and protection facilities to permanent facilities until Substantial Completion.
- E. 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. Remove temporary paving not intended for or acceptable for integration into permanent paving. Where area is intended for landscape development, remove soil and aggregate fill that do not comply with requirements for fill or subsoil.
 - 3. Repair or replace street paving, curbs, and sidewalks at temporary entrances, as required by authorities having jurisdiction.
 - 4. At Substantial Completion, clean and renovate permanent facilities used during construction period. Comply with final cleaning requirements specified in Division 01 Section "Closeout Procedures."

END OF SECTION 015000

**VIOLET BANK MUSEUM
PHASE II – EXTERIOR RESTORATION**

SECTION 016000 - PRODUCT 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. This Section includes administrative and procedural requirements for selection of products for use in Project; product delivery, storage, and handling; manufacturers' standard warranties on products; special warranties; product substitutions; and comparable products.
- B. Related Sections include the following:
 - 1. Division 01 Section "Closeout Procedures" for submitting warranties for Contract closeout.

1.3 DEFINITIONS

- A. Products: Items purchased for incorporating into the Work, whether purchased for Project or taken from previously purchased stock. The term "product" includes the terms "material," "equipment," "system," and terms of similar intent.
 - 1. Named Products: Items identified by manufacturer's product name, including make or model number or other designation shown or listed in manufacturer's published product literature, that is current as of date of the Contract Documents.
 - 2. New Products: Items that have not previously been incorporated into another project or facility.
 - 3. Comparable Product: Product that is demonstrated and approved through submittal process, or where indicated as a product substitution, to have the indicated qualities related to type, function, dimension, in-service performance, physical properties, appearance, and other characteristics that equal or exceed those of specified product.
- B. Substitutions: Changes in products, materials, equipment, and methods of construction from those required by the Contract Documents and proposed by Contractor.
- C. Basis-of-Design Product Specification: Where a specific manufacturer's product is named and accompanied by the words "basis of design," including make or model number or other designation, to establish the significant qualities related to type, function, dimension, in-service performance, physical properties, appearance, and other characteristics for purposes of evaluating comparable products of other named manufacturers.
- D. Manufacturer's Warranty: Preprinted written warranty published by individual manufacturer for a particular product and specifically endorsed by manufacturer to Owner.

VIOLET BANK MUSEUM
PHASE II – EXTERIOR RESTORATION

- E. Special Warranty: Written warranty required by or incorporated into the Contract Documents, either to extend time limit provided by manufacturer's warranty or to provide more rights for Owner.

1.4 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. Documentation: Show compliance with requirements for substitutions and the following, as applicable:
 - a. Coordination information, including a list of changes or modifications needed to other parts of the Work and to construction performed by Owner and separate contractors, that will be necessary to accommodate proposed substitution.
 - b. Detailed comparison of significant qualities of proposed substitution with those of the Work specified. Significant qualities may include attributes such as performance, weight, size, durability, visual effect, and specific features and requirements indicated.
 - c. Product Data, including drawings and descriptions of products and fabrication and installation procedures.
 - d. Samples, where applicable or requested.
 - e. List of similar installations for completed projects with project names and addresses and names and addresses of architects and owners.
 - f. Material test reports from a qualified testing agency indicating and interpreting test results for compliance with requirements indicated.
 - g. Research/evaluation reports evidencing compliance with building code in effect for Project, from a model code organization acceptable to authorities having jurisdiction.
 - h. Cost information, including a proposal of change, if any, in the Contract Sum.
 - i. Contractor's certification that proposed substitution complies with requirements in the Contract Documents and is appropriate for applications indicated.
 - 2. Architect's Action: If necessary, Architect will request additional information or documentation for evaluation within 14 working days of receipt of a request for substitution. Architect will notify Contractor of acceptance or rejection of proposed substitution within 14 working days of receipt of request, or 14 working days of receipt of additional information or documentation, whichever is later.
- B. Basis-of-Design Product Specification Submittal: Comply with requirements in Division 01 Section "Submittal Procedures." Show compliance with requirements.

1.5 QUALITY ASSURANCE

- A. Compatibility of Options: If Contractor is given option of selecting between two or more products for use on Project, product selected shall be compatible with products previously selected, even if previously selected products were also options.
 - 1. Each contractor is responsible for providing products and construction methods compatible with products and construction methods of other contractors.
 - 2. If a dispute arises between contractors over concurrently selectable but incompatible products, Architect will determine which products shall be used.

**VIOLET BANK MUSEUM
PHASE II – EXTERIOR RESTORATION**

1.6 PRODUCT DELIVERY, STORAGE, AND HANDLING

- A. Deliver, store, and handle products using means and methods that will prevent damage, deterioration, and loss, including theft. Comply with manufacturer's written instructions.
- B. Delivery and Handling:
 - 1. Schedule delivery to minimize long-term storage at Project site and to prevent overcrowding of construction spaces.
 - 2. Coordinate delivery with installation time to ensure minimum holding time for items that are flammable, hazardous, easily damaged, or sensitive to deterioration, theft, and other losses.
 - 3. Deliver products to Project site in an undamaged condition in manufacturer's original sealed container or other packaging system, complete with labels and instructions for handling, storing, unpacking, protecting, and installing.
 - 4. Inspect products on delivery to ensure compliance with the Contract Documents and to ensure that products are undamaged and properly protected.
 - 5. Store products to allow for inspection and measurement of quantity or counting of units.
 - 6. Store materials in a manner that will not endanger Project structure.
 - 7. Store products that are subject to damage by the elements, under cover in a weathertight enclosure above ground, with ventilation adequate to prevent condensation.
 - 8. Store cementitious products and materials on elevated platforms.
 - 9. Comply with product manufacturer's written instructions for temperature, humidity, ventilation, and weather-protection requirements for storage.
 - 10. Protect stored products from damage and liquids from freezing.
- C. Storage: Provide a secure location and enclosure at Project site for storage of materials and equipment by Owner's construction forces. Coordinate location with Owner.

1.7 PRODUCT WARRANTIES

- A. Warranties specified in other Sections shall be in addition to, and run concurrent with, other warranties required by the Contract Documents. Manufacturer's disclaimers and limitations on product warranties do not relieve Contractor of obligations under requirements of the Contract Documents.
 - 1. Special Warranty: Written warranty required by or incorporated into the Contract Documents, either to extend time limit provided by manufacturer's warranty or to provide more rights for Owner.
- B. Special Warranties: Prepare a written document that contains appropriate terms and identification, ready for execution. Submit a draft for approval before final execution.
 - 1. Manufacturer's Standard Form: Modified to include Project-specific information and properly executed.
 - 2. Specified Form: When specified forms are included with the Specifications, prepare a written document using appropriate form properly executed.
 - 3. Refer to Divisions 02 through 49 Sections for specific content requirements and particular requirements for submitting special warranties.
- C. Submittal Time: Comply with requirements in Division 01 Section "Closeout Procedures."

**VIOLET BANK MUSEUM
PHASE II – EXTERIOR RESTORATION**

PART 2 - PRODUCTS

2.1 PRODUCT SELECTION PROCEDURES

- A. General Product Requirements: Provide products that comply with the Contract Documents, that are undamaged and, unless otherwise indicated, that are new at time of installation.
1. Provide products complete with accessories, trim, finish, fasteners, and other items needed for a complete installation and indicated use and effect.
 2. Standard Products: If available, and unless custom products or nonstandard options are specified, provide standard products of types that have been produced and used successfully in similar situations on other projects.
 3. Owner reserves the right to limit selection to products with warranties not in conflict with requirements of the Contract Documents.
 4. Where products are accompanied by the term "as selected," Architect will make selection.
 5. Where products are accompanied by the term "match sample," sample to be matched is Architect's.
 6. Descriptive, performance, and reference standard requirements in the Specifications establish "salient characteristics" of products.
 7. Or Equivalent: Where products are specified by name and accompanied by the term "or equal" or "or approved equal" or "or approved," comply with provisions in Part 2 "Comparable Products" Article to obtain approval for use of an unnamed product.
- B. Product Selection Procedures:
1. Product: Where Specifications name a single product and manufacturer, provide the named product that complies with requirements.
 2. Manufacturer/Source: Where Specifications name a single manufacturer or source, provide a product by the named manufacturer or source that complies with requirements.
 3. Products: Where Specifications include a list of names of both products and manufacturers, provide one of the products listed that complies with requirements.
 4. Manufacturers: Where Specifications include a list of manufacturers' names, provide a product by one of the manufacturers listed that complies with requirements.
 - a. Substitutions may be considered, unless otherwise indicated.
 5. Available Products: Where Specifications include a list of names of both products and manufacturers, provide one of the products listed, or an unnamed product, that complies with requirements. Comply with provisions in Part 2 "Comparable Products" Article for consideration of an unnamed product.
 6. Available Manufacturers: Where Specifications include a list of manufacturers, provide a product by one of the manufacturers listed, or an unnamed manufacturer, that complies with requirements. Comply with provisions in Part 2 "Comparable Products" Article for consideration of an unnamed product.
 7. Product Options: Where Specifications indicate that sizes, profiles, and dimensional requirements on Drawings are based on a specific product or system, provide the specified product or system. Comply with provisions in Part 2 "Product Substitutions" Article for consideration of an unnamed product or system.
 8. Basis-of-Design Products: Where Specifications name a product and include a list of manufacturers, provide the specified product or a comparable product by one of the other named manufacturers. Drawings and Specifications indicate sizes, profiles, dimensions, and other characteristics that are based on the product named. Comply with provisions in Part 2 "Comparable Products" Article for consideration of an unnamed product by the other named manufacturers.

**VIOLET BANK MUSEUM
PHASE II – EXTERIOR RESTORATION**

- a. Substitutions may be considered, unless otherwise indicated.
- 9. Visual Matching Specification: Where Specifications require matching an established Sample, select a product that complies with requirements and matches Architect's sample. Architect's decision will be final on whether a proposed product matches.
 - a. If no product available within specified category matches and complies with other specified requirements, comply with provisions in Part 2 "Product Substitutions" Article for proposal of product.
- 10. Visual Selection Specification: Where Specifications require matching an established Sample, select a product (and manufacturer) that complies with requirements and matches Architect's sample. Architect's decision will be final on whether a proposed product matches satisfactorily.
 - a. Standard Range: Where Specifications include the phrase "standard range of colors, patterns, textures" or similar phrase, Architect will select color, pattern or texture from manufacturer's product line that does not include premium items.

2.2 PRODUCT SUBSTITUTIONS

- A. Timing: Architect will consider requests for substitution if received within 60 days after the Notice of Award. Requests received after that time may be considered or rejected at discretion of Architect.
- B. 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:
 - 1. Requested substitution offers Owner a substantial advantage in cost, time, energy conservation, or other considerations, after deducting additional responsibilities Owner must assume. Owner's additional responsibilities may include compensation to Architect for redesign and evaluation services, increased cost of other construction by Owner, and similar considerations.
 - 2. Requested substitution does not require extensive revisions to the Contract Documents.
 - 3. Requested substitution is consistent with the Contract Documents and will produce indicated results.
 - 4. Substitution request is fully documented and properly submitted.
 - 5. Requested substitution will not adversely affect Contractor's Construction Schedule.
 - 6. Requested substitution has received necessary approvals of authorities having jurisdiction.
 - 7. Requested substitution is compatible with other portions of the Work.
 - 8. Requested substitution has been coordinated with other portions of the Work.
 - 9. Requested substitution provides specified warranty.

PART 3 - EXECUTION (Not Used)

END OF SECTION 016000

**VIOLET BANK MUSEUM
PHASE II – EXTERIOR RESTORATION**

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. This Section includes administrative and procedural requirements for contract closeout, including, but not limited to, the following:
 - 1. Inspection procedures.
 - 2. Project Record Documents.
 - 3. Warranties.
 - 4. Final cleaning.
- B. Related Sections include the following:
 - 1. Division 01 Section "Payment Procedures" for requirements for Applications for Payment for Substantial and Final Completion.
 - 2. Division 01 Section "Photographic Documentation" for submitting Final Completion construction photographs and negatives.
 - 3. Divisions 02 through 31 Sections for specific closeout and special cleaning requirements for the Work in those Sections.

1.3 SUBSTANTIAL COMPLETION

- A. Preliminary Procedures: Before requesting inspection for determining date of Substantial Completion, complete the following. List items below that are incomplete in request.
 - 1. Prepare a list of items to be completed and corrected (punch list), the value of items on the list, and reasons why the Work is not complete.
 - 2. Advise Owner of pending insurance changeover requirements.
 - 3. Submit specific warranties, workmanship bonds, maintenance service agreements, final certifications, and similar documents.
 - 4. Obtain and submit releases permitting Owner unrestricted use of the Work and access to services and utilities. Include occupancy permits, operating certificates, and similar releases.
 - 5. Prepare and submit Project Record Documents, operation and maintenance manuals, Final Completion construction photographs damage or settlement surveys, property surveys, and similar final record information.
 - 6. Complete startup testing of electrical system.
 - 7. Submit test/adjust/balance records.
 - 8. Terminate and remove temporary facilities from Project site, along with mockups, construction tools, and similar elements.
 - 9. Advise Owner of changeover in heat and other utilities.

VIOLET BANK MUSEUM
PHASE II – EXTERIOR RESTORATION

10. Submit changeover information related to Owner's occupancy, use, operation, and maintenance.
11. Complete final cleaning requirements, including touchup painting.
12. Touch up and otherwise repair and restore marred exposed finishes to eliminate visual defects.

B. Inspection: Submit a written request for inspection for Substantial Completion. 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.

1.4 FINAL COMPLETION

A. Preliminary Procedures: Before requesting final inspection for determining date of Final Completion, complete the following:

1. Submit a final Application for Payment according to Division 01 Section "Payment Procedures."
2. Submit certified copy of Architect's Substantial Completion inspection list of items to be completed or corrected (punch list), endorsed and dated by Architect. The certified copy of the list shall state that each item has been completed or otherwise resolved for acceptance.

B. Inspection: Submit a written request for final inspection for acceptance. 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.

1.5 LIST OF INCOMPLETE ITEMS (PUNCH LIST)

A. Preparation: Submit three copies 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.
2. Organize items applying to each space by major element, including categories for ceiling, individual walls, floors, equipment, and building systems.

1.6 PROJECT RECORD DOCUMENTS

A. General: Do not use Project Record Documents for construction purposes. Protect Project Record Documents from deterioration and loss. Provide access to Project Record Documents for Architect's review.

**VIOLET BANK MUSEUM
PHASE II – EXTERIOR RESTORATION**

- B. Record Drawings: Maintain and submit one set of blue or black line white prints of Contract Drawings and Shop Drawings for locating new underground sewer lines and structures to be provided under the Contract.
 - 1. 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 prepare the marked-up Record Prints.
 - a. Give particular attention to information on concealed elements that cannot be readily identified and recorded later.
 - b. Accurately record information in an understandable drawing technique.
 - c. Record data as soon as possible after obtaining it. Record and check the markup before enclosing concealed installations.
 - d. Mark Contract Drawings or Shop Drawings, whichever is most capable of showing actual physical conditions, completely and accurately. Where shop Drawings are marked, show cross-reference on Contract Drawings.
 - 2. Mark record sets with erasable, red-colored pencil. Use other colors to distinguish between changes for different categories of the Work at the same location.
 - 3. Identify and date each Record Drawing; include the designation "PROJECT RECORD DRAWING" in a prominent location.
- C. Miscellaneous Record Submittals: 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.

1.7 WARRANTIES

- A. Submittal Time: 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.
- B. Partial Occupancy: Submit properly executed warranties within 15 days of completion of designated portions of the Work that are completed and occupied or used by Owner during construction period by separate agreement with Contractor.
- C. Organize warranty documents into an orderly sequence based on the table of contents of the Project Manual.

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.

**VIOLET BANK MUSEUM
PHASE II – EXTERIOR RESTORATION**

PART 3 - EXECUTION

3.1 FINAL CLEANING

- A. General: Provide 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 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. Rake grounds that are neither planted nor paved to a smooth, even-textured surface.
 - d. Remove tools, construction equipment, machinery, and surplus material from Project site.
 - e. Touch up and otherwise repair and restore marred, exposed finishes and surfaces. Replace finishes and surfaces that cannot be satisfactorily repaired or restored or that already show evidence of repair or restoration.
 - 1) Do not paint over "UL" and similar labels, including mechanical and electrical nameplates,
 - f. Clean light fixtures, lamps, globes, and reflectors to function with full efficiency. Replace burned-out bulbs, and those noticeably dimmed by hours of use.
 - g. Leave Project clean and ready for occupancy.
- C. Comply with safety standards for cleaning. Do not burn waste materials. Do not bury debris or excess materials on Owner's property. Do not discharge volatile, harmful, or dangerous materials into drainage systems. Remove waste materials from Project site and dispose of lawfully.

END OF SECTION 017700

**VIOLET BANK MUSEUM
PHASE II – EXTERIOR RESTORATION**

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. This Section includes administrative and procedural requirements for Project Record Documents, including the following:
 - 1. Record Drawings.
 - 2. Record Specifications.
 - 3. Record Product Data.
- B. Related Sections include the following:
 - 1. Division 01 Section "Closeout Procedures" for general closeout procedures.
 - 2. Divisions 02 through 31 Sections for specific requirements for Project Record Documents of the Work in those Sections.

1.3 SUBMITTALS

- A. Record Drawings: Comply with the following:
 - 1. Number of Copies: Submit one set of marked-up Record Prints.
 - 2. Number of Copies: Submit copies of Record Drawings as follows:
- B. Record Specifications: Submit one copy of Project's Specifications, including addenda and contract modifications.
- C. Record Product Data: Submit one copy of each Product Data submittal.
 - 1. Where Record Product Data is required as part of operation and maintenance manuals, submit marked-up Product Data as an insert in manual instead of submittal as Record Product Data.

PART 2 - PRODUCTS

2.1 RECORD DRAWINGS

- A. Record Prints: Maintain one set of blue- or black-line white prints of the Contract Drawings and Shop Drawings.

VIOLET BANK MUSEUM
PHASE II – EXTERIOR RESTORATION

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 prepare the 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 understandable drawing technique.
 - c. Record data as soon as possible after obtaining it. Record and check the markup before enclosing concealed installations.
 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. Depths of foundations.
 - d. Locations and depths of underground utilities.
 - e. Revisions to routing of piping and conduits.
 - f. Revisions to electrical circuitry.
 - g. Locations of concealed internal utilities.
 - h. Changes made by Change Order or Construction Change Directive.
 - i. Changes made following Architect's written orders.
 - j. Details not on the original Contract Drawings.
 - k. Field records for variable and concealed conditions.
 - l. Record information on the Work that is shown only schematically.
 3. Mark the Contract Drawings or Shop Drawings, whichever is most capable of showing actual physical conditions, completely and accurately. If Shop Drawings are marked, show cross-reference on the Contract Drawings.
 4. Mark record sets with erasable, red-colored pencil. 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. 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.

2.2 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.

**VIOLET BANK MUSEUM
PHASE II – EXTERIOR RESTORATION**

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.

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.

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.

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 modifications to Project Record Documents as they occur; do not wait until the end of Project.
- B. Maintenance of Record Documents and Samples: Store Record Documents and Samples in the field office 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

**VIOLET BANK MUSEUM
PHASE II – EXTERIOR RESTORATION**

SECTION 022230 – LEAD-BASED PAINT REMEDIATION

PART 1 – GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General Conditions and other Division 01 Specification Sections apply to this Section.
- B. The Project site contains materials painted with Lead Based Paint (LBP) and Lead Containing Paint (LCP). This project is not a lead abatement project, however, all regulation as to worker and building occupant health and safety shall be enforced. No final clearance sampling will be conducted as part of this project.

1.2 SUMMARY

- A. This Section includes the following:
 - 1. Lead-Based paint removal at locations of existing wood removals and alterations.
- C. Related Sections include the following:
 - 1. Division 02 Section "Selective Removals".
 - 2. Division 09 Section "Exterior Painting".

1.3 SUMMARY OF LEAD-BASED PAINT DISTURBANCE

- A. This section applies to all construction work where an employee may be occupationally exposed to lead. Construction work is defined as work for construction, alteration and/or repair, including painting and decorating. It includes but is not limited to the following:
 - 1. Salvaging and reinstallation of materials containing lead.
 - 2. New construction, alteration, repair, or renovation of structures, substrates, or portions thereof, that contain lead, or materials containing lead.
 - 3. Transportation, disposal, storage, or containment of lead or materials containing lead on the site or location at which construction activities are performed, and
 - 4. Maintenance operations associated with the construction activities described above.
- B. All painted surfaces disturbed should be treated as lead containing and therefore must follow compliance with OSHA Lead in Construction Standard, 29 CFR 1926.62. The employer of construction workers is responsible for the development and implementation of a worker protection program in accordance with 29 CFR 1926.20 and 29 CFR 1926.62(e). At a minimum, the following elements should be included in the employer's worker protection program for employees exposed to lead:
 - 1. Hazard determination, including exposure assessments
 - 2. Engineering and work practice control
 - 3. Respiratory protection
 - 4. Housekeeping
 - 5. Hygiene facilities and practices
 - 6. Medical surveillance and provisions for medical removal
 - 7. Training as specified in 29 CFR 1926.62
 - 8. Warning Signs

**VIOLET BANK MUSEUM
PHASE II – EXTERIOR RESTORATION**

- C. The Contractor is responsible for providing adequate protection for the staff and public during the course of the Work. Areas that require temporary closure are to be coordinated with the Owner.

1.4 WASTE DISPOSAL

- A. Lead-Based Paint debris resulting from renovations to the building must be transported and disposed of in accordance with applicable RCRA Subtitle C guidelines and Toxic Substance Control Act (TSCA) Title IV regulations.

END OF SECTION 022230

**VIOLET BANK MUSEUM
PHASE II – EXTERIOR RESTORATION**

SECTION 024119 - SELECTIVE REMOVALS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General Conditions and other Division 01 Specification Sections, apply to this Section.
- B. For removal of hazardous materials refer to Specifications Section 022230 Lead-Based Paint Remediation.

1.2 SUMMARY

- A. Violet Bank Museum is listed on the National Register of Historic Places. All work performed on the building shall be undertaken with the utmost care and with the understanding that all materials and components of the building may possess contributing and character defining value to the historic nature of the structure. No work shall be performed without explicit direction in the construction documents or otherwise written instruction by the Owner or Owners Representatives. If conditions are encountered that are not identified in the Construction Documents or where conflicting information is indicated in the documents, the contractor shall request instructions or clarification from the Owner prior to proceeding with work.
- B. The contractor shall be responsible for keeping the building weather tight for the duration of the construction and shall be responsible for all repairs of any and all damage to the building due to water infiltration during construction to the satisfaction of the Owner. The contractor shall document existing conditions prior to commencement of work.
- C. This Section includes the following:
 - 1. Removal of selected portions of building or structure.
 - 2. Salvage of existing items, and items to be reused.

1.3 DEFINITIONS

- A. Remove: Detach items from existing construction and legally dispose of them off-site, unless indicated to be removed and salvaged or removed and reinstalled.
- B. Remove and Salvage: Detach items from existing construction and deliver them to Owner.
- C. Remove and Reinstall: Detach items from existing construction, prepare them for reuse, and reinstall them where indicated.
- D. Existing to Remain: Existing items of construction that are not to be removed and that are not otherwise indicated to be removed, removed and salvaged, or removed and reinstalled.

**VIOLET BANK MUSEUM
PHASE II – EXTERIOR RESTORATION**

1.4 MATERIAL OWNERSHIP

- A. Historic items, relics, and similar objects and items of interest or value to Owner that may be encountered during selective demolition remain Owner's property. Carefully remove and salvage each item or object in a manner to prevent damage and deliver promptly to Owner. Such materials include, but are not limited to the following:
 - 1. All fasteners.
 - 2. All unanticipated elements that are uncovered during selective removals should be identified and offered to the owner prior to disposal.

1.5 SUBMITTALS

- A. Pre-removal Photographs: Show existing conditions of adjoining construction and site improvements, including finish surfaces that might be misconstrued as damage caused by selective demolition operations. Submit required photographs before Work begins.
- B. Submit a written plan identifying the extent and procedures for selective removals and the methods of disposal of all elements to be removed. Identify all materials suspected of containing asbestos and provide a sequencing plan for removal and disposal of this material.

1.6 QUALITY ASSURANCE

- A. Removal Firm Qualifications: An experienced firm that has specialized in removal work similar in material and extent to that indicated for this Project.
- B. Regulatory Requirements: Comply with governing EPA notification regulations before beginning selective demolition. Comply with hauling and disposal regulations of authorities having jurisdiction.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

- A. Regulatory Requirements: Comply with governing EPA notification regulations before beginning selective demolition. Comply with hauling and disposal regulations of authorities having jurisdiction.
- B. Standards: Comply with ASSE A10.6 and NFPA 241.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Survey existing conditions and correlate with requirements indicated to determine extent of selective removals required.
- B. Survey of Existing Conditions: Record existing conditions by use of preconstruction photographs.

**VIOLET BANK MUSEUM
PHASE II – EXTERIOR RESTORATION**

1. Before selective removal of existing building elements that will be reproduced or duplicated in final Work, make permanent record of measurements, materials, and construction details required to make exact reproduction. Submit to Architect before proceeding with removals.
- C. Perform surveys as the Work progresses to detect hazards resulting from selective removal activities.

3.2 PREPARATION

- A. Site Access and Temporary Controls: Conduct selective removals and debris-removal operations to ensure minimum interference with roads, streets, walks, walkways, and other adjacent occupied and used facilities.
- B. Temporary Facilities: Provide temporary barricades and other protection required to prevent injury to people and damage to adjacent building surfaces.
 1. Provide protection to ensure safe passage of people around selective removal areas.
 2. Protect roofs, windows, walls, ceilings, floors, and other existing work that are to remain or that are exposed during selective removal operations.
- C. Temporary Shoring: Design, provide, and maintain shoring, bracing, and structural supports as required to preserve stability and prevent movement, settlement, or collapse of construction and finishes to remain, and to prevent unexpected or uncontrolled movement or collapse of construction being demolished. Shoring shall comply with O.S.H.A. regulations.
 1. Strengthen or add new supports when required during progress of selective demolition.

3.3 SELECTIVE REMOVAL, GENERAL

- A. General: Demolish and remove existing construction only to the extent required by new construction and as indicated. Use methods required to complete the Work within limitations of governing regulations and as follows:
 1. Neatly cut openings and holes plumb, square, and true to dimensions required. Use cutting methods least likely to damage construction to remain or adjoining construction. Use hand tools or small power tools designed for sawing or grinding, not hammering and chopping, to minimize disturbance of adjacent surfaces. Temporarily cover openings to remain.
 2. Cut or drill from the exposed or finished side into concealed surfaces to avoid marring existing finished surfaces.
 3. The use of any cutting torches and/or open flame equipment is strictly prohibited. Maintain portable fire-suppression devices and provide fire watch during and after all hand tool cutting and drilling removal operations. Maintain fire-protection facilities in service during the entire length of the project construction work.
 4. Remove decayed, vermin-infested, or otherwise dangerous or unsuitable materials and promptly dispose of off-site.
 5. Locate selective removal equipment and removed debris and materials so as not to impose excessive loads on supporting walls, floors, or framing.
 6. Dispose of removed items and materials promptly.
- B. Removed and Salvaged Items:
 1. Clean salvaged items.

**VIOLET BANK MUSEUM
PHASE II – EXTERIOR RESTORATION**

2. Pack or crate items after cleaning. Identify contents of containers.
3. Store items in a secure area until delivery to Owner.
4. Transport items to Owner's storage area designated by Owner.
5. Protect items from damage during transport and storage.

C. Removed and Reinstalled Items:

1. Clean and repair items to functional condition adequate for intended reuse.
2. Pack or crate items after cleaning and repairing. Identify contents of containers.
3. Protect items from damage during transport and storage.
4. Reinstall items in locations indicated. Comply with installation requirements for new materials and equipment. Provide connections, supports, and miscellaneous materials necessary to make item functional for use indicated.

D. Existing Items to Remain: Protect construction indicated to remain against damage and soiling during selective removals. When permitted by Architect, items may be removed to a suitable, protected storage location during selective removals and reinstalled in their original locations after selective removal operations are complete.

E. Historic fabric that shall be carefully removed and salvaged includes, but is not limited to:

1. Wood trim
2. Nails
3. Wood Timber Framing

3.4 DISPOSAL OF REMOVED MATERIALS

A. General: Except for items or materials indicated to be reused, salvaged, reinstalled, or otherwise indicated to remain Owner's property, remove materials from Project site and legally dispose of them in an EPA-approved landfill.

1. Do not allow removed materials to accumulate on-site.
2. Remove and transport debris in a manner that will prevent spillage on adjacent surfaces and areas.
3. Remove debris from elevated portions of building by chute, hoist, or other device that will convey debris to grade level in a controlled descent.

B. Disposal: Do not burn removed materials. Transport removed materials off Owner's property and legally dispose of them.

3.5 CLEANING

A. Clean adjacent structures and improvements of dust, dirt, and debris caused by selective removal operations. Return adjacent areas to condition existing before selective removal operations began.

END OF SECTION 024119

**VIOLET BANK MUSEUM
PHASE II – EXTERIOR RESTORATION**

SECTION 040140 – BRICK MASONRY REPOINTING

PART 1 – GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. The Work of this Section includes all labor, materials, equipment, and services necessary to complete the work of masonry restoration as shown on the Drawings and/or as specified herein and as may be required by conditions and authorities having jurisdiction, including, but not necessarily limited to, the following:
 - 1. Preparing and repointing mortar joints in brick masonry.

1.3 DEFINITIONS

- A. Pointing:
 - 1. Repointing: The process of cutting out deteriorated mortar joints in masonry walls to a uniform depth and filling in those joints with fresh mortar or filling backpointed joints with fresh mortar.
 - 2. Backpointing: Deep pointing of deteriorated mortar joints to uniform depth; backpointed joints are subsequently tuckpointed.
- B. Cold Weather Brick Masonry Restoration: Work of this Section when temperature is below 40 deg F or predicted by the National Weather Service to go below 40 deg F within 48 hours of use of mortar.
- C. Hot Weather Brick Masonry Restoration: Work of this Section when temperature is above 100 deg F or when temperature is above 90 deg F and wind is above 8 mpg or when either of these conditions is predicted by the National Weather Service within 48 hours of use of mortar.

1.4 SUBMITTALS

- A. General: Submit the following in compliance with the requirements of the Contract Documents. Revise and resubmit each item as required to obtain Architect's approval.
- B. Product Data: Manufacturer's published technical data for each type of product indicated. Include recommendations for application and use and Safety Data Sheets (SDS sheets). Include test data substantiating that products comply with requirements.
- C. Mock-Ups: Prepare mock-ups as described in Article "Mock-Ups," below.

1.5 QUALITY CONTROL

**VIOLET BANK MUSEUM
PHASE II – EXTERIOR RESTORATION**

- A. Restoration Firm Qualifications: The contractor shall provide sufficient work force to complete the Work within project schedule without delay. Listing of all sub-contractors and their experience on previous projects that are similar in size, scope, and complexity shall be submitted to the Owner and Architect for approval prior to the commencement of the Work.
1. Field Supervision: The contractor shall maintain experienced full-time supervisors on Project site during times that stone restoration and cleaning are in progress. Supervisors shall not be changed during Project except for causes beyond control of restoration specialist firm.
 2. Restoration Worker Qualifications: Persons who are experienced and specialize in restoration work of types they will be performing.
 - a. The contractor shall be required to submit a complete list of worker's names who will be assigned to this Project, along with a detailed description of their individual responsibilities. All workers shall be required to demonstrate their experience and capability to perform their assigned work task to the satisfaction of the Owner and Architect before commencing work. Only prior approved workers shall be permitted to perform work on the building for the duration of the project.
- B. Documentation of Existing Conditions: Document conditions of masonry indicated to be restored before beginning restoration with photographs showing overall units and with additional detail photographs showing areas of damage and deterioration to be repaired if such areas are not clearly visible and understandable in the overall photographs of the project. Key detailed photographs to overall photographs and to drawings. Clearly show all existing conditions, including conditions that might be misconstrued as damage resulting from work of this Section.
1. Images: Clear, sharp, color images with minimum resolution of 5"X7" @ 300 DPI, JPEG images on portable USB drive or secure access cloud storage system.
- C. Referenced Standards: Comply with applicable requirements and recommendations of the latest editions of the referenced standards listed herein, except as modified by more stringent requirements of the Contract Documents and of applicable laws, codes, and regulations. In each case in which there is conflict between requirements of referenced standards; requirements of laws, codes, and regulations; and requirements of this Section, the most stringent or restrictive requirement shall govern.
1. ASTM International (ASTM)
 - a. ASTM A 276, Standard Specification for Stainless Steel Bars and Shapes.
 - b. ASTM C 62, Standard Specification for Building Brick (Solid Masonry Units Made From Clay).
 - c. ASTM C 216, Standard Specification for Facing Brick.
 - d. ASTM C 1713, Standard Specification for Mortars for the Repair of Historic Masonry.
- D. Source Limitations: Obtain each type of material for restoration from one source with resources to provide materials of consistent quality in appearance and physical properties.
- E. Preconstruction Meeting:
1. Review areas of repair that will be identified in submittals above on site with Owner and Architect.
- F. Access for Observation and Approvals: Provide Architect access on a continuing basis to locations on which mock-ups are being carried out, on which work is ongoing, and where work has been completed to allow for observation and approvals.
- G. Field Logs: Mason's shall maintain a daily field log indicating:

**VIOLET BANK MUSEUM
PHASE II – EXTERIOR RESTORATION**

1. Temperature, At start of workday and end of workday
2. Relative humidity, At start of workday and end of workday
3. Weather Conditions including types of precipitation.
4. Any changes to mortar process identified under Restoration Program, including changes to mortar mix ratios or temperatures.
5. Any unanticipated conditions encountered in existing brick wall.

1.6 MOCK-UPS

- A. General: Before beginning general masonry restoration, prepare mock-ups to provide standards for work of this Section. Mockups shall demonstrate aesthetic effects and qualities of materials and execution. Do not proceed with masonry restoration until Architect has approved mock-ups in writing.
1. Locate mock-ups as directed by Architect.
 2. Notify Architect 48 hours prior to start of each mock-up.
 3. Architect will monitor mock-ups. Mock-ups not performed in presence of Architect will be rejected.
 4. Use crew that will perform the work and follow requirements of this Section.
 5. Repeat mock-ups as necessary to obtain Architect's approval.
 6. Allow mock-ups with mortar and other products containing cements to dry for one week to allow natural color to return and problems to appear. Notify Architect when mock-ups are ready for inspection.
 7. Protect approved mock-ups to ensure that they are without damage, deterioration, or alteration at time of Substantial Completion.
 8. Approved mock-ups in undamaged condition at time of Substantial Completion may be incorporated into the Work.
 9. Approved mock-ups will represent minimum standards for masonry restoration and cleaning work. Subsequent masonry restoration that does not meet standards of approved mock-ups will be rejected.
- B. Prepare the Following Mock-Ups
1. Pointing Joints in Brick Masonry: One location, 6 sq. ft.

1.7 DELIVERY, STORAGE, AND HANDLING

- A. Deliver materials to Project site in manufacturer's original and unopened containers, labeled with manufacturer's name and type of products.
- B. Discard and remove from site deteriorated materials, contaminated materials, and products that have exceeded their expiration dates. Replace with fresh materials.

1.8 ENVIRONMENTAL REQUIREMENTS

- A. General
1. Manufacturer's Recommendations: Perform work only when temperature of products being used, temperatures of existing and new materials and surfaces, and temperature and humidity of air at Project site comply with manufacturer's requirements and recommendations.

**VIOLET BANK MUSEUM
PHASE II – EXTERIOR RESTORATION**

2. Requirements of Referenced Standard: Perform work of this Section in compliance with the requirements and recommendations of Brick Industry Association (BIA) Technical Notes 1, *Cold and Hot Weather Construction*, June, 2018.
3. Conflicting Requirements: In each case in which there is a conflict between manufacturer's recommendations, recommendations of referenced standards, and other requirements specified in this Section, the most stringent and restrictive requirement shall govern.

B. Restoration Work:

1. Repoint mortar joints only when air temperature is between 40 and 90 deg. F and is predicted by the National Weather Service to remain so for at least seven (7) days after completion of Work.
2. Protect fresh mortar when temperature, humidity, and wind conditions result in rapid drying of mortar. Provide and maintain tarps against wind, direct sun, and rain for specified minimum periods.
 - a. Cementitious Materials: Protect for a minimum of 72 hours.

1.9 SEQUENCING AND SCHEDULING

- A. Order materials at earliest possible date, to avoid delaying completion of the Work.
- B. Perform masonry restoration work in the following sequence:
 1. Evaluate condition of existing surfaces. Notify Owner, Architect and General Contractor if quantities required are different than quantities scheduled.
 2. Submit product submittals to Architect and acquire approval prior to commencing Work.
 3. Provide site and building barriers and protections.
 4. Provide mockups and acquire approval prior to commencing Work.
 5. Rake out mortar to depth of 2 to 2-1/2 times the width of the joint or to sound mortar; remove mortar from all remaining joints designated to be repointed.
 6. After removing mortar from joints and surface of brick, re-assess condition of brick with Architect to determine extent of bricks requiring repair and replacement.
 7. Wherever possible, remove and reinstall deteriorated and damaged masonry by flipping units over and using the back side as the newly exposed side.
 8. Repair existing brick surfaces and edges with restoration patching methods approved under mock-ups.
 9. Replace deteriorated and damaged masonry work with new brick where existing units are too damaged to be reused.
 10. Re-point all masonry joints.
 11. Final cleaning of site contract limit area and staging area, including removals of any free standing mock-ups.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Available Manufacturers and Products: Products that may be incorporated into the Work are named herein. Use of manufacturer's product designating material, system, and texture and colors is not intended to limit use of equivalent products from other manufacturers. In addition to being subject to compliance with requirements, any proposed substitution shall match named

BRICK MASONRY REPOINTING

**VIOLET BANK MUSEUM
PHASE II – EXTERIOR RESTORATION**

products for type and appearance of named manufacturer's product including selected texture and colors of materials. Failure to meet such functional and visual requirements, as evaluated by the Architect, shall be sufficient reason for rejection.

2.2 BRICK

- A. Salvaged Face Brick: Sound, whole, salvaged brick cleaned free of mortar, grout, dirt, and other contaminants. Brick that has been salvaged from another building that matches existing face brick in size, color, surface texture and reflectance, and weatherability.

2.3 PAINT REMOVERS

- A. Paint Remover: Manufacturer's standard low-odor, water-rinseable, formulation, for removing paint from masonry; containing no methanol or methylene chloride.
 - 1. Subject to compliance with requirements, available products that may be incorporated in the Work include, but are not limited to, the following:
 - a. Prosoco Enviro Klean SafStrip 8.

2.4 MORTAR MATERIALS

- A. Portland Cement: ASTM C150/C150M, Type I or II, except Type III may be used for cold-weather construction. Gray cement may be used where pigmentation is not required.
- B. Water: Clean and free of substances that might adversely affect mortar, masonry, and embedded elements.

2.5 MORTAR MIXES

- A. Measurement and Mixing: Measure cementitious materials and sand in a dry condition by volume or equivalent weight. Do not measure by shovel; use known measure. Mix materials in a clean, mechanical batch mixer.
 - 1. Mixing Pointing Mortar: Thoroughly mix cementitious materials and sand together before adding any water. Then mix again, adding only enough water to produce a damp, unworkable mix that retains its form when pressed into a ball. Maintain mortar in this dampened condition for 15 to 30 minutes. Add remaining water in small portions until mortar reaches desired consistency. Use mortar within one hour of final mixing; do not retemper or use partially hardened material.

2.6 TOOLS FOR JOINT PREPARATION

- A. Hand Tools: Chisels, hammers, and mallets.
 - 1. Thickness of Chisels: Maximum thickness of 5/8 times joint width extending from tip at least three times depth at which chisel will be inserted into joint.

**VIOLET BANK MUSEUM
PHASE II – EXTERIOR RESTORATION**

- B. Power Tools: Not allowed, typically, unless method has been explicitly approved under the Restoration Program and Sample Mock-up Area. Air Hammers will be allowed if approved under sample mockup area for use by an individual craftsman.
- C. Tools for Preparation of Joints Containing Sealant: Small wire bristle brushes, metal scrapers, small grinders, low-pressure, airborne, micro-abrasive blasting equipment, or other tools and equipment for removing remains of sealant and sealant residue from joint as described in approved Work Description.
- D. Brushes for Removing Dust and Dirt from Joints: Stiff, natural- or synthetic-fiber bristle brushes. No metal bristle brushes are acceptable.

2.7 MISCELLANEOUS RESTORATION MATERIALS AND EQUIPMENT

- A. Brushes for Removing Dirt and Debris from Joints, Cracks and Losses: Stiff natural, nylon, or fiber bristle brushes. No metal bristle brushes are permitted.
- B. Tape for Protecting Masonry Surfaces: Masking tape or other approved tape that will protect masonry surface from contact with repair materials being used and that can be applied to and removed completely from masonry surface without damaging, deteriorating, or altering the appearance of the masonry surface.
- C. Pointing Trowels: Long, thin pointing trowels narrower than joints being pointed.
 - 1. Custom fabricate special trowels for masonry pointing if necessary to ensure proper insertion and optimum compaction of mortar.
- D. Scrapers for Removing Mortar: Wood scrapers with rounded corners.

PART 3 - EXECUTION

3.1 PROTECTION

- A. Protect persons, motor vehicles, surrounding surfaces of building being restored, building site, plants, and surrounding buildings from harm resulting from masonry restoration work.
- B. Exclusion of Water: Cover open joints and areas from which sections of masonry, masonry units, and/or portions of units have been removed during periods when work is suspended to ensure materials and finishes are not damaged by water penetration.
- C. Prevent mortar from staining face of surrounding masonry and other surfaces.
 - 1. Mask all masonry adjacent to mortar joints in areas of repointing to prevent masonry from being stained by new mortar.
 - 2. Cover sills, ledges, and projections to protect from mortar droppings.
 - 3. Keep wall area wet below rebuilding and pointing work to discourage mortar from adhering.
 - 4. Immediately remove mortar in contact with exposed masonry and other surfaces.
 - 5. Clean mortar splatters from scaffolding at end of each day.

**VIOLET BANK MUSEUM
PHASE II – EXTERIOR RESTORATION**

3.2 DOCUMENTATION OF MASONRY TO BE RESTORED

- A. General: Document areas of masonry to be restored as specified in “Quality Assurance” Article, above.

3.3 POINTING BRICK MASONRY

- A. Power tools are permitted through the center of horizontal joints only. Stop short of any intersecting joints. Maintain joint width and do not overgrind. Prevent overcutting of the joint.
- B. Do not rake out and repoint joints where not indicated unless directed by Architect.
- C. Testing of both hand and power tool joint preparation performed in accordance with the procedures specified herein will be conducted as part of the Project work of this Section. The samples will represent the standard for all repointing to be performed by this Contract.
- D. Rake out joints as follows:
 - 1. Remove mortar from joints to minimum depth 3/4 inch, to 2-1/2 times the width of the joint, or to sound mortar, whichever is deepest using a combination of approved hand and power tools.
 - 2. Remove mortar from masonry surfaces within raked-out joints to provide reveals with square backs and to expose stone for contact with pointing mortar. Brush, vacuum, or flush joints to remove dirt and loose debris.
 - 3. Do not spall edges of masonry units or widen joints. Do not use power tools on vertical joints or on joints less than or equal to 1/8 in width.
 - a. Strictly adhere to written quality-control program. Quality-control program includes provisions for demonstrating ability of operators to use tools without damaging masonry, supervising performance, and preventing damage due to worker fatigue.
 - b. Cease joint preparation work if, in Architect's judgment, masonry units are damaged by methods being used to prepare joints. Do not resume work until tools, workers, and methodology have been corrected to ensure that masonry units are not damaged and that work meets standard set by approved mock-up.
- E. Notify Architect of unforeseen detrimental conditions including voids in mortar joints, cracks, corroded metal, and other deteriorated items.
- F. Point joints as follows:
 - 1. Rinse masonry joint surfaces with water to remove dust and mortar particles. Time rinsing to coincide with pointing; joint surfaces must be damp but free of standing water. If rinse water dries, dampen masonry joint surfaces before pointing. At time of masonry pointing, surfaces shall be damp, so that they do not rapidly absorb moisture, but free of standing water (saturated, surface dry).
 - a. Failure to Properly Wet Substrate: Evidence that masonry to be pointed has not been properly dampened to prevent water in the mortar from being too rapidly absorbed by the masonry will be cause for Architect to reject pointing work. Remove rejected pointing, properly prepare joints for pointing, and provide new mortar to meet requirements of this Section at no additional cost to Owner.
 - 2. Deep point by applying pointing mortar first to areas where existing mortar was removed to depths greater than 1 inch. Apply in layers not greater than 1/4 to 3/8 inch until a uniform depth is formed. Fully compact each layer thoroughly and allow it to become thumbprint hard before applying next layer.
 - 3. After deep pointing required areas to same depth as remaining joints, point all joints by placing mortar in layers not greater than 1/4 to 3/8 inch. Fully compact each layer and

BRICK MASONRY REPOINTING

**VIOLET BANK MUSEUM
PHASE II – EXTERIOR RESTORATION**

- allow to become thumbprint hard before applying next layer. Where existing masonry has worn or rounded edges, slightly recess finished mortar surface below face of masonry to avoid widened joint faces. Take care not to spread mortar over edges onto exposed masonry surfaces or to feather edge mortar.
4. When mortar is thumbprint hard, tool joints to match original or existing adjacent joints and approved mock-ups. Solidly compress mortar so that it adheres well to masonry on both sides and forms a dense surface. Premature or late tooling will result in unacceptable finishes, which will be rejected. Remove excess mortar from edge of joint by brushing.
 - a. Provide joint profile in the brick masonry as approved under mock-up.
 5. When stopping work at end of each day or for other reasons, stagger layers of mortar so that there will be no through joints in mortar inserted into joints. Stagger joints in layers so that they are at least 3 inches from each other.
- G. Cure mortar by maintaining in thoroughly damp condition for at least 72 hours, including weekends and holidays.
1. Acceptable curing methods include covering with wet burlap and plastic sheeting, periodic hand misting, and periodic mist spraying using system of pipes, mist heads, and timers.
 2. Adjust curing methods to ensure that pointing mortar is damp throughout its depth without eroding surface mortar.
 3. Do not apply a direct stream of water to joints for at least 7 days after mortar has been placed.
 4. Ensure masonry temperature remains as required by specifications until mortar is thoroughly cured.
- H. Cleaning and Repairing Mortar Joints
1. Water Washing: Wash pointed masonry with clean filtered water and nonabrasive hand tools to remove mortar debris from masonry surfaces. Do not use chemical cleaners.
 - a. Wash within 72 hours following completion of masonry pointing.
 - b. Use blunt-edged wood scrapers, soft natural bristle brushes, and rough towels along with water to remove mortar debris. Do not use wire brushes or metal scrapers. Do not scratch joint surfaces.
 - c. Stop cleaning masonry unit surfaces free of misapplied mortar if methods and materials used damage pointed joints. Do not resume cleaning masonry free of misapplied mortar until methods and materials have been changed to avoid damaging mortar in joints.
 - d. Do not use acidic or alkaline cleaners.
 2. Repairing Pointed Joints: As cleaning progresses, examine joints to locate cracks, holes, and other defects. Carefully point up and fill such defects with mortar. Where joints are defective in opinion of Architect cut out joints to minimum depth of 3/4 inch or two-and-one-half times joint width, whichever is greater, properly prepare joint substrates, and provide new pointing mortar exercising extreme care to ensure that color matches that of adjacent masonry pointing work. Exposed joint surfaces shall be free from protruding mortar, holes, pits, depressions, and other defects.
- I. Where repointing work precedes cleaning of existing stone, allow mortar to harden at least 30 days before beginning cleaning work.

3.4 FINAL CLEANING

**VIOLET BANK MUSEUM
PHASE II – EXTERIOR RESTORATION**

- A. Rinse adjacent non-masonry surfaces. Use detergent and soft brushes or cloths as required to achieve agreed upon standard.
- B. Sweep and rake adjacent pavement and grounds to remove mortar and debris. Where necessary, pressure wash surfaces to remove mortar, dust, dirt, and stains.
- C. As staging and lift devices are removed, repair any damage to stone and brick work. Patch holes in stone to comply with stone patching procedures of this Section. Patch holes in mortar joints to comply with repointing procedures of this Section.

END OF SECTION 040140

**VIOLET BANK MUSEUM
PHASE II – EXTERIOR RESTORATION**

SECTION 040140 – BRICK MASONRY REPOINTING

PART 1 – GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. The Work of this Section includes all labor, materials, equipment, and services necessary to complete the work of masonry restoration as shown on the Drawings and/or as specified herein and as may be required by conditions and authorities having jurisdiction, including, but not necessarily limited to, the following:
 - 1. Preparing and repointing mortar joints in brick masonry.

1.3 DEFINITIONS

- A. Pointing:
 - 1. Repointing: The process of cutting out deteriorated mortar joints in masonry walls to a uniform depth and filling in those joints with fresh mortar or filling backpointed joints with fresh mortar.
 - 2. Backpointing: Deep pointing of deteriorated mortar joints to uniform depth; backpointed joints are subsequently tuckpointed.
- B. Cold Weather Brick Masonry Restoration: Work of this Section when temperature is below 40 deg F or predicted by the National Weather Service to go below 40 deg F within 48 hours of use of mortar.
- C. Hot Weather Brick Masonry Restoration: Work of this Section when temperature is above 100 deg F or when temperature is above 90 deg F and wind is above 8 mpg or when either of these conditions is predicted by the National Weather Service within 48 hours of use of mortar.

1.4 SUBMITTALS

- A. General: Submit the following in compliance with the requirements of the Contract Documents. Revise and resubmit each item as required to obtain Architect's approval.
- B. Product Data: Manufacturer's published technical data for each type of product indicated. Include recommendations for application and use and Safety Data Sheets (SDS sheets). Include test data substantiating that products comply with requirements.
- C. Mock-Ups: Prepare mock-ups as described in Article "Mock-Ups," below.

1.5 QUALITY CONTROL

**VIOLET BANK MUSEUM
PHASE II – EXTERIOR RESTORATION**

- A. Restoration Firm Qualifications: The contractor shall provide sufficient work force to complete the Work within project schedule without delay. Listing of all sub-contractors and their experience on previous projects that are similar in size, scope, and complexity shall be submitted to the Owner and Architect for approval prior to the commencement of the Work.
1. Field Supervision: The contractor shall maintain experienced full-time supervisors on Project site during times that stone restoration and cleaning are in progress. Supervisors shall not be changed during Project except for causes beyond control of restoration specialist firm.
 2. Restoration Worker Qualifications: Persons who are experienced and specialize in restoration work of types they will be performing.
 - a. The contractor shall be required to submit a complete list of worker's names who will be assigned to this Project, along with a detailed description of their individual responsibilities. All workers shall be required to demonstrate their experience and capability to perform their assigned work task to the satisfaction of the Owner and Architect before commencing work. Only prior approved workers shall be permitted to perform work on the building for the duration of the project.
- B. Documentation of Existing Conditions: Document conditions of masonry indicated to be restored before beginning restoration with photographs showing overall units and with additional detail photographs showing areas of damage and deterioration to be repaired if such areas are not clearly visible and understandable in the overall photographs of the project. Key detailed photographs to overall photographs and to drawings. Clearly show all existing conditions, including conditions that might be misconstrued as damage resulting from work of this Section.
1. Images: Clear, sharp, color images with minimum resolution of 5"X7" @ 300 DPI, JPEG images on portable USB drive or secure access cloud storage system.
- C. Referenced Standards: Comply with applicable requirements and recommendations of the latest editions of the referenced standards listed herein, except as modified by more stringent requirements of the Contract Documents and of applicable laws, codes, and regulations. In each case in which there is conflict between requirements of referenced standards; requirements of laws, codes, and regulations; and requirements of this Section, the most stringent or restrictive requirement shall govern.
1. ASTM International (ASTM)
 - a. ASTM A 276, Standard Specification for Stainless Steel Bars and Shapes.
 - b. ASTM C 62, Standard Specification for Building Brick (Solid Masonry Units Made From Clay or Shale).
 - c. ASTM C 216, Standard Specification for Facing Brick.
 - d. ASTM C 1713, Standard Specification for Mortars for the Repair of Historic Masonry.
- D. Source Limitations: Obtain each type of material for restoration from one source with resources to provide materials of consistent quality in appearance and physical properties.
- E. Preconstruction Meeting:
1. Review areas of repair that will be identified in submittals above on site with Owner and Architect.
- F. Access for Observation and Approvals: Provide Architect access on a continuing basis to locations on which mock-ups are being carried out, on which work is ongoing, and where work has been completed to allow for observation and approvals.
- G. Field Logs: Mason's shall maintain a daily field log indicating:

**VIOLET BANK MUSEUM
PHASE II – EXTERIOR RESTORATION**

1. Temperature, At start of workday and end of workday
2. Relative humidity, At start of workday and end of workday
3. Weather Conditions including types of precipitation.
4. Any changes to mortar process identified under Restoration Program, including changes to mortar mix ratios or temperatures.
5. Any unanticipated conditions encountered in existing brick wall.

1.6 MOCK-UPS

- A. General: Before beginning general masonry restoration, prepare mock-ups to provide standards for work of this Section. Mockups shall demonstrate aesthetic effects and qualities of materials and execution. Do not proceed with masonry restoration until Architect has approved mock-ups in writing.
1. Locate mock-ups as directed by Architect.
 2. Notify Architect 48 hours prior to start of each mock-up.
 3. Architect will monitor mock-ups. Mock-ups not performed in presence of Architect will be rejected.
 4. Use crew that will perform the work and follow requirements of this Section.
 5. Repeat mock-ups as necessary to obtain Architect's approval.
 6. Allow mock-ups with mortar and other products containing cements and/or limes to dry for one week to allow natural color to return and problems to appear. Notify Architect when mock-ups are ready for inspection.
 7. Protect approved mock-ups to ensure that they are without damage, deterioration, or alteration at time of Substantial Completion.
 8. Approved mock-ups in undamaged condition at time of Substantial Completion may be incorporated into the Work.
 9. Approved mock-ups will represent minimum standards for masonry restoration and cleaning work. Subsequent masonry restoration that does not meet standards of approved mock-ups will be rejected.
- B. Prepare the Following Mock-Ups
1. Pointing Joints in Brick Masonry: One location, 6 sq. ft.

1.7 DELIVERY, STORAGE, AND HANDLING

- A. Deliver materials to Project site in manufacturer's original and unopened containers, labeled with manufacturer's name and type of products.
- B. Discard and remove from site deteriorated materials, contaminated materials, and products that have exceeded their expiration dates. Replace with fresh materials.

1.8 ENVIRONMENTAL REQUIREMENTS

- A. General
1. Manufacturer's Recommendations: Perform work only when temperature of products being used, temperatures of existing and new materials and surfaces, and temperature and humidity of air at Project site comply with manufacturer's requirements and recommendations.

**VIOLET BANK MUSEUM
PHASE II – EXTERIOR RESTORATION**

2. Requirements of Referenced Standard: Perform work of this Section in compliance with the requirements and recommendations of Brick Industry Association (BIA) Technical Notes 1, *Cold and Hot Weather Construction*, June, 2018.
3. Conflicting Requirements: In each case in which there is a conflict between manufacturer's recommendations, recommendations of referenced standards, and other requirements specified in this Section, the most stringent and restrictive requirement shall govern.

B. Restoration Work:

1. Repoint mortar joints only when air temperature is between 40 and 90 deg. F and is predicted by the National Weather Service to remain so for at least seven (7) days after completion of Work.
2. Protect fresh mortar when temperature, humidity, and wind conditions result in rapid drying of mortar. Provide and maintain tarps against wind, direct sun, and rain for specified minimum periods.
 - a. Cementitious Materials: Protect for a minimum of 72 hours.
 - b. Natural Hydraulic Limes: Lime putty injections and NHL-2 must be protected from drying for a minimum of two (2) weeks after installation. NHL-3.5 mortars must be protected from drying for a minimum of 72 hours after installation. Provide and maintain burlap or other damp clothes to protect mortars from pre-mature drying.

1.9 SEQUENCING AND SCHEDULING

- A. Order materials at earliest possible date, to avoid delaying completion of the Work.
- B. Perform masonry restoration work in the following sequence:
 1. Evaluate condition of existing surfaces. Notify Owner, Architect and General Contractor if quantities required are different than quantities scheduled.
 2. Submit product submittals to Architect and acquire approval prior to commencing Work.
 3. Provide site and building barriers and protections.
 4. Provide mockups and acquire approval prior to commencing Work.
 5. Rake out mortar to depth of 2 to 2-1/2 times the width of the joint or to sound mortar; remove mortar from all remaining joints designated to be repointed.
 6. After removing mortar from joints and surface of brick, re-assess condition of brick with Architect to determine extent of bricks requiring repair and replacement.
 7. Wherever possible, remove and reinstall deteriorated and damaged masonry by flipping units over and using the back side as the newly exposed side.
 8. Repair existing brick surfaces and edges with restoration patching methods approved under mock-ups.
 9. Replace deteriorated and damaged masonry work with new brick where existing units are too damaged to be reused.
 10. Re-point all masonry joints.
 11. Final cleaning of site contract limit area and staging area, including removals of any free standing mock-ups.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

**VIOLET BANK MUSEUM
PHASE II – EXTERIOR RESTORATION**

- A. Available Manufacturers and Products: Products that may be incorporated into the Work are named herein. Use of manufacturer's product designating material, system, and texture and colors is not intended to limit use of equivalent products from other manufacturers. In addition to being subject to compliance with requirements, any proposed substitution shall match named products for type and appearance of named manufacturer's product including selected texture and colors of materials. Failure to meet such functional and visual requirements, as evaluated by the Architect, shall be sufficient reason for rejection.

2.2 BRICK

- A. Salvaged Face Brick: Sound, whole, salvaged brick cleaned free of mortar, grout, dirt, and other contaminants. Brick that has been salvaged from another building that matches existing face brick in size, color, surface texture and reflectance, and weatherability.

2.3 PAINT REMOVERS

- A. Paint Remover: Manufacturer's standard low-odor, water-rinseable, formulation, for removing paint from masonry; containing no methanol or methylene chloride.
 - 1. Subject to compliance with requirements, available products that may be incorporated in the Work include, but are not limited to, the following:
 - a. Prosoco Enviro Klean SafStrip 8.

2.4 MORTAR MATERIALS

- A. Portland Cement: ASTM C150/C150M, Type I or II, except Type III may be used for cold-weather construction. Gray cement may be used where pigmentation is not required.
- B. Water: Clean and free of substances that might adversely affect mortar, masonry, and embedded elements.

2.5 MORTAR MIXES

- A. Measurement and Mixing: Measure cementitious materials and sand in a dry condition by volume or equivalent weight. Do not measure by shovel; use known measure. Mix materials in a clean, mechanical batch mixer.
 - 1. Mixing Pointing Mortar: Thoroughly mix cementitious materials and sand together before adding any water. Then mix again, adding only enough water to produce a damp, unworkable mix that retains its form when pressed into a ball. Maintain mortar in this dampened condition for 15 to 30 minutes. Add remaining water in small portions until mortar reaches desired consistency. Use mortar within one hour of final mixing; do not retemper or use partially hardened material.

2.6 TOOLS FOR JOINT PREPARATION

- A. Hand Tools: Chisels, hammers, and mallets.

**VIOLET BANK MUSEUM
PHASE II – EXTERIOR RESTORATION**

1. Thickness of Chisels: Maximum thickness of 5/8 times joint width extending from tip at least three times depth at which chisel will be inserted into joint.
- B. Power Tools: Not allowed, typically, unless method has been explicitly approved under the Restoration Program and Sample Mock-up Area. Air Hammers will be allowed if approved under sample mockup area for use by an individual craftsman.
- C. Tools for Preparation of Joints Containing Sealant: Small wire bristle brushes, metal scrapers, small grinders, low-pressure, airborne, micro-abrasive blasting equipment, or other tools and equipment for removing remains of sealant and sealant residue from joint as described in approved Work Description.
- D. Brushes for Removing Dust and Dirt from Joints: Stiff, natural- or synthetic-fiber bristle brushes. No metal bristle brushes are acceptable.

2.7 MISCELLANEOUS RESTORATION MATERIALS AND EQUIPMENT

- A. Brushes for Removing Dirt and Debris from Joints, Cracks and Losses: Stiff natural, nylon, or fiber bristle brushes. No metal bristle brushes are permitted.
- B. Tape for Protecting Masonry Surfaces: Masking tape or other approved tape that will protect masonry surface from contact with repair materials being used and that can be applied to and removed completely from masonry surface without damaging, deteriorating, or altering the appearance of the masonry surface.
- C. Pointing Trowels: Long, thin pointing trowels narrower than joints being pointed.
 1. Custom fabricate special trowels for masonry pointing if necessary to ensure proper insertion and optimum compaction of mortar.
- D. Scrapers for Removing Mortar: Wood scrapers with rounded corners.

PART 3 - EXECUTION

3.1 PROTECTION

- A. Protect persons, motor vehicles, surrounding surfaces of building being restored, building site, plants, and surrounding buildings from harm resulting from masonry restoration work.
- B. Exclusion of Water: Cover open joints and areas from which sections of masonry, masonry units, and/or portions of units have been removed during periods when work is suspended to ensure materials and finishes are not damaged by water penetration.
- C. Prevent mortar from staining face of surrounding masonry and other surfaces.
 1. Mask all masonry adjacent to mortar joints in areas of repointing to prevent masonry from being stained by new mortar.
 2. Cover sills, ledges, and projections to protect from mortar droppings.
 3. Keep wall area wet below rebuilding and pointing work to discourage mortar from adhering.
 4. Immediately remove mortar in contact with exposed masonry and other surfaces.

**VIOLET BANK MUSEUM
PHASE II – EXTERIOR RESTORATION**

5. Clean mortar splatters from scaffolding at end of each day.

3.2 DOCUMENTATION OF MASONRY TO BE RESTORED

- A. General: Document areas of masonry to be restored as specified in “Quality Assurance” Article, above.

3.3 POINTING BRICK MASONRY

- A. Power tools are permitted through the center of horizontal joints only. Stop short of any intersecting joints. Maintain joint width and do not overgrind. Prevent overcutting of the joint.
- B. Do not rake out and repoint joints where not indicated unless directed by Architect.
- C. Testing of both hand and power tool joint preparation performed in accordance with the procedures specified herein will be conducted as part of the Project work of this Section. The samples will represent the standard for all repointing to be performed by this Contract.
- D. Rake out joints as follows:
 1. Remove mortar from joints to minimum depth 3/4 inch, to 2-1/2 times the width of the joint, or to sound mortar, whichever is deepest using a combination of approved hand and power tools.
 2. Remove mortar from masonry surfaces within raked-out joints to provide reveals with square backs and to expose stone for contact with pointing mortar. Brush, vacuum, or flush joints to remove dirt and loose debris.
 3. Do not spall edges of masonry units or widen joints. Do not use power tools on vertical joints or on joints less than or equal to 1/8 in width.
 - a. Strictly adhere to written quality-control program. Quality-control program includes provisions for demonstrating ability of operators to use tools without damaging masonry, supervising performance, and preventing damage due to worker fatigue.
 - b. Cease joint preparation work if, in Architect's judgment, masonry units are damaged by methods being used to prepare joints. Do not resume work until tools, workers, and methodology have been corrected to ensure that masonry units are not damaged and that work meets standard set by approved mock-up.
- E. Notify Architect of unforeseen detrimental conditions including voids in mortar joints, cracks, corroded metal, and other deteriorated items.
- F. Point joints as follows:
 1. Rinse masonry joint surfaces with water to remove dust and mortar particles. Time rinsing to coincide with pointing; joint surfaces must be damp but free of standing water. If rinse water dries, dampen masonry joint surfaces before pointing. At time of masonry pointing, surfaces shall be damp, so that they do not rapidly absorb moisture, but free of standing water (saturated, surface dry).
 - a. Failure to Properly Wet Substrate: Evidence that masonry to be pointed has not been properly dampened to prevent water in the mortar from being too rapidly absorbed by the masonry will be cause for Architect to reject pointing work. Remove rejected pointing, properly prepare joints for pointing, and provide new mortar to meet requirements of this Section at no additional cost to Owner.
 2. Deep point by applying pointing mortar first to areas where existing mortar was removed to depths greater than 1 inch. Apply in layers not greater than 1/4 to 3/8 inch until a

**VIOLET BANK MUSEUM
PHASE II – EXTERIOR RESTORATION**

- uniform depth is formed. Fully compact each layer thoroughly and allow it to become thumbprint hard before applying next layer.
3. After deep pointing required areas to same depth as remaining joints, point all joints by placing mortar in layers not greater than $\frac{1}{4}$ to $\frac{3}{8}$ inch. Fully compact each layer and allow to become thumbprint hard before applying next layer. Where existing masonry has worn or rounded edges, slightly recess finished mortar surface below face of masonry to avoid widened joint faces. Take care not to spread mortar over edges onto exposed masonry surfaces or to featheredge mortar.
 4. When mortar is thumbprint hard, tool joints to match original or existing adjacent joints and approved mock-ups. Solidly compress mortar so that it adheres well to masonry on both sides and forms a dense surface. Premature or late tooling will result in unacceptable finishes, which will be rejected. Remove excess mortar from edge of joint by brushing.
 - a. Provide joint profile in the brick masonry as approved under mock-up.
 5. When stopping work at end of each day or for other reasons, stagger layers of mortar so that there will be no through joints in mortar inserted into joints. Stagger joints in layers so that they are at least 3 inches from each other.
- G. Cure mortar by maintaining in thoroughly damp condition for at least 72 hours, including weekends and holidays.
1. Acceptable curing methods include covering with wet burlap and plastic sheeting, periodic hand misting, and periodic mist spraying using system of pipes, mist heads, and timers.
 2. Adjust curing methods to ensure that pointing mortar is damp throughout its depth without eroding surface mortar.
 3. Do not apply a direct stream of water to joints for at least 7 days after mortar has been placed.
 4. Ensure masonry temperature remains as required by specifications until mortar is thoroughly cured.
- H. Cleaning and Repairing Mortar Joints
1. Water Washing: Wash pointed masonry with clean filtered water and nonabrasive hand tools to remove mortar debris from masonry surfaces. Do not use chemical cleaners.
 - a. Wash within 72 hours following completion of masonry pointing.
 - b. Use blunt-edged wood scrapers, soft natural bristle brushes, and rough towels along with water to remove mortar debris. Do not use wire brushes or metal scrapers. Do not scratch joint surfaces.
 - c. Stop cleaning masonry unit surfaces free of misapplied mortar if methods and materials used damage pointed joints. Do not resume cleaning masonry free of misapplied mortar until methods and materials have been changed to avoid damaging mortar in joints.
 - d. Do not use acidic or alkaline cleaners.
 2. Repairing Pointed Joints: As cleaning progresses, examine joints to locate cracks, holes, and other defects. Carefully point up and fill such defects with mortar. Where joints are defective in opinion of Architect cut out joints to minimum depth of $\frac{3}{4}$ inch or two-and-one-half times joint width, whichever is greater, properly prepare joint substrates, and provide new pointing mortar exercising extreme care to ensure that color matches that of adjacent masonry pointing work. Exposed joint surfaces shall be free from protruding mortar, holes, pits, depressions, and other defects.
- I. Where repointing work precedes cleaning of existing stone, allow mortar to harden at least 30 days before beginning cleaning work.

**VIOLET BANK MUSEUM
PHASE II – EXTERIOR RESTORATION**

3.4 FINAL CLEANING

- A. Rinse adjacent non-masonry surfaces. Use detergent and soft brushes or cloths as required to achieve agreed upon standard.
- B. Sweep and rake adjacent pavement and grounds to remove mortar and debris. Where necessary, pressure wash surfaces to remove mortar, dust, dirt, and stains.
- C. As staging and lift devices are removed, repair any damage to stone and brick work. Patch holes in stone to comply with stone patching procedures of this Section. Patch holes in mortar joints to comply with repointing procedures of this Section.

END OF SECTION 040140

**VIOLET BANK MUSEUM
PHASE II – EXTERIOR RESTORATION**

SECTION 061000 - ROUGH CARPENTRY

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. Rough carpentry includes carpentry work not specified as part of other sections and generally not exposed unless otherwise specified.
- B. This section includes the following:
 - 1. Wood grounds, nailers, sleepers, and blocking.
 - 2. Wood furring.
 - 3. Dimensional lumber framing.
 - 4. Preservative-treated wood.
 - 5. Plywood sheathing.
 - 6. Laminated veneer lumber.

1.3 UNIT PRICES

- A. See Section 012200 "Unit Prices" for description of unit prices affecting items specified under this Section.

1.4 QUALITY ASSURANCE

- A. Comply with latest edition of:
 - 1. "Voluntary Product Standard PS 20-05; American Softwood Lumber Standard," U.S. Department of Commerce.
 - 2. "AWPA Book of Standards," American Wood Preservers Association (AWPA).
 - 3. "National Design Specification for Wood Construction," American Forest and Paper Association, Inc.
 - 4. "Voluntary Product Standard PS 1-07; Structural Plywood," U.S. Department of Commerce.
 - 5. "Performance Standards and Policies for Structural-Use Panels, PRP-108," American Plywood Association (APA).
 - 6. *Wood Frame Construction Manual* American Wood Council

1.5 SUBMITTALS

- A. General: Submit the following:
 - 1. Product data and installation instructions for the following products:

**VIOLET BANK MUSEUM
PHASE II – EXTERIOR RESTORATION**

- a. Metal-framing connectors.
 - b. Construction adhesives.
 - c. Power-driven fasteners.
- 4. Reference Contract Drawing number and addendum number on each submittal.

1.6 PRODUCT HANDLING

- A. Delivery and Storage: Keep materials covered and dry. Protect against exposure to weather and from contact with damp or wet surfaces. Store material in horizontal position on supports above ground. Stack lumber, plywood, and other panels. Provide for air circulation within and around stacks and under temporary coverings, including polyethylene and similar materials. For lumber and plywood, use stickers between each course to provide air circulation.
- B. Keep material clearly identified with grade marks legible.
- C. Handle material carefully so it is not damaged.
- D. Repair or replace damaged materials.

1.7 WORKMANSHIP

- A. Contractor shall be responsible for correction of work not conforming to specified requirements. Correct deficient work as directed by Architect.
- B. Remove work found to be defective. Replace with new acceptable work.

PART 2 - PRODUCTS

2.1 LUMBER, GENERAL

- A. Dimensional Lumber Framing:
 - 1. Wood Species: Southern Pine
 - 2. Lumber Grade: No. 2 or better.
 - 3. Moisture Content: Protect wood materials to limit maximum moisture content during construction to below 19%.
- B. Preservative-Treated Wood:
 - 1. Provide preservative-treated lumber at all exterior locations, and for all lumber in contact with slab on grade, concrete or masonry, or as otherwise indicated on drawings. Treatment shall be in accordance with industry standard practice.

2.2 SHEATHING

- A. Plywood Sheathing:
 - 1. AWPA U1, Category UC3B Preservative-Treated Plywood.

2.3 ENGINEERED STRUCTURAL WOOD

**VIOLET BANK MUSEUM
PHASE II – EXTERIOR RESTORATION**

- A. Laminated Veneer Lumber:
 - 1. Manufactured by Trusjoist or approved equal.

2.4 FASTENERS

- A. General: Provide galvanized fasteners of size and type indicated that comply with requirements specified in this section for material.
- B. Nails, Wire, Brads, and Staples: FS FF-N-105.
- C. Power-Driven Fasteners: National Evaluation Report NER-272 or FS FF-P-395B.
- D. Wood Screws: ANSI B 18.6.1.
- E. Lag Screws: ANSI B 18.2.1.
- F. Bolts: Steel bolts complying with ASTM A 307, Grade A, with ASTM A 563 hex nuts and flat washers where indicated.

2.5 MISCELLANEOUS MATERIALS

- A. Adhesives for Field-Gluing Panels to Framing: "PL Adhesives and Sealants, PL-400" or accepted equivalent for dry conditions of use. "PL Adhesives and Sealants, PL-500" or accepted equivalent for treated lumber or wet conditions of use.

PART 3 - EXECUTION

3.1 INSTALLATION, GENERAL

- A. Discard units of material with defects impairing quality of rough carpentry construction and are too small to use in fabricating rough carpentry with minimum joints or optimum joint arrangement.
- B. Set rough carpentry to required levels and lines, with members plumb and true to line and cut and fitted.
- C. Fit rough carpentry to other construction. Scribe and cope as required for accurate fit. Correlate location of furring, nailers, blocking, grounds, and similar supports to allow attachment of other construction.
- D. Securely attach rough carpentry work to substrate by anchoring and fastening as indicated.
- E. Countersink nail heads.
- F. Use common wire nails unless otherwise indicated. Use finishing nails for finish work. Select fasteners of size that will not 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. Predrill as required.

**VIOLET BANK MUSEUM
PHASE II – EXTERIOR RESTORATION**

- G. Drill holes for bolted connections 1/16 inch larger in diameter than bolt size being used. Provide washers under bolt heads and nuts in contact with wood.
- H. Predrill lead holes for lag screws and wood screws to diameter approximately 60 percent of shank of lag screw.
- I. Insert lag screws and wood screws by turning. Do not drive with hammer.

3.2 WOOD FRAMING, GENERAL

- A. Framing Standard: Comply with *AWC Wood Framing Construction Manual* unless otherwise indicated.
- B. Install framing members of size and spacing indicated.
- C. Anchor and nail as shown and to comply with the following:
 - 1. All materials shall be hand nailed or mechanically driven screwed.
- D. Do not splice structural members between supports.

END OF SECTION 061000

**VIOLET BANK MUSEUM
PHASE II – EXTERIOR RESTORATION**

SECTION 062013 - EXTERIOR FINISH CARPENTRY

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

A. Section Includes:

1. Exterior wood for new window sashes and frames.
2. Exterior wood trim and to match new and existing profiles.
3. Exterior wood post and railing materials.
4. Exterior wood porch decking material.

B. Related Requirements:

1. Division 08 Section "Wood Windows & Shutters" for wood window repair/ replacement components.
2. Division 08 Section "Wood Doors" for wood door repair/ replacement components.
3. Division 09 Section "Exterior Painting" for field applied painted finish systems for each component.

1.3 PREINSTALLATION MEETINGS

A. Preinstallation Conference: Conduct conference at Project site

1. Review construction schedule. Verify availability of materials, installer's personnel, equipment, and facilities needed to make progress and avoid delays.
2. Expose existing balustrade attachment for review prior to removal. Review removal method and repair procedures.
3. Review flashings, special roofing details, roof penetrations, and condition of other construction that affect balustrade reinstallation.

1.4 UNIT PRICES

- A. See Section 012200 "Unit Prices" for description of unit prices affecting items specified under this Section.

1.5 ACTION SUBMITTALS

- A. Product Data: Indicate component materials, dimensions, profiles, textures, and colors and include construction and application details.

**VIOLET BANK MUSEUM
PHASE II – EXTERIOR RESTORATION**

1. For products receiving a waterborne treatment, include statement that moisture content of treated materials was reduced before shipment to Project site to levels specified.
 - B. Samples for Initial Selection: For each type of product involving selection of profiles.
 - C. Samples for Verification:
 1. Each profile to be reproduced.
- 1.6 DELIVERY, STORAGE, AND HANDLING
- A. Stack lumber flat with spacers between each bundle to provide air circulation.
 1. Protect materials from weather by covering with waterproof sheeting, securely anchored.
 2. Provide for air circulation around stacks and under coverings.
- 1.7 FIELD CONDITIONS
- A. Weather Limitations: Proceed with installation only when existing and forecast weather conditions permit work to be performed and at least one coat of specified finish can be applied without exposure to rain, snow, or dampness.
 - B. Do not install finish carpentry materials that are wet, moisture damaged, or mold damaged.
 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.

PART 2 - PRODUCTS

2.1 ACETYLATED WOOD

- A. Product: Accsys Technologies "Accoya" Wood.
- B. Wood Characteristics:
 1. Species: Radiata pine.
 2. Moisture Content: Less than or equal to 8%.

2.2 MISCELLANEOUS MATERIALS

- A. Fasteners for Exterior Finish Carpentry: Provide nails or screws, in sufficient length to penetrate not less than 1-1/2 inches into wood substrate.
 1. Provide stainless steel fasteners.
- B. Wood Glue: Waterproof resorcinol glue recommended by manufacturer for exterior carpentry use.

VIOLET BANK MUSEUM
PHASE II – EXTERIOR RESTORATION

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

2.3 FABRICATION

- A. Back out or kerf backs of standing and running trim wider than 5 inches, except members with ends exposed in finished work.
- B. Before proceeding with fabrication of woodwork required to be fitted to other construction, obtain measurements and verify dimensions, profiles, and details indicated for accurate fit. Ease edges to radius indicated for the following:
 - 1. Edges of Solid-Wood (Lumber) Members 3/4 Inch Thick or Less: 1/16 inch.
- C. Mill material to shapes and dimensions shown and exactly match existing woodwork at each location. Milling and shaping shall be clean and true with sharply cut moldings, arises, corners, etc. Allow for slight reduction in size in shop sanding to ensure matching of dimensions.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine substrates, with Installer present, for compliance with requirements for installation tolerances and other conditions affecting performance of the Work.
- B. Examine finish carpentry materials before installation. Reject materials that are wet, moisture damaged, and mold damaged.
- C. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

- A. Clean substrates of projections and substances detrimental to application.
- B. Prime lumber and moldings to be painted, including both faces and edges.
 - 1. Cut to required lengths and prime ends.
 - 2. Comply with requirements in Section 099113 "Exterior Painting."

3.3 INSTALLATION, GENERAL

- A. Accoya to be used for new wood elements, new window sashes and frames, railing materials, and decking. Long-lead old growth heart pine to be used for Dutchman repairs and repairs to existing wood elements.
- B. Do not use materials that are unsound, warped, improperly treated or finished, inadequately seasoned, or too small to fabricate with proper jointing arrangements.
- C. Install exterior finish carpentry level, plumb, true, and aligned with adjacent materials.

VIOLET BANK MUSEUM
PHASE II – EXTERIOR RESTORATION

1. Use concealed shims where necessary for alignment.
2. Scribe and cut exterior finish carpentry to fit adjoining work.
3. Refinish and seal cuts as recommended by manufacturer.
4. Install to tolerance of 1/8 inch in 96 inches for level and plumb. Install adjoining exterior finish carpentry with 1/32-inch maximum offset for flush installation.
5. Coordinate exterior finish carpentry with materials and systems in or adjacent to it.
6. Provide cutouts for mechanical and electrical items that penetrate exterior finish carpentry.

3.4 INSTALLATION OF STANDING AND RUNNING TRIM

- A. Install flat-grain lumber with bark side exposed to weather.
- B. Install trim with minimum number of joints as is practical, using full-length pieces from maximum lengths of lumber available. Do not use pieces less than 24 inches long, except where necessary.
 1. Use scarf joints for end-to-end joints.
 2. Stagger end joints in adjacent and related members.
- C. Fit exterior joints to exclude water.
 1. Cope at returns and miter at corners to produce tight-fitting joints, with full-surface contact throughout length of joint.
 2. Plane backs of casings to provide uniform thickness across joints, where necessary for alignment.
- D. Where face fastening is unavoidable, countersink fasteners, fill surface flush, and sand unless otherwise indicated.

3.5 ADJUSTING

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

3.6 CLEANING

- A. Clean exterior finish carpentry on exposed and semi-exposed surfaces.

3.7 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.

VIOLET BANK MUSEUM
PHASE II – EXTERIOR RESTORATION

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 062013

**VIOLET BANK MUSEUM
PHASE II – EXTERIOR RESTORATION**

SECTION 062100 - WOOD CONSOLIDATION AND REPAIR

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. Types of work in this Section includes, but is not limited to, consolidation, dutchmen repair, and filling of all existing deteriorated wood members of:
 - 1. Exterior wood trim components.
 - 2. Existing wood window frame and trim components.
 - 3. Existing wood door frame and trim components.
 - 4. Existing wood columns and pilasters.
- B. Related Work Described Elsewhere:
 - 1. Division 06 Section "Exterior Finish Carpentry" for repairs and restoration of existing exterior wood components.
 - 2. Division 09 Section "Exterior Painting" for paint removal procedures and for finish paint systems for wood.

1.3 QUALITY ASSURANCE:

- A. Restoration Specialist: Work shall be performed by a firm or individual having not less than five (5) years successful experience in comparable wood consolidation, repair, and epoxy consolidates and fillers specified including work on at least three (3) buildings listed in the National Register of Historic Places under the direction of federal and state preservation agencies in the last five (5) years and employing workers skilled in the restoration processes and operations indicated.
 - 1. Only skilled journeymen carpenters who are familiar and experienced with the use of epoxy consolidates and fillers to restore historic wood elements and are familiar with the design requirements shall be employed for work of this section.
 - 2. In acceptance or rejection of wood repair and consolidation work, no allowance shall be made for lack of skill on the part of the workers.
- B. Preconstruction Meeting: Review areas of repair that will be identified in submittals below on site with Owner and Architect.

1.4 SUBMITTALS

- A. General: Provide submittals in accordance with General Conditions of Contract and other requirements of this Section.
- B. Product Data: Submit manufacturer's technical product literature for each product used for

**VIOLET BANK MUSEUM
PHASE II – EXTERIOR RESTORATION**

consolidation and repair. Include instructions for use and safety precautions.

- C. Project Mock-up: Prior to start of work of this Section, perform one test area of each type of wood repair as specified in locations selected by Architect. Repeat each test area, if necessary, until approved by Architect. Protect test areas from damage or deterioration for remainder of the Work. Approved test areas shall represent the minimum acceptable standard for work of this Section.
- D. Shop Drawings: Provide shop drawings documenting findings of wood deterioration survey and specific locations and extent of each type of wood repair.

1.5 DELIVERY, STORAGE, AND HANDLING

- A. Deliver materials in original unopened containers labeled with manufacturer's name, brand name, item name, and instructions for use.
- B. Store materials in compliance with manufacturer's requirements for temperature and other conditions. Keep materials under cover and dry. Protect against exposure to weather.
- C. Discard and remove from the job site any materials damaged in handling or storage and any materials that have been subjected to conditions contrary to manufacturer's recommendations or whose maximum shelf life has expired.

1.6 PROJECT CONDITIONS

- A. Coordination: Coordinate wood consolidation and repair with painting work so that wood requiring treatment is treated as soon as practicable after being exposed and that consolidated and repaired wood is primed as soon as possible.
- B. Weather: Proceed with consolidation and repair only when existing and forecasted weather conditions permit work to be performed in accordance with manufacturers' recommendations.
- C. Surface Conditions: Proceed with work of this Section only when surfaces are completely dry.
- D. Protection: Use all necessary means to protect areas of wood not being consolidated or repaired and all other surfaces and areas of building elements from damage, deterioration, or staining caused by work of this Section. Replace components damaged by the Contractor at no cost to the Owner and to the satisfaction of the Design Professional using mechanics skilled in the appropriate trade, including all site work.
- E. Safety: Use all necessary means to protect all persons, whether engaged in the work of this Section or not from any harmful effects of the work of this Section. Comply with all applicable laws, codes, and regulations.

PART 2 - PRODUCTS

2.1 EPOXY CONSOLIDATION AND PATCHING

**VIOLET BANK MUSEUM
PHASE II – EXTERIOR RESTORATION**

- A. Wood Consolidant (Pretreatment): Ready-to-use product designed for hardening and sealing soft fibers of wood materials that have deteriorated due to weathering and exposure and designed specifically to enhance the bond of wood patching compound to existing wood.

1. Available products:

- a. Abatron, Inc.; Liquidwood.
- b. Advanced Repair Technology; Primatrate.
- c. Gougeon Brothers, Inc.; West System.
- d. Wood Care Systems; Liquid TIMBR.

- B. Wood Epoxy Compound: Two component epoxy material designed specifically for strength and flexibility. Provide manufacturer's special pumps designed to be used in dispensing and measuring resins and hardeners.

1. Available products:

- a. Advanced Repair Technology; Primatrate with Flex-Tec HV.
- b. Gougeon Brothers, Inc.; West System.
- c. Next Generation Systems.

2.2 WOOD DUTCHMAN REPAIRS AND REPLACEMENT

- A. Wood: Provide wood dutchman repairs for areas of deep deterioration (more than 1/2 in. deep) Finished exterior profile shall match adjacent existing profile. Secure wood dutchman infill with adhesive and fasten with wood screws. Wood to match existing wood species and attachment as follows:

- a. Wood species for Dutchman: Old Growth Longleaf Pine (Heart Pine).
- b. Adhesive: Structural adhesive consisting of two-component epoxy/ polyimide adhesive, T-88 by System Three or approved equal.
- c. Fasteners: stainless steel #10 screws with length necessary to provide 1-1/2" embedment into parent wood. For securing pieces smaller than 6" in length a smaller screw size may be submitted for review but must provide a 1-inch minimum embedment.

2.3 OTHER MATERIALS

- A. All materials required but not specifically described shall be selected by Contractor subject to Architect's approval.
- B. Borate Preservative Treatment: Inorganic, borate-based solution, with disodium octaborate tetrahydrate as the primary ingredient; manufactured for preserving weathered and decayed wood from further damage by decay fungi and wood-boring insects; complying with AWPAP5; containing no boric acid.
- C. Refer to Section 099113 "Painting" for paint preparation and finish requirements.

PART 3 - EXECUTION

3.1 INSPECTION

**VIOLET BANK MUSEUM
PHASE II – EXTERIOR RESTORATION**

- A. Exterior Wood: After loose and deteriorated coatings have been removed, inspect surfaces of exterior and visible interior wood elements in conjunction with Architect. Using an ice pick or awl, probe all surfaces of the exterior wood to determine the extents and depth of deterioration. Mark and document on drawings areas of rot or deterioration to be removed.
 - 1. All rotted or spongy wood requires consolidation.
 - 2. All areas that do not match original profiles require patching and repair.
 - 3. Areas of major damage and deterioration, provide materials/products for dutchman repairs or member replacement described under Part 2. "Wood Dutchman Repairs and Replacement".
 - 4. Architect's decision regarding extent of required consolidation and repair, dutchman repairs, and member replacement shall be final.
 - 5. Document the quantity and extent of the repairs for the project record.

3.2 PREPARATION

- A. Remove coatings completely from all areas of wood requiring consolidation, filling, patching or dutchman repair.
- B. Cut back and remove all loose, soft, and flaking deteriorated wood.
- C. Scrape and sand with successively finer grades of sandpaper, ending with no coarser than 150 grit. Finish surfaces shall be smooth and shall not contain scratches created by coarse sanding operations. Power sanders may be used on flat surfaces only. Rounded or molding profiles must be hand-sanded with foam sanding pads that conform to the wood profiles without removing sound wood or changing existing profiles or arris.
- D. Remove all areas of deteriorated wood. Remove wood 1/4 in. minimum beyond deterioration. Square-cut corners of removed wood in preparation for the wood repair.
- E. Take all steps necessary to ensure areas to be consolidated, filled, or repaired are free of dirt, paint, oil, grease, and other substances that might inhibit successful consolidation and filling.
- F. Take all steps necessary to ensure that wood is dry. No open flames shall be used.
- G. Apply borate preservative treatment to accessible surfaces after removing rotted or decayed wood and before applying wood consolidant or patching compound. Apply treatment liberally by brush to joints, edges, and ends; top, sides, and bottom. Allow treatment to dry.

3.3 EPOXY CONSOLIDATION

- A. Use low viscosity and medium viscosity epoxy consolidants as appropriate to each situation.
- B. Mix epoxy consolidant following manufacturer's directions. Drill holes in areas of deteriorated wood as required to ensure complete penetration of consolidant into deteriorated portions of member. Consolidant shall reach areas of sound wood. Flow consolidant onto wood with a brush until wood is saturated. Cure following manufacturer's directions.

3.4 EPOXY PATCHING AND REPAIR

- A. When patching areas of wood that have been consolidated, apply patching mixture before epoxy

**VIOLET BANK MUSEUM
PHASE II – EXTERIOR RESTORATION**

consolidant has completely cured.

- B. Use consolidant filled with appropriate fillers as recommended by manufacturer to provide patching material of suitable viscosity for intended application.
- C. Mix consolidant following manufacturer's directions. Apply brush coat working well into wood. Add filler to form paste of desired consistency. Prepare only enough material to repair one element at each mixing. Work into areas of wood requiring repair. Overfill the cavity by 1/8" once epoxy putty has hardened sand the patch to achieve sharp accurate profiles to match existing exactly. Cure following manufacturer's directions. If previous applications of epoxy putty cure before the entire cavity is filled, wet the surface of the epoxy putty in the cavity with mixed epoxy consolidant, wait to allow the surface to become tacky, and continue to build the repair Repeat if required to match original profile.
- D. File and sand to match desired profile and to produce uniformly smooth surface that matches surface of surrounding wood. No coarse-grained sandpaper mark or other imperfections shall be permitted.

3.5 WOOD DUTCHMAN REPAIR

- A. General: Repair all other areas of deterioration (other than those small or shallow areas as defined above) using wood dutchman infill repair:
 - 1. Measure the repair cavity and cut the new wood to tightly fit the repair cavity. Select and orient the grain of the replacement wood to match the tightness and growth rings and three- dimensional direction of the grain of the parent wood in each specific repair area.
 - 2. Coat wood surfaces of the cavity with adhesive for dutchmen repairs. Mix and apply the adhesives in accordance with the manufactures written instructions. Apply generous amounts of adhesive at surfaces where end grain is exposed to prevent absorption. Bed the new wood into the adhesive before it cures.
 - 3. Attach the replacement wood using wood screws as specified. Countersink screws and cover countersunk areas with epoxy putty.

3.5 ADJUST AND CLEAN

- A. Remove and replace any consolidation or repair work that does not match existing surfaces and profiles and any consolidant or filler that is loose and has not bonded or cured properly to the satisfaction of the Architect at no additional cost to the Owner.
- B. Follow requirements of Division 9 Section "Painting" for finishing of wood consolidation work.
- C. Clean all surfaces or materials damaged or stained by work of this Section.
- D. Protection: Protect wood consolidation and repair work and maintain conditions necessary to ensure that work will be without damage or deterioration at time of acceptance.

END OF SECTION 062100

**VIOLET BANK MUSEUM
PHASE II – EXTERIOR RESTORATION**

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

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. This Section includes:
 - 1. Installation of fully adhered EPDM roofing system
 - 2. Accessory roofing materials.

1.3 DEFINITIONS

- A. Roofing Terminology: Refer to ASTM D 1079 and glossary of NRCA's "The NRCA Roofing and Waterproofing Manual" for definition of terms related to roofing work not otherwise defined in this Section.

1.4 PERFORMANCE REQUIREMENTS

- A. General: Provide membrane roofing and base flashing that are watertight; will not permit the passage of liquid water; and will withstand wind loads, thermally induced movement, and exposure to weather without failure.
- B. Material Compatibility: Provide roofing materials that are compatible with one another under conditions of service and application required, as demonstrated by roofing system manufacturer based on testing and field experience.
- C. Provide temporary roof protection to keep building weather-tight during re-roofing work.

1.5 SUBMITTALS

- A. Product Data: For each type of roofing product specified. Include data substantiating that materials comply with requirements.
- B. Shop Drawings: Include plans, sections, and details of the following:
 - 1. Base flashings and membrane terminations.
 - 2. All other related details of roofing conditions whether or not shown on the Drawings.
- C. Installer Certificates: Signed by roofing system manufacturer certifying that Installer is approved, authorized, or licensed by manufacturer to install specified roofing system.

**VIOLET BANK MUSEUM
PHASE II – EXTERIOR RESTORATION**

- D. Manufacturer Certificates: Signed by roofing manufacturer certifying that the roofing system complies with requirements specified in the "Performance Requirements" Article of this Specification Section. Submit documentation that provides evidence of meeting requirements.
- E. Warranty: Sample copy of standard roofing system manufacturer's warranty stating obligations, remedies, limitations, and exclusions of warranty.
- F. Inspection Report: Copy of roofing manufacturer technical representative's inspection report of completed roofing installation.

1.6 QUALITY ASSURANCE

- A. Pre-installation Conference: Before installing roofing system, conduct conference at Project site with Architect and roofing manufacturer technical representative. Notify participants at least 5 working days before conference. Review methods and procedures related to roofing installation, including manufacturer's written instructions including, but not limited to, the following:
 - 1. Roofing system manufacturer's written instructions.
 - 2. Temporary protection requirements for existing roofing system components that are to remain.
 - 3. Construction schedule and availability of materials, Installer's personnel, equipment, and facilities needed to avoid delays.
 - 4. Condition and acceptance of existing roof deck.
 - 5. Base flashings, special roofing details, drainage, penetrations, equipment curbs, and condition of other construction that affect roofing.
 - 6. Existing conditions that may require notification of Architect before proceeding.

1.7 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, and directions for storing and mixing with other components.
 - 1. 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. Discard and legally dispose of liquid material that cannot be applied within its stated shelf life.
- B. Handle and store roofing materials and place equipment in a manner to avoid deflection of existing roof.

1.8 PROJECT CONDITIONS

- A. Weather Limitations: Proceed with roofing work only when existing and forecasted weather conditions permit roofing to be installed according to manufacturers' written instructions and warranty requirements.
- B. The Contractor shall be responsible for maintaining the building water-tight for the duration of construction and shall be responsible for any damage to the building elements due to water infiltration during construction. Contractor shall make all repairs to the satisfaction of the Architect, at no additional cost to the Owner.

**VIOLET BANK MUSEUM
PHASE II – EXTERIOR RESTORATION**

1.9 WORK SEQUENCE

- A. Schedule and execute work to prevent leaks and excessive traffic on completed roof sections. Care should be exercised to provide protection of the building and to ensure water does not flow beneath any completed sections of the membrane system.

PART 2 - PRODUCTS

2.1 ETHYLENE-PROPYLENE-DIENE-MONOMER (EPDM) ROOFING

- A. EPDM: ASTM D 4637, Type II, reinforced, uniform, flexible fully adhered EPDM.
 - 1. Thickness: 60 mils nominal.
 - 2. Exposed Face Color: Black.

2.2 AUXILIARY MEMBRANE ROOFING MATERIALS

- A. Roofing and Flashing Membrane: Black cured synthetic single-ply membrane composed of ethylene propylene diene terpolymer (EPDM) with the following properties:
 - 1. Reinforcement: None; membrane complying with ASTM D 4637 Type I.
 - 2. Thickness: 0.060 inch (2.2 mm).
 - 3. Nominal Thickness Tolerance: Plus/minus 10 percent.
 - 4. Sheet Width: Provide the widest available sheets to minimize field seaming.
- B. Membrane Fasteners: Type and size as required by roof membrane manufacturer for roofing system and warranty to be provided; use only fasteners furnished by roof membrane manufacturer.
- C. Use accessories and flashings of like color to the primarily specified field EPDM membrane.
- D. Flashing Membrane: Self-curing, non-reinforced membrane composed of nonvulcanized EPDM rubber, complying with ASTM D 4811 Type II, and with the following properties:
 - 1. Thickness: 0.055 inch (1.4 mm).
- E. Self-Adhesive Flashing Membrane: Semi-cured 45 mil EPDM membrane laminated to 35 mil (0.9 mm) EPDM tape adhesive.
- F. Self-Adhesive Lap Splice Tape: 35 mil (0.9 mm) EPDM-based, formulated for compatibility with EPDM membrane and high-solids primer.
- G. Splice Adhesive: Synthetic polymer-based, formulated for compatibility with EPDM membrane and metal surfaces.
- H. Bonding Adhesive: Acrylic-based, water-borne, formulated for compatibility with EPDM membrane and wide variety of substrate materials, including masonry, and wood.
- I. Adhesive Primer: Synthetic rubber-based primer formulated for compatibility with EPDM membrane and tape adhesive, with VOC content less than 2.1 lb/gal (250 g/L).
- J. Seam Edge Treatment: EPDM rubber-based sealant, formulated for sealing exposed edges of membrane at seams.
- K. Water Block Seal: Butyl rubber sealant for use between two surfaces, not exposed.

**VIOLET BANK MUSEUM
PHASE II – EXTERIOR RESTORATION**

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine substrates, areas, and conditions under which roofing will be applied, with Installer present, for compliance with requirements.
- B. Secure all new and existing sheathing boards, countersink all fasteners in deck surface.
- C. Verify that wood nailers are in place and secured.
- D. Do not proceed with installation until unsatisfactory conditions have been corrected.

3.2 PREPARATION FOR NEW ROOFING

- A. Clean substrate of dust, debris, and other substances detrimental to roofing installation according to roofing system manufacturer's written instructions. Remove sharp projections.
- B. Verify that substrates are visibly dry and attached.
- 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. Power-vacuum the existing roof surface.
- E. Complete terminations and base flashings and provide temporary seals to prevent water from entering completed sections of the roofing system at the end of the workday or when rain is forecast. Remove and discard temporary seals before beginning work on adjoining roofing.
- F. Take appropriate measures to ensure that fumes from adhesive solvents are not drawn into the building through air intakes.

3.3 SINGLE-PLY MEMBRANE INSTALLATION

- A. Beginning at low point of roof, place membrane without stretching over substrate and allow to relax at least 30 minutes before attachment or splicing; in colder weather allow for longer relax time.
- B. Lay out the membrane pieces so that field and flashing splices are installed to shed water.
- C. Install membrane without wrinkles and without gaps or fishmouths in seams; bond and test seams and laps in accordance with membrane manufacturer's instructions and details.
- D. Install membrane adhered to the substrate, with edge securement as specified.
- E. Adhered Membrane: Bond membrane sheet to substrate using membrane manufacturer's recommended bonding material, application rate, and procedures.
 - 1. Edge Securement: Secure membrane at all locations where membrane terminates or goes through an angle change greater than 2 in 12 inches (1:6) using mechanically fastened reinforced perimeter fastening strips, plates, or metal edging as indicated or as recommended by roofing manufacturer.

**VIOLET BANK MUSEUM
PHASE II – EXTERIOR RESTORATION**

2. Exceptions: Round pipe penetrations less than 18 inches (460 mm) in diameter and square penetrations less than 4 inches (200 mm) square.

F. Ensure anchorage of membrane as intended by roofing manufacturer.

3.4 MEMBRANE SPLICING (Adhesive Splice)

- A. Fold the top sheet back and clean the dry splice area (minimum 3 inches wide) of both membrane sheets by scrubbing with clean natural fiber rags saturated with Splice Cleaner or HP-250 Primer.
- B. Apply Splicing Cement and In-Seam Sealant in accordance with the manufacturer's specifications and roll the top sheet onto the mating surface.
- C. Roll the splice with a 2 inch wide steel roller and wait at least 2 hours before applying Lap Sealant to the splice edge following the manufacturer's requirements.
- D. Field splices without In-Seam Sealant must be overlaid with uncured flashing.

3.5 FLASHING INSTALLATION

- A. Wall flashing shall be cured EPDM membrane. Continue the deck membrane as wall flashing where practicable. Apply bonding adhesive to substrate and underside of flashing sheet at required rate and allow to partially dry. Do not apply bonding adhesive to seam area of flashing.
- B. Follow manufacturer's typical flashing procedures for all wall, gutter and penetration flashing including metal edging applications. Clean splice areas, apply splicing cement, and firmly roll side and end laps of overlapping sheets according to manufacturer's written instructions to ensure a watertight seam installation. Apply lap sealant and seal exposed edges of sheet flashing terminations.
- C. Terminate and seal top of sheet flashings and mechanically anchor to substrate with termination bars.

3.6 FIELD QUALITY CONTROL

- A. Final Roof Inspection: Arrange for roofing system manufacturer's trained technical personnel (a manufacturer's sales representative is not acceptable) to inspect roofing installation on completion and submit report to Architect.

1. Notify Owner and Architect 48 hours in advance of the date and time of inspection.

3.7 PROTECTING AND CLEANING

- A. Protect membrane roofing from damage and wear during remainder of construction period. When remaining construction will not affect or endanger roofing, inspect roofing for deterioration and damage, describing its nature and extent in a written report, with copies to Owner and Architect.
- B. Clean all contaminants generated by roofing work from building and surrounding areas, including bitumen, adhesives, sealants, and coatings.

VIOLET BANK MUSEUM
PHASE II – EXTERIOR RESTORATION

- C. Repair or replace building components and finished surfaces damaged or defaced due to work of this section; comply with recommendations of manufacturers of components and surfaces.
- D. Remove leftover materials, trash, debris, equipment from project site and surrounding areas.
- E. Correct deficiencies in or remove roofing that does not comply with requirements, repair substrates, reinstall roofing, and repair sheet flashings to a condition free of damage and deterioration at the time of Substantial Completion and according to warranty requirements.

END OF SECTION 075323

**VIOLET BANK MUSEUM
PHASE II – EXTERIOR RESTORATION**

SECTION 076100 - SHEET METAL FLASHING & TRIM

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. The work of this section Includes:

1. Custom-fabricated, metal flashing for column and pilaster caps as shown on the drawings.

1.3 ACTION SUBMITTALS

- A. Product Data: For each of the following:

1. Flashing sheet metal.
2. Solder and flux.
3. Fasteners.

- B. Samples for Verification: For each type, weight, and profile of sheet metal flashing and trim.

1. Metal Flashings: 12 inches square.
2. Other Accessories: 12-inch- long Samples for each type of other accessory.

1.4 QUALITY ASSURANCE

- A. Mockup: Build mockup to verify selections made under Sample submittals, to demonstrate aesthetic effects, and to set quality standards for fabrication and installation.

1.5 DELIVERY, STORAGE, AND HANDLING

- A. Do not store sheet metal flashing materials in contact with other materials that might cause staining, denting, or other surface damage.

1. Store sheet metal flashing materials away from uncured concrete and masonry.
2. Protect stored sheet metal flashing materials from contact with water.

- B. Protect strippable protective covering on sheet metal from exposure to sunlight and high humidity, except to extent necessary for period of sheet metal flashing installation.

- C. The contractor shall be responsible for keeping the building weather tight for the duration of the construction and shall be responsible for, at no cost to the owner, all repairs of any and all damage to the building due to water infiltration during construction to the satisfaction of the Owner.

**VIOLET BANK MUSEUM
PHASE II – EXTERIOR RESTORATION**

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

- A. General Performance: Sheet metal flashing system shall comply with requirements without failure due to defective manufacture, fabrication, or installation, or due to other defects in construction. Sheet metal flashing shall be fully soldered and remain watertight.
- B. Sheet Metal Flashing Standard: Comply with SMACNA's "Architectural Sheet Metal Manual" unless more stringent requirements are specified or indicated on Drawings.
- C. Copper Flashing Standard: Comply with CDA's "Copper in Architecture Handbook." Conform to dimensions and profiles shown unless more stringent requirements are specified or indicated on Drawings.
- D. 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.

2.2 METAL FLASHING AND TRIM

- A. Protect finishes on exposed surfaces from damage.
- B. Copper Sheet: ASTM B370 cold-rolled copper sheet, H00 temper for all flashing.
 - 1. Manufacturers: Subject to compliance with requirements, provide products by the following:
 - a. Revere Copper Products, Inc,
 - 2. Weight (Thickness): 16 oz./sq. ft. unless otherwise indicated.
- C. Fabricate sheet metal flashing and trim to comply with recommendations in SMACNA's "Architectural Sheet Metal Manual" for design, dimensions, metal, and other characteristics of the item unless otherwise specified in this Section or indicated on Drawings.
 - 1. Cap Flashings: Fabricate to cover 4 inches base flashing measured vertically; and in lengths required so that no step exceeds 8 inches and overall length is no more than [10 feet.

2.3 MISCELLANEOUS MATERIALS

- A. Provide materials and types of fasteners, solder, protective coatings, sealants, and other miscellaneous items as required for complete flashing system and as recommended by primary sheet metal manufacturer unless otherwise indicated.
- B. Fasteners: Wood screws, annular-threaded nails, self-tapping screws, self-locking rivets and bolts, and other suitable fasteners designed to withstand design loads.
 - 1. General:
 - a. Blind Fasteners: Copper rivets suitable for metal being fastened.

**VIOLET BANK MUSEUM
PHASE II – EXTERIOR RESTORATION**

- b. Fasteners for Copper Sheet: 12-gauge copper nails, with minimum 1/4 in. diameter flat heads, annular threaded, with needle point, and of sufficient length to penetrate sheathing not less than 1-1/4 inches and to obtain 1-1/4 inch embedment into blocking.
- C. Solder: For Copper ASTM B32, Grade Sn50, 50 percent tin and 50 percent lead.
- D. Flux: Conforming to ASTM B813
- E. Elastomeric Sealant: ASTM C920, elastomeric silicone polymer sealant; of type, grade, class, and use classifications required to seal joints in sheet metal flashing and remain watertight.

2.4 ACCESSORIES

- A. Sheet Metal Accessories: Provide components required for complete sheet metal flashing assembly. Match material and finish of sheet metal flashing unless otherwise indicated.
 - 1. Flashing and Trim: Formed from same material and with same finish as sheet metal flashing.

2.5 FABRICATION

- A. Custom fabricate sheet metal flashing to comply with details shown and recommendations in SMACNA's "Architectural Sheet Metal Manual" that apply to design, dimensions, geometry, metal thickness, and other characteristics of installation. Fabricate sheet metal flashing and accessories in shop to greatest extent possible.
- B. Fabrication Tolerances: Fabricate sheet metal flashing that is capable of installation to a tolerance of 1/4 inch in 20 feet on slope and location lines indicated on Drawings and within 1/8-inch offset of adjoining faces and of alignment of matching profiles.
- C. Form exposed sheet metal work to fit substrates with little oil canning; free of buckling and tool marks; true to line, levels, and slopes; and with exposed edges folded back to form hems.
 - 1. Lay out sheet metal flashing, so transverse seams, if required, are made in direction of flow, with higher panels overlapping lower panels.
 - 2. Offset transverse seams from each other 12 inches minimum.
 - 3. Fold and cleat eaves and transverse seams in shop.
 - 4. Form and fabricate sheets, seams, strips, cleats, edge treatments, integral flashings, and other components of metal flashing to profiles, patterns, and drainage arrangements indicated on Drawings and as required for leakproof construction.
- D. Expansion Provisions: Fabricate sheet metal flashing to allow for expansion in running work sufficient to prevent leakage, damage, and deterioration of the Work.
 - 1. Form expansion joints as indicated on drawings.
- E. Sheet Metal Accessories: Custom fabricate flashings and trim to comply with recommendations in SMACNA's "Architectural Sheet Metal Manual" that apply to design, dimensions, metal, and other characteristics of item required. Obtain field measurements for accurate fit before shop fabrication.
 - 1. Form exposed sheet metal accessories without excessive oil canning, buckling, and tool marks; true to line, levels, and slopes; and with exposed edges folded back to form hems.

VIOLET BANK MUSEUM
PHASE II – EXTERIOR RESTORATION

2. Seams: Fabricate nonmoving seams with flat-lock seams. Pre-tin edges to be seamed to a width of 1 1/2 inches before folding, form seams, and solder.
3. Conceal fasteners and expansion provisions where possible. Do not use exposed fasteners on faces of accessories exposed to view.
4. Fabricate cleats and attachment devices of sizes recommended by SMACNA's "Architectural Sheet Metal Manual" for application, but not less than thickness of metal being secured.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine substrates, areas, and conditions, with Installer present, for compliance with requirements for installation tolerances, substrate, and other conditions affecting performance of the Work.
 1. Verify that substrate is sound, dry, smooth, clean, sloped for drainage, and completely anchored, and that provision has been made for drainage, flashings, and penetrations through sheet metal flashing.
- B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 INSTALLATION, GENERAL

- A. Install sheet metal flashing to comply with details shown and recommendations in SMACNA's "Architectural Sheet Metal Manual" that apply to installation characteristics required unless otherwise indicated on Drawings.
 1. Install fasteners, solder, protective coatings, separators, sealants, and other miscellaneous items as required for complete flashing system.
 2. Install sheet metal flashing true to line, levels, and slopes. Provide uniform, neat seams with minimum exposure of solder.
 3. Anchor sheet metal flashing and other components of the Work securely in place, with provisions for thermal and structural movement.
 4. **No open flames shall be permitted.** Do not field cut sheet metal flashing by torch.
 5. Provide metal closures all open flashings ends exposed to view.
- B. Metal Protection: Where dissimilar metals contact each other, or where metal contacts pressure-treated wood or other corrosive substrates, protect against galvanic action or corrosion by painting contact surfaces with bituminous coating, by applying self-adhering sheet underlayment to each contact surface, or by other permanent separation as recommended in SMACNA's "Architectural Sheet Metal Manual."
- C. Conceal fasteners and expansion provisions where possible in exposed work and locate to minimize possibility of leakage. Cover and seal fasteners and anchors as required for a tight installation.

3.3 INSTALLATION OF METAL FLASHING AND TRIM

- A. General: Form sheet metal on a bending brake. Perform shaping, trimming, and hand-seaming in the shop as far as practicable, with the proper sheet-metal working tools. Make the angle of the

**VIOLET BANK MUSEUM
PHASE II – EXTERIOR RESTORATION**

bends and the folders for interlocking the metal with full regard for expansion and contraction, to avoid buckling or other deformation in service. All lines shall be straight and crisp except where thickness of metal dictates radius bend

1. Install metal flashings in accordance with recommendations in Copper Development Association "Copper in Architecture" and NRCA's "The NRCA Roofing Manual: Steep-Slope Roof Systems."
- B. Cap Flashings: Coordinate with installation of base flashing and fit tightly to base flashing. Lap joints a minimum of 4 inches secured in a waterproof manner.

3.4 CLEANING

- A. Clean exposed metal surfaces of substances that interfere with uniform oxidation and weathering.
- B. Clean exposed metal surfaces to be painted as required by Section 090110 Paint and Coating Removal and Section 099113 Painting.
- C. On completion of sheet metal flashing installation, clean finished surfaces as recommended by sheet metal flashing manufacturer.
- D. Clean and neutralize flux materials. Clean off excess solder.
- E. Clean off excess sealants.

3.5 PROTECTION

- A. Remove temporary protective coverings and strippable films as sheet metal flashing is installed unless otherwise indicated in manufacturer's written installation instructions.
- B. Replace sheet metal flashing components that have been damaged or have deteriorated beyond successful repair by finish touchup or similar minor repair procedures, as determined by Architect.

END OF SECTION 076100

**VIOLET BANK MUSEUM
PHASE II – EXTERIOR RESTORATION**

SECTION 079200 - JOINT SEALANTS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. This section includes sealants for the following applications. Including those specified by reference to this section.
 - 1. Exterior joints in the following vertical surfaces and nontraffic horizontal surfaces:
 - a. Joints between wood.
 - b. Joints between different materials not listed above.

1.3 PERFORMANCE REQUIREMENTS

- A. Provide elastomeric joint sealants that establish and maintain watertight and airtight continuous joint sealants without staining or deteriorating joint substrates.

1.4 ACTION SUBMITTALS

- A. Product Data:
 - 1. Joint sealants.
 - 2. Joint sealant backing materials.
- B. Samples for Initial Selection: Manufacturer's standard color charts consisting of strips of cured sealants showing the full range of colors available for each product exposed to view.

1.5 CLOSEOUT SUBMITTALS

- A. Warranty Documentation:
 - 1. Manufacturers' special warranties: Manufacturer agrees to furnish joint sealants to repair or replace those joint sealants that do not comply with performance and other requirements specified in this Section within the specified warranty period of 20 years from date of Substantial Completion for silicone sealants and 2 years for all other sealants
 - 2. Installer's special warranties: 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 of 2 years from date of Substantial Completion.

**VIOLET BANK MUSEUM
PHASE II – EXTERIOR RESTORATION**

1.6 QUALITY ASSURANCE

A. Qualifications:

1. Installers: Authorized representative who is trained and approved by manufacturer.
2. Testing Agency: Qualified in accordance with ASTM C1021 to conduct the testing indicated.

1.7 FIELD 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.

PART 2 - PRODUCTS

2.1 JOINT SEALANTS, 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. Colors of Exposed Joint Sealants:** As selected by Architect from manufacturer's full range.

2.2 SILICONE JOINT SEALANTS

- A. Silicone, S, NS, 25, NT:** Single-component, non-sag, plus 25 percent and minus 25 percent movement capability, nontraffic-use, neutral-curing silicone joint sealant; ASTM C920, Type S, Grade NS, Class 25, Use NT.
1. GE Sealants – Paintable Silicone Supreme Window and Door Sealant or approved equal.

2.3 JOINT-SEALANT BACKING

- A. Sealant Backing Material, General:** Non-staining; compatible with joint substrates, sealants, primers, and other joint fillers; and approved for applications indicated by sealant manufacturer based on field experience and laboratory testing.
- B. Cylindrical Sealant Backings:** ASTM C1330, 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.

VIOLET BANK MUSEUM
PHASE II – EXTERIOR RESTORATION

- 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. Provide self-adhesive tape where applicable.

2.4 MISCELLANEOUS MATERIALS

- A. Primer: Material recommended by joint-sealant manufacturer where required for adhesion of sealant to joint substrates indicated.
- 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. 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 performance of the Work.
- B. Proceed with installation only after unsatisfactory conditions have been corrected.

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. 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. Nonporous joint substrates including but not limited to metal roofing and flashings.
- B. Joint Priming: Prime joint substrates as recommended by joint-sealant manufacturer. 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

**VIOLET BANK MUSEUM
PHASE II – EXTERIOR RESTORATION**

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 C1193 for use of joint sealants as applicable to materials, applications, and conditions indicated.
- C. Install sealant backings of type 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.
 - 4. Use care not to contaminate the substrate surfaces while inserting the backer rod of bond breaker tape (including contamination with finger oils).
- 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 in accordance with Figure 8A in ASTM C1193 unless otherwise indicated.

3.4 JOINT SEALANT PULL TESTING

- A. Testing Methodology: Testing of joint sealants shall be performed in accordance with ASTM C1521, Destructive Procedure, Method B.
- B. Frequency: Perform 2 tests per sealant type per each project-specific substrate.
- C. Pass/Fail Criteria: Adequate surface preparation will be indicated by cohesive separation of the sealant from the substrate, not adhesive separation from the substrate.

**VIOLET BANK MUSEUM
PHASE II – EXTERIOR RESTORATION**

3.5 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.

3.6 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, remove, and repair damaged or deteriorated joint sealants immediately so installations with repaired areas are indistinguishable from original work.

END OF SECTION 079200

**VIOLET BANK MUSEUM
PHASE II – EXTERIOR RESTORATION**

SECTION 080152 - WOOD WINDOWS & SHUTTERS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. Section includes wood window repairs as follows:
 - 1. In-situ field paint removal, repair and repainting of window frames.
 - 2. Window sash removal to shop for restoration.
 - 3. Window member repair and patching.
 - 4. Window member replacement.
 - 5. New wood window sash, frame and glazing.
 - 6. Field paint removal, repair and repainting of in-place window framing members.
 - 7. Removal and replacement of deteriorated glazing compound
 - 8. Window hardware and sash cord replacement.
 - 9. Weatherstripping.
 - 10. Repair of existing wood shutters
- B. Related Requirements:
 - 1. Division 02 Section "Lead-Based Paint Remediation" for lead paint removal and abatement procedures.
 - 2. Division 06 Section "Exterior Finish Carpentry" for wood species of wood window repair and replacement components.
 - 3. Division 06 Section "Wood Consolidation & Repair" for existing wood repair components.
 - 4. Division 09 Section "Exterior Painting" for paint removal and field applied painted finish systems for each component.

1.3 DEFINITIONS

- A. Glazing: Includes glass, glazing points, glazing tapes, glazing sealants, and glazing compounds.
- B. Replicate: To reproduce in exact detail, materials, and finish unless otherwise indicated.
- C. Window: Includes window frame, sash, hardware unless otherwise indicated by context.
- D. Wood Window Component Terminology: Wood window components for repair work include the following classifications:
 - 1. Frame Components: Head, jambs, and sill.
 - 2. Sash Components: Stiles and rails, parting bead, stop, and muntins.
 - 3. Exterior Trim: Exterior casing and drip cap.
 - 4. Interior Trim: Casing, stool, and apron.

**VIOLET BANK MUSEUM
PHASE II – EXTERIOR RESTORATION**

1.4 SUBMITTALS

- A. Product Data: For each type of product indicated.
- B. Replacement Member Shop Drawings: Show fabrication and installation of replacement wood window members indicated on window schedule. Indicate materials and profiles of each replacement member, joinery, finish, and method of splicing or attaching to existing wood window.
- C. Samples for Verification: For each type of wood window replacement component required, prepared on Samples of size indicated below.
 - 1. Replacement Members: 12 inches long for each replacement member; including frame parts, sash parts, exterior trim parts, and interior trim parts.
 - a. Where original material is indicated as the model to create new duplicate replacement members, provide Samples of duplicate replacement wood window member matching the original member.
 - 2. Repaired and Refinished Wood Window Member: Prepare Samples using existing wood window members removed from site, repaired with patching compound, and refinished.
 - 3. Hardware: Full-size units with factory-applied finish.
 - 4. Weather Stripping: 12-inch long sections.
- D. Qualification Data: For wood window restoration specialists and supervisory personnel. Include list of completed projects with the scope of work and budget for each.
- E. Window Restoration Program: For each phase of window restoration process, including protection of surrounding materials on the building and Project site during operations. Describe in detail the materials, methods, equipment, and sequence of operations to be used for each phase of historic treatment work.
 - 1. If materials and methods alternative to those indicated are proposed for any phase of historic treatment work, provide a written description for review and approval, including evidence of successful use on other comparable projects, and a testing program to demonstrate their effectiveness for this Project.

1.5 QUALITY ASSURANCE

- A. Wood Window Restoration Specialist for the coordinate of historic treatment of wood windows: Work shall be performed by a firm or individual having not less than five (5) years successful experience in historic treatment of windows similar in material, design, and extent to that indicated for this Project, including work on at least three (3) buildings listed in the National Register of Historic Places under the direction of federal and state preservation agencies in the last five (5) years and currently employing workers skilled in the restoration processes and operations indicated.
 - 1. Field Supervision: Require that an experienced full-time supervisor be at Project site during times that historic treatment of wood windows is in progress.
 - 2. In the acceptance or rejection of wood window restoration work, no allowance shall be made for lack of skill on the part of the workers.
- B. Preconstruction conference.

VIOLET BANK MUSEUM
PHASE II – EXTERIOR RESTORATION

- C. Initial Shop Mockup: Prepare one existing window of each type, to serve as a shop restored mockup to demonstrate historic treatment methods and procedures for aesthetic effects and qualities of materials and execution. Use materials and methods proposed for completed Work described in the approved Window Restoration Program.
 - 1. Wood Window Repair: Prepare one entire window sash of each type to serve as mockup to demonstrate sample wood repair, member replacement and patching of wood window members including sash & glazing.
 - 2. Wood Shutter Repair: Prepare one entire shutter to serve as mockup to demonstrate sample wood repair, member replacement and patching of wood shutter members.
- D. In-situ Mockup: Prepare one mock-up of each window type using approved shop restored sash, to serve as a mockup to demonstrate completed installation treatment methods and procedures for aesthetic effects and qualities of materials and execution. In-situ mock-up shall include, but is not limited to, the following:
 - 1. Approved shop restored sash installed in existing restored frame, including specified paint system.
 - 2. Restored or new trim and architrave and applicable flashings.
 - 3. Weatherstripping, where applicable.
 - 4. Pully- weight sash ropes, where applicable.
 - 5. Window hardware, where applicable.
 - 6. Approved mockup shall become part of the completed Work if undisturbed at time of Substantial Completion.
- E. AWI Quality Standard: Comply with applicable requirements in AWI's "Architectural Woodwork Quality Standards" for construction, finishes, grades of wood windows, and other requirements.

1.6 DELEVERY, STORAGE AND HANDLING

- A. Deliver patching and repair compounds to Project site in manufacturer's original and unopened containers, labeled with description of contents and name of manufacturer.
- B. Comply with manufacturer's written instructions for minimum and maximum temperature requirements for storage of patching materials.
- C. Pack, deliver, and store products in suitable packs, heavy-duty cartons, or wooden crates; surround with sufficient packing material to ensure that products are not deformed, broken, or otherwise damaged.
- D. Store products inside a well-ventilated area and where environmental conditions comply with manufacturer's requirements; protect from weather, moisture, soiling, abrasion, extreme temperatures, and humidity.

1.7 SEQUENCING AND SCHEDULING

- A. Perform window repairs in the following sequence, which includes work specified in this and other Sections:
 - 1. Inspect existing conditions with Architect on-site and confirm restoration work required. Review coatings that will be removed and any areas that are to be left intact saving historic evidence including paint ghosts. Review areas requiring Dutchman repair and areas requiring wood consolidation.

VIOLET BANK MUSEUM
PHASE II – EXTERIOR RESTORATION

2. Tag existing window sash with opening-identification numbers and remove for off-site repair. Indicate on tags the locations on window of each component, such as "top sash," "bottom sash."
3. Remove window, dismantle hardware, and tag hardware with opening-identification numbers.
4. Install temporary protection and security at window openings.
5. Sort units by condition, separating those that need extensive repair.
6. Clean surfaces.
7. General Wood-Repair Sequence:
 - a. Remove existing glazing and salvage for reinstallation in same location as removal.
 - b. Remove paint to bare wood as described in Section 090110.15 "Paint & Coating Removal".
 - c. Repair wood by consolidation, member replacement, partial member replacement, and patching as described in Section 062100 "Wood Consolidation and Repair".
 - d. Sand, prime, fill, sand again, and prime surfaces again for refinishing.
8. Reinstall operating hardware.
9. Install existing glazing, replace all broken panes with new restoration glass to match existing.
10. Remove temporary protection and security at window openings.
11. Reinstall units.
12. Apply finish coats.
13. Install remaining hardware and weatherstripping.

1.8 FIELD CONDITIONS

- A. Weather Limitations: Proceed with wood window repairs only when existing and forecasted weather conditions are within the environmental limits set by each manufacturer's written instructions and specified requirements.
- B. Schedule and execute all work to avoid exposing the building and its contents to inclement weather. Provide temporary watertight and secure cover over window opening as necessary to maintain the building in a watertight condition.

PART 2 - PRODUCTS

2.1 WOOD WINDOW REPAIRS, GENERAL

- A. Quality Standard: Comply with applicable requirements in Section 6, "Interior & Exterior Millwork," in AWI/AWMAC/WI's "Architectural Woodwork Standards" for construction, finishes, grades of wood windows, and other requirements unless otherwise indicated.
 1. Exception: Industry practices cited in Section 6, Article 1.5, Industry Practices, of the Architectural Woodwork Standards do not apply to the work of this Section.

2.2 RESTORED WOOD WINDOW UNITS

- A. Restored Wood Window Sash: Custom-fabricated replacement wood components.

VIOLET BANK MUSEUM
PHASE II – EXTERIOR RESTORATION

1. Joint Construction: Joints matching existing.

B. Wood Species: Old Growth Longleaf Pine (Heart Pine).

1. Comply with requirements in Section 062013 "Exterior Finish Carpentry" and Section 062100 "Wood Consolidation and Repair" for wood window repair/ replacement components.
2. Wood Window Members and Trim: Match profiles and detail of existing window members and trim.
3. Exposed Hardware: Match existing exposed window hardware.

2.3 NEW WOOD WINDOWS

A. Custom-fabricated wood components.

1. Wood Species: Acetylated radiata pine (Accoya).
2. Joint Construction: See drawings.
3. Wood Window Frames: See drawings.
4. Profiles: Match detail of existing windows type "A". See drawings for profiles, sizes and details.
5. Exposed Hardware: See drawings and Division 05
6. Weather Stripping: Full-perimeter weatherstripping for each sash.

2.4 MATERIALS

A. Wood, General: Wood for all wood window repair/ replacement components shall comply with requirements in Section 062013 "Exterior Finish Carpentry" including but not limited to the following:

1. Exterior Trim and architrave.
2. Frame Components.
3. Sills.
4. Sash Components.

2.5 GLAZING MATERIALS

A. Glass: Existing glazing to remain in place. Replace all deteriorated glazing compound and broken panes with new restoration glass to match existing.

1. AGW Old Style Window Glass, type C, 1/8" thick.

B. Traditional Glazing Products: Glazing points and linseed oil-based glazing putty.

1. Available Products:
 - a. Allback
 - b. Atlas Preservation
 - c. DANA

**VIOLET BANK MUSEUM
PHASE II – EXTERIOR RESTORATION**

2.6 HARDWARE

- A. Replacement Hardware: Replace existing damaged or missing hardware with new hardware manufactured as indicated on window schedule:
 - 1. Phelps Company or approved equal.
- B. Material and Design:
 - 1. Material: Solid brass, unless otherwise indicated.
 - 2. Design: Match type and appearance of existing hardware.
 - 3. Weight and Pulley: Concealed weight and pulley balance system including cast iron weights, cast-bronze pulleys, capacity to hold sash stationary at any open position.
 - 4. Replacement Window Hardware: Replace existing damaged or missing window hardware with replacement hardware as follows:
 - a. Sash lock, 1 sash lock /sash: By allowance.
 - b. Sash Pulleys and Cords:
 - 1) Sash Cords – Cotton sash cord by Architectural Resource Center to match existing diameter.
 - 2) Pulleys to match existing- Phelps Company or approved equal to match existing.
- C. Hardware Finishes: Comply with BHMA A156.18 for base material and finish requirements indicated by the following:
 - 1. Match existing finish.

2.7 WEATHERSTRIPPING

- A. Compression-Type Weather Stripping: Provide compressible spring weather stripping designed for permanently resilient sealing under bumper or wiper action and to be completely concealed when wood window is closed.
 - 1. Window Sill / Bottom Rail Weatherstripping Material: Install silicone bulb type set in kerf
- B. Available Manufacturers:
 - 1. Pemko S104 or approved equal

2.8 MISCELLANEOUS MATERIALS

- A. Adhesives: Wood adhesives for exterior exposure, with minimum 15- to 45-minute cure at 70 deg F, in gunnable and liquid formulations as recommended in writing by adhesive manufacturer for each type of repair.
- B. Fasteners: Provide bronze or brass fasteners compatible with window members, trim, hardware, anchors and other components.
 - 1. Exposed Fasteners: If exposed fasteners are used, match existing fasteners.

**VIOLET BANK MUSEUM
PHASE II – EXTERIOR RESTORATION**

PART 3 - EXECUTION

3.1 PREPARATION

- A. Protect adjacent materials from damage by performing wood window repairs.
- B. Clean wood windows of 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. After cleaning, rinse thoroughly with fresh water. Allow to dry before repairing or painting.
- C. Condition replacement wood members and replacement units to prevailing conditions at installation areas before installing.

3.2 HISTORIC TREATMENT PROCEDURES, GENERAL

- A. Window Removal: Where sashes or windows or window components are indicated for removal to shop for restoration or removal to be replaced, cover resultant openings with temporary covering so that openings are weather-tight during repair period.
 - 1. Temporary Cover: Provide temporary covering at each window frame where sash are removed. Fasten temporary panels such that no damage occurs to window frames and can easily be removed for access to in-place restoration work on frames.
- B. Identify removed windows, sashes, and members with numbering system to ensure reinstallation in same location. Key windows, sashes, and members to Drawings showing location of each removed unit. Mark units in a location that will be concealed after reinstallation.

3.3 WOOD WINDOW PATCH-TYPE REPAIR

- A. General: Patch wood members that exhibit depressions, holes, or similar voids and that have limited amounts of rotted or decayed wood.
 - 1. Remove sash from windows before performing patch-type repairs at meeting or sliding surfaces unless otherwise indicated. Reglaze units before reinstallation.
 - 2. Verify that surfaces are sufficiently clean and free of paint residue before patching.
 - 3. Remove rotted or decayed wood down to sound wood.
- B. Apply wood-patching compound to fill depressions, nicks, cracks, and other voids created by removed or missing wood.
 - 1. Prime patch area with application of wood consolidant as described in Section 099113 "Painting"
 - 2. Mix only as much patching compound as can be applied according to manufacturer's written instructions.
 - 3. Apply patching compound in layers as recommended in writing by manufacturer until the void is completely filled.
 - 4. Sand patch surface smooth and flush with adjacent wood, without voids in patch material, and matching contour of wood member.
 - 5. Clean spilled compound from adjacent materials immediately.

**VIOLET BANK MUSEUM
PHASE II – EXTERIOR RESTORATION**

3.4 WOOD WINDOW MEMBER-REPLACEMENT REPAIR

- A. General: Replace parts of or entire wood window members at locations indicated on Drawings in the Window Schedule
 - 1. Remove sash from windows before performing member-replacement repairs unless otherwise indicated.
 - 2. Verify that surfaces are sufficiently clean and free of paint residue before repair.
 - 3. Remove broken, rotted, and decayed wood down to sound wood.
 - 4. Custom fabricate new wood to replace missing wood; either replace entire wood member or splice new wood part into existing member.
 - 5. Secure new wood using finger joints, multiple dowels, or splines with adhesive and nailing to ensure maximum structural integrity at each splice. Use only concealed fasteners. Fill nail holes and patch surface to match surrounding sound wood.
- B. Repair remaining depressions, holes, or similar voids with patch-type repairs.
- C. Clean spilled materials from adjacent surfaces immediately.
- D. Repair by Removing Window Units: Where sashes are indicated to be removed and restored, completely remove unit and restore off-site. Repair entire windows by patching or repairing members as specified for wood window member patching.
 - 1. Reglaze units prior to reinstallation.
- E. Reinstall restored sash with new sash cords into existing openings and restored, lubricated pulleys.
- F. Reinstall units removed for repair into original openings.
- G. Weatherstripping: Install weatherstripping to ensure full-perimeter and meeting rail weatherstripping for each sash.

3.5 GLAZING

- A. Remove deteriorated glazing compound from all sashes in shop. After scraping, sanding and priming each sash install new glazing compound as necessary. Install salvaged or replacement glass in a bed of glazing, using new glazing points. Install new glazing compound with tooled finish to match existing.

3.6 WOOD WINDOW UNIT REPLACEMENT

- A. General: Replace missing wood sash units with new custom-fabricated units, in new frame, at locations indicated on Drawings.
- B. Mill glazed members to accommodate glass thickness. Glaze units before installation.
- C. Install units, hardware, weatherstripping, accessories, and other components as indicated on Drawings.
- D. Install units level, plumb, square, true to line, without distortion or impeding movement; anchored securely in place to structural support; and in proper relation to wall flashing, trim, and other adjacent construction.

VIOLET BANK MUSEUM
PHASE II – EXTERIOR RESTORATION

- E. Set sill members in bed of sealant for weathertight construction unless otherwise indicated.
- F. Install window units with new anchors into existing openings.
- G. Weatherstripping: Install full-perimeter weatherstripping for each sash.
- H. Metal Protection: Separate aluminum and other corrodible surfaces from sources of corrosion or electrolytic action at points of contact with other materials.
- I. Disposal of Removed Units: Deliver as salvage to Owner for storage where directed.

3.7 WEATHERSTRIPPING INSTALLATION

- A. Install weatherstripping for tight seal of joints as indicated on the drawings.

3.8 ADJUSTING

- A. Adjust existing and replacement operating sash, hardware, weatherstripping, and accessories for a tight fit at contact points and weatherstripping for smooth operation and weathertight closure. Lubricate hardware and moving parts.

3.9 CLEANING AND PROTECTION

- A. Protect window surfaces from contact with contaminating substances resulting from construction operations. Monitor window surfaces adjacent to and below exterior concrete and masonry during construction for presence of dirt, scum, alkaline deposits, stains, or other contaminants. If contaminating substances contact window surfaces, remove contaminants immediately.
- B. Clean exposed surfaces immediately after repairing wood windows. Avoid damage to coatings and finishes. Remove excess sealants, glazing and patching materials, dirt, and other substances.
- C. Remove and replace glass that has been broken, chipped, cracked, abraded, or damaged during construction.

3.10 WOOD-WINDOW SCHEDULE

- A. General:
 - 1. Refer to the Drawing A1.0 for the window schedule for required repairs.
 - 2. Refer to the Drawing A1.1 for the shutter schedule for required repairs.
 - 3. Removal of Existing Paint and Refinishing: See Sections 090110 "Paint and Coating Removal" for paint removal and 099113 "Painting" surface preparation for refinishing, and refinishing wood windows.

END OF SECTION 080152

**VIOLET BANK MUSEUM
PHASE II – EXTERIOR RESTORATION**

SECTION 080314 - WOOD DOORS

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Historic treatment of wood doors in the form of the following:
 - a. Repairing wood doors and trim.
 - b. Repairing wood sidelights and trim.
 - c. Repairing transom.
 - d. Cleaning and Repairing Hardware.
 - e. Cleaning and Repairing Wood Finishes.
 - f. Refinishing Doors.

B. Related Requirements:

1. Division 02 Section "Lead-Based Paint Remediation" for lead paint removal and abatement procedures.
2. Division 06 Section "Exterior Finish Carpentry" for wood species of wood window repair and replacement components.
3. Division 06 Section "Wood Consolidation & Repair" for existing wood repair components.
4. Section 08 "Wood Windows & Shutters" for sidelight and transom repair components.
5. Division 09 Section "Exterior Painting" for paint removal and field applied painted finish systems for each component.

1.2 DEFINITIONS

- A. Door: Generally, this term includes door frame, leaves, hardware, side panels or lights, fan light, transom, storm and screen doors, and storm vestibule unless otherwise indicated by context.
- B. Glazing: Includes glass, glazing points, glazing tapes, glazing sealants, and glazing compounds.
- C. Wood Door Component Terminology: Wood door components for historic treatment work include the following classifications:
 1. Frame Components: Head, jambs, stop, and threshold or sill.
 2. Leaf Components: Stiles, rails, and muntins.
 3. Exterior Trim: Exterior casing, brick mold, and cornice or drip cap.
 4. Interior Trim: Casing.

1.3 PREINSTALLATION MEETINGS

A. Preinstallation Conference: Conduct conference at Project site.

1. Review methods and procedures related to historic treatment of wood doors including,

VIOLET BANK MUSEUM
PHASE II – EXTERIOR RESTORATION

but not limited to, the following:

- a. Historic treatment specialist's personnel, equipment, and facilities needed to make progress and avoid delays.
- b. Materials, material application, sequencing, tolerances, and required clearances.
- c. Fire-protection plan, including scheduling for temporary closures of entrances and exits.
- d. Wood door and wood surrounds - historic treatment program.
- e. Coordination with building occupants.

1.4 SEQUENCING AND SCHEDULING

- A. Perform historic treatment of wood doors in the following sequence, which includes Work specified in this and other Sections:

1. Label each door frame with permanent opening-identification number in inconspicuous location.
2. Tag existing door leaves, with opening-identification numbers and remove for on-site or off-site repair. Indicate on tags the locations of each component, such as "left-hand door leaf," "right-hand reverse door leaf," etc.
3. Remove door, dismantle hardware, and tag hardware with door opening-identification numbers.
4. In the shop, label each leaf, with permanent opening-identification number in inconspicuous location and remove site-applied tags.
5. Install temporary protection and security at door openings.
6. Sort units by condition, separating those that need extensive repair.
7. Clean surfaces.
8. General Wood-Repair Sequence:
 - a. Remove paint to bare wood.
 - b. Rack frames slightly to inject adhesive into mortise and tenon joints; square frames to proper fit before adhesive sets.
 - c. Repair wood by consolidation, member replacement, partial member replacement, and patching.
 - d. Sand, prime, fill, sand again.
 - e. Apply shop applied transparent finishes.
 - f. Prime surfaces for refinishing.
 - g. Apply field applied painted finishes.
9. Clean, repair, refinish, and replace hardware as required.
10. Repair and refinish wood to remain in place.
11. Remove and reset glazing, where required.
12. Remove temporary protection and security at door openings.
13. Reinstall units.
14. Install remaining hardware and weatherstripping.
15. Clean glass surfaces inside and out.
16. Protect work from damage until turning over to Owner.

1.5 ACTION SUBMITTALS

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

**VIOLET BANK MUSEUM
PHASE II – EXTERIOR RESTORATION**

1. Include recommendations for product application and use. Include test data substantiating that products comply with requirements.
- B. Shop Drawings: For locations and extent of wood-door repair and replacement work.
 1. Include plans, elevations, sections, and details of replacement parts indicating materials, profiles, joinery, reinforcing, method of splicing into or attaching to existing wood door, accessory items, and finishes.
 2. Include field-verified dimensions and the following:
 - a. Full-size shapes and profiles with complete dimensions for replacement components and their jointing, showing relation of existing to new components.
 - b. Templates and directions for installing hardware and anchorages.
 - c. Identification of each new unit and its corresponding door locations in the building on annotated plans and elevations.
- C. Samples: Actual sample of finished products for the following, in manufacturer's standard sizes unless otherwise indicated:
 1. Identify wood species, cut, and other features.
 2. Replacement Members: 12 inches long for each replacement member

1.6 INFORMATIONAL SUBMITTALS

- A. Qualification Statements: For historic treatment specialist including workers and wood-repair-material manufacturer.
- B. Wood Door Historic Treatment Program: Submit before work begins.

1.7 QUALITY ASSURANCE

- A. Historic Treatment Specialist Qualifications: A qualified historic wood door specialist, experienced in repairing, refinishing, and replacing wood doors in whole and in part. Experience only in fabricating and installing new wood doors is insufficient experience for wood-door historic treatment work.
- B. Wood-Repair-Material Manufacturer Qualifications: A firm regularly engaged in producing wood consolidant and wood-patching compound that have been used for similar historic wood-treatment applications with successful results, and with factory-authorized service representatives who are available for consultation and Project-site inspection and on-site assistance.
- C. Preconstruction conference.
- D. Wood Door Historic Treatment Program: Prepare a written, detailed description of materials, methods, equipment, and sequence of operations to be used for historic treatment work, including protection of surrounding materials and Project site.
 1. If materials and methods other than those indicated are proposed for any phase of historic treatment work, add a written description of such materials and methods, including evidence of successful use on comparable projects, and demonstrations to show their effectiveness for this Project.

**VIOLET BANK MUSEUM
PHASE II – EXTERIOR RESTORATION**

2. Include recommended cleaning products and procedures for areas of existing clear finishes.
3. Include recommended finish system for repairing clear finishes if different than specified.
4. Include recommendations of finish for wood doors with shop applied transparent finishes if different than specified.
5. Include recommendations for restoring existing hardware to be reinstalled.

E. Mock-Ups: Apply mock-ups of cleaning and repairing existing wood finishes.

1. Architect will select area of sidelight and frame, approximately 2 square feet in area, for general cleaning procedure to demonstrate final result and ensure existing finish is not damaged.
2. Architect will select area for repairing finish on existing sidelight and frame. Area will include:
 - a. Filling small holes (2 holes less than ½" diameter)
 - b. Repairing cracks or scratches in finish (approx. 12 linear inches)
3. Subject to compliance with requirements approved mock-ups may become part of completed work.

F. Mock-Ups: Cleaning existing hardware

1. Demonstrate techniques and recommended products for restoring door hardware for doors D01 and D02.

1.8 DELIVERY, STORAGE, AND HANDLING

- A. Pack, deliver, and store products in suitable packs, heavy-duty cartons, or wooden crates; surround with sufficient packing material to ensure that products will not be deformed, broken, or otherwise damaged.
- B. Store products inside a well-ventilated area, protected from weather, moisture, soiling, abrasion, extreme temperatures, and humidity, and where environmental conditions comply with manufacturer's requirements.

1.9 FIELD CONDITIONS

- A. Weather Limitations: Proceed with historic treatment of wood doors only when existing and forecasted weather conditions are within environmental limits set by each manufacturer's written instructions and specified requirements.

PART 2 - PRODUCTS

2.1 HISTORIC TREATMENT OF WOOD DOORS QUALITY STANDARD

- A. Quality Standard: Comply with applicable requirements in Section 12, "Historic Restoration Work," and related requirements in AWMAC/WI's "North American Architectural Woodwork Standards" for construction, finishes, grades of wood doors, and other requirements unless otherwise indicated.

VIOLET BANK MUSEUM
PHASE II – EXTERIOR RESTORATION

1. Exception: Industry practices cited in Section 12, Paragraph 6, "Industry Practices," under Article 12.1, "Basic Considerations," of AWMAC/WI's "North American Architectural Woodwork Standards" do not apply to the Work of this Section.

2.2 WOOD-REPLACEMENT MATERIALS

- A. Wood, General: Clear fine-grained lumber; kiln dried to a moisture content of 6 to 12 percent at time of fabrication; free of visible finger joints, blue stain, knots, pitch pockets, and surface checks larger than 1/32 inch deep by 2 inches wide.

1. Species: Wood Species: Old Growth Longleaf Pine (Heart Pine).

2.3 WOOD-REPAIR MATERIALS

- A. Source Limitations: Obtain wood consolidant and wood-patching compound from single source from single manufacturer.

2.4 HARDWARE

- A. Restore all existing hardware to be reinstalled. Restoration includes repairing and cleaning hardware to working condition. Cleaning shall be with gentle non-abrasive cleaners, taking care not to damage finish.
- B. New Hardware: By Allowance.

2.5 MISCELLANEOUS MATERIALS

- A. Cleaning Materials: The following are possible cleaning products; however, care should be taken to utilize products that do not damage the existing finish. Cleaning methods shall be identified under the Historic Treatment Program and a mock-up is required to demonstrate results.
 1. Detergent Solution: Solution prepared by mixing 2 cups of tetrasodium pyrophosphate, 1/2 cup of laundry detergent that contains no ammonia, 5 quarts of 5 percent sodium hypochlorite bleach, and 15 quarts of warm water for each 5 gal. of solution required.
 2. Mildewcide: Commercial, proprietary mildewcide or a solution prepared by mixing 1/3 cup of household detergent that contains no ammonia, 1 quart of 5 percent sodium hypochlorite bleach, and 3 quarts of warm water.
- B. Adhesives: Wood adhesives with minimum 15- to 45-minute cure at 70 deg F, in gunnable and liquid formulations as recommended in writing by adhesive manufacturer for each type of repair and exposure conditions.
- C. Fasteners: Use fastener metals that are noncorrosive and compatible with each material joined.
 1. Match existing fasteners in material and type of fastener unless otherwise indicated.
 2. Use concealed fasteners for interconnecting wood components.
 3. Use concealed fasteners for attaching items to other work unless exposed fasteners are unavoidable.
 4. For fastening metals, use fasteners of same basic metal as fastened metal unless

**VIOLET BANK MUSEUM
PHASE II – EXTERIOR RESTORATION**

- otherwise indicated.
- 5. For exposed fasteners, use Phillips-type machine screws of head profile flush with metal surface unless otherwise indicated.
- 6. Finish exposed fasteners to match finish of metal fastened unless otherwise indicated.
- D. Anchors, Clips, and Accessories: Fabricate anchors, clips, and door accessories of aluminum, nonmagnetic stainless steel, or hot-dip zinc-coated steel complying with requirements in ASTM B633 for SC 3 (Severe) service condition.

2.6 WOOD DOOR FINISHES

- A. Primed Repaired Units: Provide exterior surfaces of repaired units primed; smooth, filled, and suitably prepared for on-site finishing. See Div 09 Painting for primer.
- B. Painted Repaired Units: Prime and Finish coats for interior and exterior surfaces of doors and frames are specified under Div 09 Painting.

2.7 GLAZING MATERIALS

- A. Glass: Existing glazing to remain in place. Replace all deteriorated glazing compound and broken panes with new restoration glass to match existing.
 - 1. AGW Old Style Window Glass, type C, 1/8" thick.
 - 2. Compression-Type Weather Stripping: Provide compressible spring weather stripping designed for permanently resilient sealing under bumper or wiper action and to be completely concealed when wood window is closed.
 - 3. Sill and Top Rail Weather-Stripping Material: Install spring bronze as shown on drawings. Use copper fasteners as required by manufacturer.
 - 4. Meeting Rail Weather-Stripping Material: Install spring bronze as shown on drawings. Use copper fasteners as required by manufacturer.
 - 5. Jamb Weather Stripping: Install spring bronze as shown on drawings. Use copper fasteners as required by manufacturer.
- B. Available Manufacturers:
 - 1. Architectural Resource Center spring bronze item 25B 1 1/8" wide
 - 2. Resource Conservation Technology, Inc.
 - 3. Zero International, Inc.

2.8 WEATHERSTRIPPING

- A. Compression-Type Weatherstripping: Provide compressible spring weather stripping designed for permanently resilient sealing under bumper or wiper action and to be completely concealed when wood door is closed.
 - 1. Jamb Weatherstripping: Install spring bronze as shown on drawings. Use copper fasteners as required by manufacturer.
- B. Spring Bronze Available Manufacturers:
 - 1. Architectural Resource Center spring bronze item 25B 1 1/8" wide

**VIOLET BANK MUSEUM
PHASE II – EXTERIOR RESTORATION**

2. Resource Conservation Technology, Inc.
3. Zero International, Inc.

PART 3 - EXECUTION

3.1 PREPARATION

- A. Protect adjacent materials from damage by historic treatment of wood doors.
- B. Clean wood doors, surrounding woodwork and trim of 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. After cleaning, rinse thoroughly with fresh water. Allow to dry before repairing or painting.
- C. Condition replacement wood members and replacement units to prevailing conditions at installation areas before installing.

3.2 HISTORIC TREATMENT OF WOOD DOORS, GENERAL

- A. Historic Treatment Appearance Standard: Completed work is to have a uniform appearance as viewed by Architect from the door interior at 5 ft. away on both sides and from the door exterior at 20 ft away.
- B. General: In treating historic items, disturb them as minimally as possible and as follows:
 1. Stabilize and repair wood doors to reestablish structural integrity and weather resistance while maintaining the existing form of each item.
 2. Repair door leaves in shop and repair other items in place where possible.
 3. Install temporary protective measures to protect woodwork that is indicated to be completed later.
 4. Refinish historic wood doors as indicated in this section.
- C. Finish: Exterior of historic entry doors D01 and D02 to be stripped prior to repair work. Leave 4"x4" window of paint on both doors leaves in location identified by Architect to preserve historic paint layers. Interior paint finish to be minimally prepared for paint, but not stripped to preserve historic paint layers.
- D. Mechanical Abrasion: Where mechanical abrasion is needed for the Work, use only the gentlest mechanical methods, such as scraping and natural-fiber bristle brushing, that will not abrade wood substrate, reducing clarity of detail. Do not use abrasive methods such as sanding, wire brushing, or power tools except as indicated as part of the historic treatment program and as approved by Architect.
- E. Restore Existing Hardware to Remain or be Reinstalled: Dismantle door hardware; strip paint, repair, and clean; lubricate moving parts just enough to function smoothly.
- F. Repair Wood Doors: Match existing materials and features, retaining as much original material as possible to perform repairs.
 1. Unless otherwise indicated, repair wood doors by consolidating, patching, splicing, or otherwise reinforcing wood with new wood matching existing wood or with salvaged,

**VIOLET BANK MUSEUM
PHASE II – EXTERIOR RESTORATION**

2. sound, original wood.
 2. Where indicated, repair wood doors by limited replacement matching existing material.
- G. Modify or Replace Wood Components: Where indicated, modify or replace components made from salvaged, sound, original wood or with new wood matching existing wood. Use surviving prototypes to create patterns for duplicate replacements.
- H. Protection of Openings: Where doors are indicated for removal, cover resultant openings with temporary enclosures so that openings are weathertight during repair period.
1. Coordinate construction schedule with Owner's requirements and fire-protection plan to determine times that openings may be closed.
 2. Openings may require temporary doors and hardware to meet Owner's safety and security requirements and ensure compliance with egress plans.
- I. Identify removed doors, frames, leaves, trim, and members with numbering system corresponding to door locations to ensure reinstallation in same location. Key doors, frames, leaves, trim, and members to Drawings showing location of each removed unit. Permanently label units in a location that will be concealed after reinstallation.
- 3.3 WOOD DOOR PATCH-TYPE REPAIR
- A. General: Patch wood members that exhibit depressions, holes, or similar voids and that have limited amounts of rotted or decayed wood.
1. Remove leaves from door frames before performing patch-type repairs at meeting or sliding surfaces unless otherwise indicated. Reglaze units prior to reinstallation.
 2. Verify that surfaces are sufficiently clean and free of paint residue before patching.
 3. Treat wood members with wood consolidant before applying patching compound. Coat wood surfaces by brushing, applying multiple coats until wood is saturated and unable to absorb more. Allow treatment to harden before filling void with patching compound.
 4. Remove rotted or decayed wood down to sound wood.
- B. Apply wood-patching compound to fill depressions, nicks, cracks, and other voids created by removed or missing wood.
1. Prime patch area with application of wood consolidant or manufacturer's recommended primer.
 2. Mix only as much patching compound as can be applied in accordance with manufacturer's written instructions.
 3. Apply patching compound in layers as recommended in writing by manufacturer until the void is completely filled.
 4. Sand patch surface smooth and flush with adjacent wood, without voids in patch material, and matching contour of wood member.
 5. Clean spilled compound from adjacent materials immediately.
- 3.4 WOOD DOOR MEMBER-REPLACEMENT REPAIR
- A. General: Replace parts of or entire wood door members at locations indicated on Drawings and where damage is too extensive to patch.
1. Remove leaves from door frames before performing member-replacement repairs unless otherwise indicated.

**VIOLET BANK MUSEUM
PHASE II – EXTERIOR RESTORATION**

2. Verify that surfaces are sufficiently clean and free of paint residue before repair.
 3. Remove broken, rotted, and decayed wood down to sound wood.
 4. Custom fabricate new wood to replace missing wood; either replace entire wood member or splice new wood part into existing member (dutchman).
 5. Secure new wood using finger joints, multiple dowels, or splines with adhesive and nailing to ensure maximum structural integrity at each splice. Use only concealed fasteners. Fill nail holes and patch surface to match surrounding sound wood.
- B. Repair remaining depressions, holes, or similar voids with patch-type repairs.
- C. Clean spilled materials from adjacent surfaces immediately.
- D. Reinstall units removed for repair into original openings.
- E. Weatherstripping: Replace nonfunctioning and install missing weatherstripping to ensure full-perimeter weather stripping for each exterior leaf.

3.5 GLAZING

- A. Remove existing putty, glass and glazing where indicated in the Wood Door Opening Schedule and prepare surfaces for reglazing.
- B. If glazing is damaged during removal, remove cracked and damaged glass and glazing materials from openings and prepare surfaces for reglazing.
1. Comply with combined written instructions of glazing material manufacturer unless more stringent requirements are indicated.
 2. Size glass as required by Project conditions to provide necessary bite on glass, minimum edge and face clearances, with reasonable tolerances.
- C. Apply primers to joint surfaces where required for adhesion of glazing system, as determined by preconstruction testing.
- D. Install setting bead, side beads, and back bead against stop in glazing rabbets before setting glass.
- E. Install glass with proper orientation so that coatings, if any, face exterior or interior as required.
- F. Install glazing points.
- G. Reset glazing before reinstallation of doors.
- H. Disposal of Removed Glass: Remove from Owner's property and legally dispose of unless otherwise indicated.

3.6 ADJUSTING

- A. Adjust existing and replacement operating leaves, hardware, weather stripping, and accessories for a tight fit at contact points and weatherstripping for smooth operation and weathertight closure. Lubricate hardware and moving parts.

**VIOLET BANK MUSEUM
PHASE II – EXTERIOR RESTORATION**

3.7 CLEANING AND PROTECTION

- A. Protect door surfaces from contact with contaminating substances resulting from construction operations. Monitor door surfaces adjacent to and below exterior concrete and masonry during construction for presence of dirt, scum, alkaline deposits, stains, or other contaminants. If contaminating substances contact door surfaces, remove contaminants immediately.
- B. Clean exposed surfaces immediately after historic treatment of wood doors. Avoid damage to coatings and finishes. Remove excess sealants, glazing and patching materials, dirt, and other substances.
- C. Remove and replace glass that has been broken, chipped, cracked, abraded, or damaged during construction period.

3.8 WOOD DOOR OPENING SCHEDULE

- A. General: All door openings shall include the surrounding frame and trim and any sidelights and transoms.
- B. Historic Wood Door D01: Double-leaf door with (2) sidelights and transom.
 - 1. General: Repair existing wood doors and frames using indicated treatments. Repair leaves off-site.
 - 2. Door Frame Repair: Repair head and jambs with patch-type repairs or partial member-replacement. Re-anchor and realign the head and jambs.
 - 3. Door Leaf Repair: Repair stile and rails with patch and partial member-replacement
 - 4. Hardware: Restore (Clean and repair) existing hardware to remain.
 - 5. Cleaning: Clean all interior surfaces. Do not damage existing finishes.
 - 6. Exterior Finish: Strip, prime and paint.
 - 7. Interior Finish, Door Leaves: Shop applied finish. Existing wood graining to remain.
 - 8. Interior Finish, all other elements: Prepare, prime and paint
 - 9. Sidelight and Transom Glazing: Existing to remain. Remove and reset only if required for repair and refinishing.
- C. Historic Wood Door D02: Double-leaf door with (2) sidelights and transom.
 - 1. General: Repair existing wood doors and frames using indicated treatments. Repair leaves off-site.
 - 2. Door Frame Repair: Repair head and jambs with patch-type repairs or partial member-replacement. Re-anchor and realign the head and jambs.
 - 3. Door Leaf Repair: Repair stile and rails with patch and partial member-replacement
 - 4. Hardware: Restore (Clean and repair) existing hardware to remain.
 - 5. Cleaning: Clean all interior surfaces. Do not damage existing finishes.
 - 6. Exterior Finish: Strip, prime and paint.
 - 7. Interior Finish, Door Leaves: Shop applied finish. Existing wood graining to remain.
 - 8. Interior Finish, all other elements: Prepare, prime and paint.
 - 9. Sidelight and Transom Glazing: Existing to remain. Remove and reset only if required for repair and refinishing.
- D. Historic Wood Door D03: Single door.
 - 1. General: Repair existing wood door and frames using indicated treatments. Repair leaf off-site.

VIOLET BANK MUSEUM
PHASE II – EXTERIOR RESTORATION

2. Door Frame Repair: Repair head and jambs with patch-type repairs or partial member-replacement. Re-anchor and realign the head and jambs.
3. Door Leaf Repair: Repair stile and rails with patch and partial member-replacement
4. Hardware: Restore (Clean and repair) existing hardware to remain.
5. Cleaning: Clean all interior surfaces. Do not damage existing finishes.
6. Exterior Finish: Prime and paint.
7. Interior Finish, Door Leaf: Shop applied finish.
8. Interior Finish, all other elements: Prime and paint.

END OF SECTION 080314

**VIOLET BANK MUSEUM
PHASE II – EXTERIOR RESTORATION**

SECTION 092400 - LIME PLASTER & PLASTER RESTORATION

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. Repair and installation of historic interior plaster.
- 2. Vertical 3 coat plasterwork
- 3. Repair of existing exterior historic stucco.

B. Related Sections:

- 1. Division 06 Section "Rough Carpentry" for preparation of wood substrates.
- 2. Section 099123 "Exterior Painting" for paint removal, surface preparation for refinishing, and refinishing of lime stucco plaster surfaces.

1.3 UNIT PRICES

- A. Work of this Section is affected by unit prices specified in Section 012200 "Unit Prices."

- 1. Unit prices apply to authorized work covered by estimated quantities.
- 2. Unit prices apply to additions to and deletions from Work as authorized by Change Orders.
- 3. See drawings for quantities to include base bid.

1.4 PREINSTALLATION MEETINGS

- A. Preinstallation Conference: Conduct conference at Project site.

- 1. Review methods and procedures related to historic treatment of plaster including, but not limited to, the following:
 - a. Verify historic treatment specialist's personnel, equipment, and facilities needed to make progress and avoid delays.
 - b. Materials, material application, colors, patterns, and sequencing.

**VIOLET BANK MUSEUM
PHASE II – EXTERIOR RESTORATION**

1.5 SEQUENCING AND SCHEDULING

- A. Perform historic treatment of plaster in the following sequence, which includes work specified in this and other Sections:
 - 1. Dismantle existing surface-mounted objects and hardware that overlie plaster surfaces except items indicated to remain in place. Tag items with location identification and protect.
 - 2. Verify that temporary protections have been installed.
 - 3. Examine condition of plaster surfaces.
 - 4. Clean plaster surface and remove paint and other finishes to the extent required.
 - 5. Repair and replace existing plaster and supports to the degree required for a uniform, tightly adhered surface on which to paint or apply other finishes.
 - 6. Cure repaired surfaces and allow them to dry for proper finishing.
 - 7. Paint and apply other finishes.
 - 8. Reinstall dismantled surface-mounted objects and hardware unless otherwise indicated.

1.6 ACTION SUBMITTALS

- A. General: Submit each item in this Article according to the Conditions of the Contract.
- B. Product Data consisting of manufacturer's product specifications and installation instructions for each product, including data showing compliance with specified requirements.
- C. Samples: A minimum of 12" square on hardbacked surface depicting finished color and surface texture of each condition.
- D. Sample of each metal lath and trim accessory to be incorporated into the work, approximately 6-inches long, in finish specified.

1.7 QUALITY ASSURANCE

- A. Qualifications of Historic Plaster Repair Specialist: Must be experienced in all phases of historic plaster repair, specifically lime based plasters, the preservation and reproduction thereof. The contractor must have six years and/or four projects of similar historical significance. They should have had training at a nationally recognized hands-on training program in historic plaster repair that stresses the stabilization of historic plaster with conservation adhesives. Specialist shall submit qualifications with bid.
 - 1. Workmen: Lime plastering work shall be done only by skilled plasters who have demonstrated experience in the type of work specified and who are thoroughly familiar with the requirements of the work.
 - 2. In acceptance or rejection of stucco plastering, no allowance will be made for lack of skill on the part of the workmen.
- B. Single-Source Responsibility: Obtain lime plaster materials from one source and by a single manufacturer.
- C. Mockups: Build mockups to verify selections made under Sample submittals, to demonstrate aesthetic effects, and to set quality standards for materials and execution.

VIOLET BANK MUSEUM
PHASE II – EXTERIOR RESTORATION

1. Build mockups for each substrate and finish texture indicated for cement plastering, including accessories.
2. Subject to compliance with requirements, approved mockups may become part of the completed Work if undisturbed at time of Substantial Completion.
3. Demonstrate the proposed range of aesthetic effects and workmanship.
4. Samples shall be made by the same workman performing the work for the job.
5. Notify Architect 3 days in advance of the dates and times when mockups will be constructed.
6. Provide additional mock-ups if necessary, until final approval is obtained from Architect without additional cost to Owner.
7. Obtain Architect's approval of mockups before proceeding with plastering the rest of the work.
8. Approval of mockups does not constitute approval of deviations from the Contract Documents contained in mockups unless Architect specifically approves such deviations in writing.
9. Retain and maintain mockups during construction in an undisturbed condition as a standard for judging the completed stucco plaster Work.

1.8 DELIVERY, STORAGE, AND HANDLING

- A. Deliver materials to Project site in original packages, containers, or bundles, labeled with manufacturer's name, product brand name, and lot number.
- B. Store materials on elevated platforms, under cover, and in a dry location with ambient temperatures continuously maintained at not less than 45 deg F.
- C. Store hydrated lime and factory-prepared lime putty in manufacturer's original and unopened containers. Discard lime if containers have been damaged or have been opened for more than two days.
- D. Store materials not in use in tightly covered containers.
- E. Store lime putty covered with water in sealed containers.
- F. Store sand where grading and other required characteristics can be maintained and contamination avoided.

1.9 FIELD CONDITIONS

- A. Comply with plaster-material manufacturers' written instructions
- B. Environmental Requirements, General: Comply with requirements of referenced plaster application standards and recommendations of plaster manufacturer for environmental conditions before, during, and after plaster application.
- C. Temperatures: Maintain temperatures in work areas at not less than 55 deg F or greater than 80 deg F for at least seven days before application of plaster, continuously during application, and for seven days after plaster has set or until plaster has dried.

**VIOLET BANK MUSEUM
PHASE II – EXTERIOR RESTORATION**

- D. Ventilation: Ventilate building spaces as required to remove water in excess of that required for hydrating plaster. Begin ventilation immediately after plaster is applied and continue until it sets.
- E. Provide all necessary protection, such as coverings and barriers, to protect the adjacent windows, doors and building woodwork and other building fabric left remaining in-place during the work. Protect contiguous work from soiling, spattering, moisture deterioration, and other harmful effects caused by plastering.
- F. Avoid conditions that result in plaster drying out too quickly.
 - 1. Distribute heat evenly; prevent concentrated or uneven heat on plaster.
 - 2. Maintain relative humidity levels for prevailing ambient temperature that produce normal drying conditions.
 - 3. Ventilate work areas in a manner that prevents drafts of air from contacting surfaces during plaster application and until plaster is dry.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following unless otherwise noted:
 - 1. Lime Stucco Plastering Materials:
 - a. Use only Naturally Hydraulic Lime Products as supplied by the following distributors. No substitutions shall be permitted on this item:
 - b. St. Astier Natural Hydraulic Lime (NHL 2.0, 3.5 and 5.0 – as required for substrates and conditions as recommended by manufacturer) supplied by TransMineral USA, Inc., 201 Purrington Road, Petaluma, CA 94952, Telephone: 707-769-0661.
- B. Sand Aggregates: ASTM C897.
 - 1. Finish-Coat Sand: Match size, texture, and gradation of existing sand as closely as possible.
- C. Fiber: Natural goat hair of length, proportion and type as required to suit conditions; free of grease, waxes, and oils; and beaten well to separate fibers before blending into unfibered plaster material. Mixed to produce a well-fibered, cohesive, spreadable, stiff mix with fibers uniformly distributed.

2.2 METAL LATH

- A. Expanded-Metal Lath: Galvanized.
 - 1. Diamond-Mesh Lath: Self Furring and Flat, 3.4 lb/sq. yd

**VIOLET BANK MUSEUM
PHASE II – EXTERIOR RESTORATION**

2.3 ACCESSORIES

- A. General: Comply with ASTM C 1063, and coordinate depth of trim and accessories with thicknesses and number of plaster coats required.
- B. Metal Accessories:
 - 1. Corner reinforcement. 2"x2" bent to 90degrees from lath.
 - 2. Corner reinforcing: Fabricated from expanded-metal lath, 90 degrees or angle needed to match condition. 3" overlap on each side.
 - 3. Other trim pieces as indicated on drawings.

2.4 MISCELLANEOUS MATERIALS

- A. Water for Mixing and Finishing Plaster: Potable and free of substances capable of affecting plaster set or of damaging plaster, lath, or accessories.
- B. Fasteners for Attaching Lath to Substrates:
 - 1. Type 304 Stainless Steel.
- C. Bonding Compound: ASTM C 631.
- D. Wire Ties:
 - 1. Type 304 stainless steel wire, not less than 0.0475-inch diameter unless otherwise indicated.
- E. Other Products: Select materials and methods of use based on the following, subject to approval of a mockup:
 - 1. Previous effectiveness in performing the work involved.
 - 2. Little possibility of damaging exposed surfaces.
 - 3. Consistency of each application.
 - 4. Uniformity of the resulting overall appearance.
 - 5. Do not use products or tools that could do the following:
 - a. Remove, alter, or in any way harm the present condition or future preservation of existing surfaces, including surrounding surfaces not in contract.
 - b. Leave an unintended residue on surfaces.

PART 3 - EXECUTION

3.1 HISTORIC TREATMENT OF PLASTER, GENERAL

- A. Historic Treatment Appearance Standard: Completed work is to have a uniform appearance as viewed by Architect from building interior at 3 feet from wall surfaces and 10 feet from ceiling surfaces.
- B. General: In treating historic plaster, disturb it as minimally as possible and as follows unless

VIOLET BANK MUSEUM
PHASE II – EXTERIOR RESTORATION

otherwise indicated:

1. Dismantle loose, damaged, or deteriorated plaster, lath, and support systems that cannot be repaired.
2. Verify extent of plaster deterioration against that indicated on Drawings. Consult Architect on types and extent of required work.
3. Verify that substrate surface conditions are suitable for repairs.
4. Verify that all masonry repairs have been completed and any hardware required to be installed prior to plastering has been completed.
5. Provide lath, furring, and support systems for plaster included in the work of this Section.
6. Leave repaired plasterwork in proper condition for painting or applying other finishes as indicated.
7. Install temporary protective measures to protect historic surfaces that shall be treated later.

- C. Illumination: Perform plastering work with adequate, uniform illumination that does not distort the flatness or curvature of surfaces.

3.2 EXAMINATION

- A. Examine substrates and conditions, with Installer present, for compliance with requirements for installation tolerances and other conditions affecting performance of the Work.
- B. Masonry Substrates: Verify that mortar joints are struck flush. Notify Architect of undocumented masonry substrate without flush joints. Proceed with plastering as directed by Architect.
- C. Verify paint has been applied to galvanized metals where contact will be made with stainless steel.
- D. Proceed with installation only after unsatisfactory conditions have been corrected.

3.3 PREPARATION

- A. Protect adjacent work from soiling, spattering, moisture deterioration, and other harmful effects caused by plastering.
- B. Substrates: Prepare according to plaster manufacturer's written instructions and as follows:
1. Clean surfaces to remove dust, loose particles, grease, oil, incompatible curing compounds, form-release agents, and other foreign matter and deposits that could impair bond with plaster.
 2. Remove ridges and protrusions greater than 1/8 inch and fill depressions greater than 1/4 inch with patching material. Allow to set and dry.
- C. Prepare smooth, solid substrates for plaster according to ASTM C 926.

3.4 REMOVING AND INSTALLING LATH AND ACCESSORIES

- A. General: Dismantle existing plaster only as necessary to expose deteriorated or rusted lath, or

**VIOLET BANK MUSEUM
PHASE II – EXTERIOR RESTORATION**

to remove topcoats to bond new plaster to existing. Repair with new materials, well secured to existing lath in good condition and to building structure.

1. Cutting: Cut lath if existing lath has been left longer than necessary or is deteriorated. Cut to avoid cracking surrounding plaster.
2. Cut out existing base-coat plaster beyond the edges of the new lath to permit new plaster to extend onto the old lath. Then step subsequent plaster coats to permit new plaster to extend over the old material.
3. Apply bonding agent to substrate if required.
4. Install trim pieces.
5. Fasten new lath to support system and to good existing lath. Wire tie at least every 6 inches.
6. Install new lath according to ASTM C1063 for lime plaster.
7. Install corner reinforcement at all inside and outside corners.

B. Notify Architect of undocumented detrimental conditions including cracks, bulges, loose backup, rotted wood, rusted metal, and other deteriorated items.

C. Install plaster accessories in accord with manufacturer's product data and as follows:

1. Install prefabricated inside and outside corners at all corners, where trim returns into door jambs and any other location indicated on drawings.
2. Install metal trim shapes to framing system or substrate with mechanical anchors spaced at 7" o. c. vertically, and 16" o.c. horizontally. Use Type 304 Stainless Steel fasteners.
3. Dust surfaces and leave ready for finishing. Joint and fastener treatment shall be indistinguishable in finished work.
4. Protect accessories from damage. Replace damaged components.

D. Metal Lath: Install according to ASTM C1063 for lime plaster.

1. Partition Framing and Vertical Furring: Install flat diamond-mesh lath, galvanized.
2. On Solid Surfaces, including over plywood backing: Install self-furring, diamond-mesh lath, galvanized.

E. Reinforcement for External (Outside) and Internal (Inside) Corners:

1. Install lath-type, external-corner reinforcement, galvanized.

3.5 PLASTER REMOVAL AND REPLACEMENT

A. General

1. Standard: Apply plaster materials, compositions and mixes to comply with plaster manufacturer's printed instructions and recommendations.
2. Execute work to provide a finish free from depressions, bulges, slick spots, scratches, brush and tool marks, cracks, visible joints, crazing, and discolorations. Surfaces shall have true planes, with uniform texture to match the adjoining surfaces and with lines and arrises that are straight, plumb and level. Work shall be true to grounds and guidelines and free from blemishes and defects of any sort apart from the intended smooth trowel finish.
3. Layout plaster walls to rise tangent to the spring of the vaulted ceiling in all spaces.

**VIOLET BANK MUSEUM
PHASE II – EXTERIOR RESTORATION**

4. Ventilation and Drying: Take all necessary measures to provide for the proper ventilation and regulate drying and curing of plaster. Do not allow too rapid drying of stucco plaster. Allow 3-5 days per coat depending on hydraulic lime used and weather conditions.
 5. Joints: Lap joints in scratch and brown coats including joints at interior angles; continue past angle and corner and feather off on adjacent wall.
 6. Sequence plaster application with installation and protection of other work so that neither will be damaged by installation of the other.
 7. Bonding Compound: Apply on unit masonry and concrete substrates for direct application of plaster.
- B. Notify Architect of undocumented detrimental conditions including cracks, bulges, loose backup, rotted wood, rusted metal, and other deteriorated items.
- C. Do not deviate more than plus or minus 1/8 inch in 10 feet from a true plane in finished plaster surfaces, as measured by a 10-foot straightedge placed on surface.
- D. Clean substrate surfaces to remove grease, waxes, oils, waterborne staining, debris, and other foreign matter and deposits that could impair bond with repair material.
- E. Wet masonry bases before plaster application. Keep substrate damp to the touch but without visible water droplets.
- F. Wet remaining plaster abutting the replacement plaster before installing new plasterwork.
- G. Provide plaster surfaces that are ready to receive field-applied finishes indicated.
- H. Lime-Plaster Base Coats:
1. Scratch Coat and Brown Coat Ratios as required for conditions and approved under mock-ups.
- I. Lime-Plaster Finish Coats:
1. Finish to match existing vaulted ceiling and remainder of plaster on wall in Outer Room
 2. Finish-Coat Mix for Smooth Finish: As required to match finish of existing and as approved under mock-up.
- J. Hairline cracking within the plaster or plaster separation at edge of a replacement is unacceptable. Completely dismantle such work and reinstall or repair as a crack repair.
- 3.6 STUCCO PLASTER APPLICATION, SCRATCH (FIRST) COAT
- A. Hand apply lime stucco plaster with sufficient materials and pressure to force plaster to form good bond with solid base material or metal lath and cover well. Scratch coat shall not be mechanically applied.
- B. Leave the surface level.

VIOLET BANK MUSEUM
PHASE II – EXTERIOR RESTORATION

- C. Scratch this coat both horizontally and vertically and allow to set and thoroughly dry out before the application of the brown coat.

3.7 STUCCO PLASTER APPLICATION BROWN (SECOND) COAT

- A. Do not apply brown coat until after scratch coat has hardened. Evenly dampen scratch coat to provide uniform suction before brown coat is applied.
- A. Prior to application of brown coat place plaster screeds at angles and corners and at eight (8) foot intervals in both walls and ceilings unless grounds occur at smaller intervals.
- B. Thickness of brown coat shall be approximately ½ inch. Bring brown coat out to ground and required lines, to true, even surfaces, straighten with rod and darby. Leave surface of plaster rough, rake surface in both horizontal and vertical directions to accept finish coat.

3.8 STUCCO PLASTER APPLICATION, FINISH (THIRD) COAT

- A. Finish shall be 1/4-inch thick and treated and finished as directed.
- B. Before Application of finish coat, cut out shrinkage cracks and fill with scratch coat mortar. Dampen surface sufficiently with water to obtain uniform suction.
- C. Apply finish coats well ground to scratched surfaces, then double back and trowel down to a true plane, filling all imperfections. Troweling shall be delayed as long as possible and used only to eliminate uneven points and to force aggregate particles back into the plaster surface. Avoid excessive troweling.
- D. Finish surfaces plumb, straight, level and true throughout and to match texture and finish approved under mock-ups.

3.8 HAIRLINE CRACK REPAIR (Single unit price will apply to both hairline and large crack repairs)

- A. General: Repair cracks 1/32 inch in width or narrower in otherwise sound plaster.
- B. Notify Architect of undocumented detrimental conditions including cracks, bulges, loose backup, rotted wood, rusted metal, and other deteriorated items.
- C. Maintain adjacent plasterwork in an undamaged condition so far as practicable.
- D. Existing Topcoat: Open crack in existing topcoat to at least 1/8 inch in width and check for broken fiber reinforcement in base coats.
- E. Existing Base Coats: Do not open crack wider in existing base coats unless inspection or other indication shows that the fiber reinforcement has broken. Where inspections indicate failure of fiber reinforcement, proceed as for a large crack repair, but only for length of crack with broken fiber reinforcement.
- F. Clean out crack to remove loose materials and other foreign matter and deposits that could impair bond with repair material. Where grease, waxes, oils, waterborne staining, or other foreign matter and deposits that could impair bond with repair material have penetrated into the topcoat plaster, widen the crack and sand surface of the exposed basecoat to remove these deposits.

**VIOLET BANK MUSEUM
PHASE II – EXTERIOR RESTORATION**

- G. Wet substrate to damp condition, but without visible water droplets.
 - H. Force repair material demonstrated in mockup into crack, filling crack to original plaster profile.
 - I. Finishing: Finish flat surfaces flush and with same texture as adjacent existing plaster. For molded plaster shapes, tool surface to restore the sharp edges and the shape of the molded shape to original contours.
- 3.9 LARGE CRACK REPAIR (Single unit price will apply to both hairline and large crack repairs)
- A. General: Repair cracks over 1/32 inch in width in otherwise sound plaster
 - B. Notify Architect of undocumented detrimental conditions including cracks, bulges, loose backup, rotted wood, rusted metal, and other deteriorated items.
 - C. Maintain adjacent plasterwork in an undamaged condition so far as practicable.
 - D. Open crack to at least 1/8 inch in width and full depth with V-groove tool, and check for bond separation or lath deterioration.
 - E. Abrade side surfaces of crack and remove inner crack debris by gouging (keying) the inside area of the crack.
 - F. Clean out crack to remove loose materials and other foreign matter and deposits that could impair bond with repair material. Where grease, waxes, oils, waterborne staining, or other foreign matter and deposits that could impair bond with repair material have penetrated into the plaster, widen the crack to remove these deposits.
 - G. Wet substrate to damp condition, but without visible water droplets.
 - H. Install repair material demonstrated in mockup to fill crack to original plaster profile.
 - I. Finishing: Finish flat surfaces flush and with same texture as adjacent existing plaster. For molded plaster shapes, tool surface to restore the sharp edges and the shape of the molded shape to original contours.
- 3.10 CUTTING AND PATCHING
- A. Cut, patch, replace, and repair plaster as necessary to accommodate other work and to restore cracks, dents, and imperfections. Repair or replace work to eliminate blisters, buckles, crazing and check cracking, dry outs, efflorescence, sweat outs, and similar defects and where bond to substrate has failed.
 - B. Leave plaster ready for painting.
 - C. Plaster Contractor shall include cutting and patching for mechanical, fire protection and electrical components in scope of work. Coordinate with MEP work under separate contract.

**VIOLET BANK MUSEUM
PHASE II – EXTERIOR RESTORATION**

3.9 CURING

- A. Provide optimum conditions for curing stucco plaster until plaster has cured. Avoid conditions that result in stucco plaster drying out too quickly. Distribute heat and ventilation evenly; prevent concentrated or uneven heat and ventilation on stucco surface. Maintain relative humidity levels for prevailing ambient temperature that produces normal drying conditions. Prevent drafts of air from contacting surfaces during stucco plaster application and until stucco plaster is dry.
- B. Moist-cure lime stucco plaster base and finish coats to comply with manufacturers recommendations.

3.10 ADJUST AND CLEAN

- A. Remove and replace stucco plastering and plaster repairs that do not meet the requirements of this Section to the satisfaction of the Architect at no additional cost to the Owner.
- B. Should soiling or spattering occur, remove it by sponging, brush cleaning, and as otherwise required before stucco plaster sets to avoid scratching.

3.11 CLEANING AND PROTECTION

- A. Remove temporary protection and enclosure of other work after plastering is complete. Promptly remove plaster from door frames, windows, and other surfaces not indicated to be plastered. Repair floors, walls, and other surfaces stained, marred, or otherwise damaged during plastering.
- B. When plastering is completed, remove unused materials, containers, and equipment and clean surfaces of plaster debris.
- C. Provide final protection and maintain conditions, in a manner acceptable to manufacturer and installer that ensure stucco plasterwork is without damage or deterioration at the time of Substantial Completion.

END OF SECTION 092400

**VIOLET BANK MUSEUM
PHASE II – EXTERIOR RESTORATION**

SECTION 099113 - EXTERIOR PAINTING

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 paint systems on the following exterior substrates:
 - 1. Existing exterior wood windows, window frames, shutters, doors, and door frame.
 - 2. Existing wood trim, siding, cornice, and columns.
 - 3. Existing metal railing at front (south) stairs and rear (north) basement stairs.
 - 4. Existing concrete stairs and front and rear porches.
 - 5. Existing brick masonry wall at rear basement stairs.
 - 6. Existing stucco at front porch entry.
 - 7. New wood windows and frames.
 - 8. New wood trim and columns.
 - 9. New wood railing system.
- B. Related Requirements:
 - 1. Section 062100 "Wood Consolidation & Repair"
 - 2. Section 072900 "Joint Sealants"

1.3 ACTION SUBMITTALS

- A. Product Data: For each type of product. Include preparation requirements and application instructions.
- B. Samples for Verification: For each type of paint system and each color and gloss of topcoat.
 - 1. Submit Samples on rigid backing, 8 inches (200 mm) square.
 - 2. Apply coats on Samples in steps to show each coat required for system.
 - 3. Label each coat of each Sample.
 - 4. Label each Sample for location and application area.
- C. Product List: Cross-reference to paint system and locations of application areas. Use same designations indicated on Drawings and in schedules. Include color designations.

1.4 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.

**VIOLET BANK MUSEUM
PHASE II – EXTERIOR RESTORATION**

1. Paint: 5 percent, but not less than 1 gal. (3.8 L) of each material and color applied.

1.5 QUALITY ASSURANCE

- A. Mockups: Apply mockups of each paint system indicated and each color and finish selected to verify preliminary selections made under Sample submittals and to demonstrate aesthetic effects and set quality standards for materials and execution.
 1. Locate mockups as directed by Architect.
 2. Notify Architect 48 hours prior to start of each mock-up.
 3. Use crew that will execute the work and follow the requirements of this Section.
 4. Repeat mock-ups as necessary to obtain Architect's approval.
 5. Final approval of color selections will be based on mockups.
 - a. If preliminary color selections are not approved, apply additional mockups of additional colors selected by Architect at no added cost to Owner.
 6. Approval of mockups does not constitute approval of deviations from the Contract Documents contained in mockups unless Architect specifically approves such deviations in writing.
 7. Subject to compliance with requirements, approved mockups may become part of the completed Work if undisturbed at time of Substantial Completion.

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 (7 deg C).
 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 paints only when temperature of surfaces to be painted and ambient air temperatures are between 50 and 95 deg F (10 and 35 deg C).
- B. Do not apply paints in snow, rain, fog, or mist; when relative humidity exceeds 85 percent; at temperatures less than 5 deg F (3 deg C) above the dew point; or to damp or wet surfaces.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Products: Subject to compliance with requirements, provide product listed in the Exterior Painting Schedule for the paint category indicated.

2.2 PAINT, GENERAL

- A. Material Compatibility:

**VIOLET BANK MUSEUM
PHASE II – EXTERIOR RESTORATION**

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.

B. Colors: As selected by Architect from manufacturer's full range.

2.3 STEAM PAINT AND COATING REMOVAL SYSTEMS FOR EXTERIOR PAINT

A. General: Provide one or more steam paint remover systems using equipment and procedures tested previously or as determined during testing as part of work of this Section.

B. Steam Paint Removal System:

1. Surface applied: Provide low pressure steam generator, 1500 watts, Model 4000, as manufactured by Jiffy Steamer Company, LLC, P.O. Box 869, Union City, Tennessee 38281-0869, (800) 525-4339, or approved equal. Provide a variety of interchangeable heads.
2. Steam Cabinet: Insulated cabinet with inlet for steam. Steam supplied by steam generator.

2.4 INFRARED PAINT REMOVAL MATERIALS

A. Paint removal performed in shop is to be accomplished by either steam or infrared removal technology using the following product or approved equal: Speedheater Infrared Paint Remover.

1. Provide Architect with removal plan and schedule if this method is to be used.

2.5 MISCELLANEOUS TOOLS AND EQUIPMENT

A. Hand Tools with Vacuum Attachments for Removing Coatings from Wood on Site: Provide tools specifically made to contain and collect paint removal products that can attach to a vacuum with HEPA filters. Provide Proscraper, manufactured by Gelplane International, or approved equal.

B. Hand Tools for Removing Paint From Wood with Steam: Carbide-tipped scrapers, profile scrapers with a variety of shapes matching the profiles of the moldings, 5-in-1s, and other tools used to remove paint from wood.

C. Buckets for Cleaning Compounds and Rinsing: Molded rubber or plastic buckets.

D. Brushes: Fiber-bristle brushes.

E. Tools for Removing Paint: Provide a variety of hand tools to removed softened paint (plastic scrapers, putty knives with rounded edges, 5-in-1 and carbide scrapers) that will not damage substrate.

F. Non-metallic Cleaning Pads: Scotch-Brite General-Purpose (Maroon) Pads and Ultra-Fine (Gray) Hand Pads as manufactured by 3M Company, 3M Center, St. Paul, MN 55144, or approved equal.

**VIOLET BANK MUSEUM
PHASE II – EXTERIOR RESTORATION**

- G. Metallic Cleaning Pads: Extra fine metal wool free of dirt and corrosion.
 - 1. Use on wood: bronze wool or stainless steel wool.
- H. Sponges: Clean natural sponges in various sizes for rinsing.
- I. Cloths: Clean, lint-free cotton rags and cheesecloth.

2.6 WOOD PRE-TREATMENT

- A. Wood conditioner: 50/50 mixture of boiled linseed oil and turpentine.
- B. Products: Subject to compliance with requirements, provide one of the following:
 - 1. Boiled linseed oil
 - a. Klean Strip: Boiled Linseed Oil
 - b. Crown: Boiled Linseed Oil
 - c. Sunnyside: Boiled Linseed Oil
 - 2. Turpentine
 - a. Klean Strip: Pure Gum Spirits Turpentine
 - b. Crown: Turpentine Pure Gum Spirits
 - c. Sunnyside: Pure Gum Spirits of Turpentine

2.7 PAINT PRODUCTS, 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 topcoat manufacturer for use in paint system and on substrate indicated.
- B. Colors: Contractor shall provide multiple custom colors as determined by Architect

2.8 SCHEDULE OF PAINTS

- A. New and Existing Exterior Wood Window Sash, Frames and Casings: One primer coat and two topcoats.
 - 1. Primer: Benjamin Moore Fresh Start Primer. Apply one coat.
 - 2. Topcoat: Benjamin Moore Aura Exterior Soft Gloss. Apply two coats.
- B. Existing Exterior Wood Doors, Door Frames and Casings: One primer coat and two topcoats.
 - 1. Primer: Benjamin Moore Fresh Start Primer. Apply one coat.
 - 2. Topcoat: Benjamin Moore Aura Exterior Soft Gloss. Apply two coats.
- C. New and Existing Exterior Wood Trim, Siding, Columns, Railing System, and Shutters: One primer coat and two topcoats.
 - 1. Primer: Benjamin Moore Fresh Start Primer. Apply one coat.
 - 2. Topcoat: Benjamin Moore Aura Exterior Soft Gloss. Apply two coats.

**VIOLET BANK MUSEUM
PHASE II – EXTERIOR RESTORATION**

- D. Existing Exterior Stucco: One primer coat and two topcoats.
 - 1. Primer: Benjamin Moore Fresh Start Primer. Apply one coat.
 - 2. Topcoat: Benjamin Moore Aura Exterior Soft Gloss. Apply two coats.
- E. Existing Exterior Masonry and Concrete:
 - 1. First Coat: Benjamin Moore Ultra Spec Acrylic Sealer 608. Apply one coat.
 - 2. Second Coat: Benjamin Moore Ultra Spec Elastomeric 360. Apply one coat.
- F. Existing Ferrous Metal:
 - 1. First Coat: Tnemec Typoxy 27 Primer. Apply one coat.
 - 2. Topcoat: Tnemec Typoxy 27 Primer. Apply one coat.

2.9 SOURCE QUALITY CONTROL

- A. Testing of Paint Materials: Owner reserves the right to invoke the following procedure:
 - 1. Owner may direct Contractor to stop applying paints if test results show materials being used do not comply with product requirements. Contractor shall remove noncomplying paint materials from Project site, pay for testing, and repaint surfaces painted with rejected materials. Contractor will be required to remove rejected materials from previously painted surfaces if, on repainting with complying materials, the two paints are incompatible.

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. Maximum Moisture Content of Substrates: When measured with an electronic moisture meter as follows:
 - 1. Wood: 15 percent.
- C. Verify suitability of substrates, including surface conditions and compatibility, with existing finishes and primers.
- D. 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 paint systems indicated.

**VIOLET BANK MUSEUM
PHASE II – EXTERIOR RESTORATION**

- 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.
- C. Clean substrates of substances that could impair bond of paints, 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 paint systems indicated.

3.3 STEAM PAINT REMOVAL METHODS

- A. General: Remove paint using steam paint removal system method to be the gentlest, most effective method for removing each type of coating system from each substrate as approved by Architect.
 - 1. Determine moisture content of wood before beginning steam operation.
- B. Paint Removal: Carefully heat surface of paint with steam to soften paint. Steam may be applied directly from the generator or in a steam cabinet. Scrape softened paint with a dull putty knife with rounded corners or other paint scrapers as required to remove the softened paint layers. It may be necessary to repeat the heating and scraping to remove the bulk of the paint. Remove as much paint as possible without damaging wood surface. Tightly adhered paint and coatings may remain if required to prevent damage to substrate.
- C. Allow the wood to dry to within 1 percent of the moisture content of the wood as tested before the steam treatment. Lightly sand surface after removing paint.

3.4 PREPARATION OF WOOD SURFACES FOR PAINTING

- A. Shop paint stripping to bare wood as indicated on drawings:
 - 1. Infrared stripping of wood: Use of infrared removal shall be the responsibility of the painting restoration specialist. Care must be taken to protect adjacent surfaces.
 - a. Heat paint using infrared for 20-40 seconds, depending on weather conditions. When paint begins to smoke and bubble, move infrared heater to the next areas of work to be stripped while scraping loosened paint from wood.
 - b. Take care not to mar or damage wood moldings and trim. Use curved scrapers on curved surfaces.
 - 2. Following paint removal, all bare wood is to be treated with Wood Pre-treatment specified in Part 2 of this section.
- B. Paint preparation of existing painted surfaces:
 - 1. Remove loose and flaking paint with metal scrapers. Fully adhered paint materials can remain. Sand area to feather edges and smooth surface.
 - 2. If area to be prepared grows beyond that anticipated, notify Architect before continuing with paint preparation.

**VIOLET BANK MUSEUM
PHASE II – EXTERIOR RESTORATION**

C. Paint preparation of new wood surfaces:

1. Scrape and clean knots. Before applying primer, apply coat of knot sealer recommended in writing by topcoat manufacturer for exterior use in paint system indicated.
2. Sand surfaces that will be exposed to view, and dust off.
3. Prime edges, ends, faces, undersides, and backsides of wood.
4. After priming, fill holes and imperfections in the finish surfaces with putty or plastic wood filler. Sand smooth when dried.

3.5 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. Paint both sides and edges of exterior doors and entire exposed surface of exterior door frames.
4. Paint entire exposed surface of window frames and sashes.
5. Do not paint over labels of independent testing agencies or equipment name, identification, performance rating, or nomenclature plates.
6. 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 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.

E. Painting Fire Suppression, Plumbing, HVAC, Electrical, Communication, and Electronic Safety and Security Work:

1. Notify Architect and verify which building mounted equipment is to be painted.

3.6 FIELD QUALITY CONTROL

A. Dry Film Thickness Testing: Owner may engage the services of a qualified testing and inspecting agency to inspect and test paint for dry film thickness.

1. Contractor shall touch up and restore painted surfaces damaged by testing.
2. If test results show that dry film thickness of applied paint does not comply with paint manufacturer's written recommendations, Contractor shall pay for testing and apply additional coats as needed to provide dry film thickness that complies with paint manufacturer's written recommendations.

**VIOLET BANK MUSEUM
PHASE II – EXTERIOR RESTORATION**

3.7 CLEANING AND PROTECTION

- A. At end of each workday, remove rubbish, empty cans, rags, and other discarded materials from Project site.
- B. After completing paint application, clean spattered surfaces. Remove spattered paints by washing, scraping, or other methods. Do not scratch or damage adjacent finished surfaces.
- C. Protect work of other trades against damage from paint application. Correct damage to work of other trades by cleaning, repairing, replacing, and refinishing, 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 painted surfaces.

END OF SECTION 099113