PROJECT MANUAL FOR:

FOUNDERS HALL BUILDING ENVELOPE REHABILITATION
827 West Franklin Street, Richmond, VA 23220

PROJECT CODE: 236-12708-00700
DEB NO.: 236-B1236-031

PREPARED FOR:

Virginia Commonwealth University
Facilities Management
700 Grace Street, Suite 1500, Richmond, VA 23284

PREPARED BY:
RAYMOND ENGINEERING-GEORGIA, INC.
1601 Summit Avenue, Richmond, VA 23230
RAYMOND PROJECT NO. RVA1046.002

March 24, 2023
BID SET
SECTION 00 01 10
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Sealed bids (one copy), are invited for the Founders Hall Rehabilitation, Project Code No: 236-12708-00700, located at 827 West Franklin Street, Richmond, Virginia 23284. The project is generally described as the exterior restoration of Founders Hall including copper and slate roof replacements, low-slope roof replacements, brick and stone masonry restoration, and windows repairs. Work will also include the introduction of a thermal envelope in the attic space of the original building and reworking access into the attic space. Site staging, protection, and pedestrian safety will be a high importance throughout the project.

Sealed bids will be received by Erika Crews, VCA, VCO, VCCO at Virginia Commonwealth University, Construction Management, 700 West Grace Street, Suite 1600, VCU Monroe Park Campus, Richmond, Virginia 23284. The deadline for submitting bids is 2:00 P.M. sharp, as determined by the Bid Officer, on May 16, 2023. The bids will be opened publicly and read aloud beginning at 2:00 P.M. on May 17, 2023, at the same location.

A Bid Bond is required if Bid is over $500,000.

Procedures for submitting a bid, claiming an error, withdrawal of bids and other pertinent information are contained in the Instructions to Bidders, which is part of the Invitation for Bids. Withdrawal due to error in bid shall be permitted in accord with Section 4, Item I, No. 3 of the Commonwealth of Virginia Purchasing Manual for Institutions for Higher Education and their Vendors.\(^1\) The Owner reserves the right to reject any or all bids.

A Mandatory Pre-Bid Conference will be held at the project site, 827 West Franklin Street, Richmond, Virginia 23284 at 9:30 A.M. on April 21, 2023. No one will be admitted to the Pre-Bid Conference after 9:40 A.M. Attendance shall be mandatory for those submitting a bid.

Questions shall only be directed to Jason Mobraten with Raymond Engineering – Georgia, Inc. by email at jason.mobraten@raymondlc.com. All questions must be submitted on the VCUHECO Pre-Bid Question Form (included in the Project Manual). The deadline for submitting questions is 12:00 Noon on April 27, 2023.

The contract shall be awarded on a lump sum basis as follows: the Total Base Bid Amount including any properly submitted and received bid modifications plus such successive Additive Bid Items as the Owner in its discretion decides to award in the manner set forth in Paragraph 12 of the Instructions to Bidders. ‘Notice of Award’ or ‘Notice of Intent to Award’ will be posted on eVA, Virginia Department of General Services’ central electronic procurement website, at https://eva.virginia.gov and on the agency’s website at https://find.vcu.edu/departments/construction-management/bids/

Contractor registration is required in accordance with Section 54.1-1103 of the Code of Virginia. See the Invitation for Bids for additional qualification requirements.

\(^1\) https://procurement.vcu.edu/media/procurement/pdf/document-library/HEM.pdf
It is the policy of Virginia Commonwealth University (VCU) to contribute to the establishment, preservation, and strengthening of small, women and minority owned businesses (SWaM), as certified by the Commonwealth of Virginia’s Department of Small Business and Supplier Diversity (DSBSD), and to encourage their participation in VCU procurement activities. To this end, and in compliance with Commonwealth of Virginia’s Executive Order 35, VCU has established an overall SWaM participation goal of 42% for non-capital projects for fiscal year 2023 and encourages Contractors to provide for the participation SWaM businesses through partnerships, joint ventures, subcontracts, or other contractual opportunities.

The Invitation for Bids for the above project, including the drawings and the specifications containing the information necessary for bidding, may be obtained from:

**Raymond Engineering – Georgia, Inc.**  
1601 Summit Avenue, Richmond, VA 23230  
Phone: 804-726-9540  
Attn.: Jason Mobraten, RA, RRC, REWC at jason.mobraten@raymondllc.com

Copies of the Invitation for Bids documents, including the plans and the specifications, will also be available for inspection at the following locations:

Agency’s website at [https://fmd.vcu.edu/departments/construction-management/bids/](https://fmd.vcu.edu/departments/construction-management/bids/)

Virginia Commonwealth University  
Authorized Official of Owner/Agency  

Matthew C. Magruder, VCCO, LEED AP  
Director, VCU Construction Management
INSTRUCTIONS TO BIDDERS

The Invitation For Bids (IFB) consists of the Notice, this Instructions To Bidders, the Bid Form, the Pre-Bid Question Form, the General Conditions of the Construction Contract, the Supplemental General Conditions (if any), the Special Conditions (if any), the Forms to be used, and the Scope of Work as described by the Plans and Specifications, other documents listed in the Specifications, and any addenda which may be issued, all of which request qualified bidders to submit competitive prices or bids for providing the described work on the project. The bidder or offeror shall be registered in eVA.

1. CONDITIONS AT SITE OR STRUCTURE

Bidders shall visit the site and shall be responsible for ascertaining pertinent local conditions such as location, accessibility, general character of the site or building, and the character and extent of existing work within or adjacent to the site. Claims, as a result of failure to have done so, will not be considered by the University. See Section 7 of the General Conditions entitled "Conditions at Site."

2. EXPLANATIONS TO BIDDERS

No oral explanation in regard to the meaning of drawings and specifications will be made and no oral instructions will be given before the award of the contract. Discrepancies, omissions or doubts as to the meaning of drawings and specifications shall be communicated in writing to the Architect/Engineer for interpretation. Bidders must use the "VCUHECO Pre-bid Question Form" provided in the bid documents. Bidders must submit questions so that they reach the A/E no later than six (6) days prior to the time set for the receipt of bids to allow a sufficient time for an addendum to reach all bidders before the submission of their bids. Any interpretation made will be in the form of an addendum to the specifications which will be forwarded to all bidders, and its receipt shall be acknowledged by the bidder on Bid Forms.

3. TIME FOR COMPLETION

(a) "Time for Completion" shall be designated by the University on the IFB or other pre-bid documents and shall mean the number of consecutive calendar days following the issuance of the Notice to Proceed which the Contractor has to substantially complete all Work required by the Contract. In some instances, the Time for Completion may be stated in the form of a Contract Completion Date based on a stipulated date of Notice to Proceed.

Unless otherwise specified, the Contractor shall achieve Final Completion within thirty (30) days after the date of Substantial Completion.
(b) When the Notice to Proceed is issued, it will state a Contract Completion Date, which has been set by the University based on date of the Notice to Proceed and the Time for Completion. (c) The Contractor, in preparing and submitting his bid, is required to take into consideration normal weather conditions. Normal weather does not mean statistically average weather, but rather means a range of weather conditions which might be anticipated, (i.e., conditions which are not extremely unusual). Normal weather conditions shall be determined from the National Oceanic and Atmospheric Administration (NOAA) for Richmond, VA. The data sheets to be used shall be for the locality or localities closest to the site of the work. No additional compensation will be paid to the Contractor because of adverse weather conditions; however, an extension of time for abnormal weather will be considered by the University as indicated in the General Conditions.

(d) If the University designates the public historical climatological records to be used, the bidder shall use those records in computing bids. The bid submitted and the time of completion shall be presumed to have been based upon normal weather derived from the climatological records used.

4. PREPARATION AND SUBMISSION OF BIDS

(a) Bids shall be submitted on the forms furnished, or copies thereof, and shall be signed in ink. Erasures or other changes in a bid must be explained or noted over the signature of the bidder. Bids containing any conditions, omissions, unexplained erasures, alterations or items not called for in the proposal, or irregularities of any kind, may be rejected by the University as being incomplete or nonresponsive.

(b) Each bid must give the complete legal name and full business address of the bidder and be signed by the bidder, or the bidder’s authorized representative, with his usual signature. Bids by partnerships must be signed in the partnership name by one of the general partners of the partnership or an authorized representative, followed by the designation/title of the person signing, and a list of the partners. Bids by joint ventures must be signed in the joint venture name by one of the joint venturers or an authorized representative of one of the joint venturers, followed by the designation/title of the person signing, and a list of the joint venturers. Bids by corporations must be sealed and signed with the legal name of the corporation followed by the name of the state in which it is incorporated and by the signature and title of the person authorized to bind it in this matter. The name of each person signing shall be typed or printed below the signature. A signature on a bid by a person who identifies his title as "President," "Secretary," "Agent" or other designation without disclosing the principal firm, shall be held to be the bid of the individual signing. When requested by the University, satisfactory evidence of the authority of the officer signing on behalf of the corporation shall be furnished. Trade or fictitious names may be referenced by using "t/a __ __," but bids shall be in the legal name of the person or entity submitting the bid.

(c) Bids with the bid guarantee shall be enclosed in a sealed envelope which shall be marked and addressed as indicated by the advertisement. If a contract is for one hundred twenty thousand dollars ($120,000) or more, or if the total value of all construction, removal, repair or improvements undertaken by the bidder within any twelve-month period is seven hundred fifty thousand dollars ($750,000) or more, the bidder is required under Title 54.1, Chapter 11, Section
1100, Code of Virginia, as amended, to be licensed in Virginia as a "Class A Contractor." If a contract is for seven thousand five hundred dollars ($7,500) or more, but less than one hundred twenty thousand dollars ($120,000), the bidder is required to be licensed in Virginia as a "Class B Contractor." The bidder shall place on the outside of the envelope containing the bid and shall place in the bid over his signature whichever of the following notations is appropriate and insert his Contractor license/registration number:

Licensed Class A Virginia Contractor No. ______________ or
Licensed Class B Virginia Contractor No. ______________

If the bidder is not properly licensed in Virginia at the time the bid is submitted, or if the bidder fails to provide this information on his bid or on the envelope containing the bid and fails to promptly provide said Contractor license number to the University in writing when requested to do so before or after the opening of bids, he shall be deemed to be in violation of Section 54.1-1112 of the Code of Virginia, as amended, and his bid will not be considered.

(d) The Board for Contractors has interpreted its regulations to mean "a licensed Contractor can bid on a contract which contains work outside his license classification(s) as long as he subcontracts those items for which he is not qualified to perform to licensed contractors with the appropriate License Classification and the work of the second party is incidental to the contract." Therefore, the University may, as a part of determining whether the bidder is "responsible," require the apparent low bidder to submit a listing of his subcontractors along with the license number and classification or specialty of each.

(e) The bidder must also place its Employer Identification Number (FEIN) in the space provided on the Bid Form.

5. **BID GUARANTEE**

(a) Any bid (including the Total Base Bid plus all Additive Bid Items) which exceeds one million dollars ($1,000,000) shall be accompanied by a *Virginia Commonwealth University Standard Bid Bond, HECO-10.2 FORM*, payable to the University as Obligee in an amount equal to five percent (5%) of the amount of the bid. A Bid Bond may be required for projects having bids of less than one million dollars ($1,000,000) if such requirement is stated in the Notice of IFB. The Bid Bond must be issued by a surety company which is legally authorized by the Virginia State Corporation Commission to do fidelity and surety business in the Commonwealth of Virginia. Such Bid Bond shall guarantee that the bidder will not withdraw his bid during the period of thirty (30) days following the opening of bids; that if his bid is accepted, he will enter into a formal contract with the University in accordance with the Contract Between Owner and Contractor, Form HECO-9, included as a part of the IFB Documents; that he will submit a properly executed and authorized Standard Performance Bond and Standard Labor and Material Payment Bond on the forms included in the IFB documents; and that in the event of the withdrawal of said bid within said period, or failure to enter into said contract and give said bonds within ten (10) days after he has received notice of acceptance of his bid, the bidder shall be liable to the University for the difference between the amount specified in said bid and such larger amount for which the
University may contract with another party to perform the work covered by said bid, up to the amount of the bid guarantee. This amount represents the damage to the University on account of the default of the bidder in any particular hereof. See §28 of Governing Rules\(^1\), as amended.


(c) The Bid Bonds or other bid security will be returned to all except the three lowest bidders after the formal opening of bids. The remaining Bid Bonds or bid security will be returned to the bidders after the University and the accepted bidder have executed the Contract and the Performance Bond and the Payment Bond have been approved by the University.

(d) If the required Contract and bonds have not been executed within thirty (30) days after the date of the opening of the bids, then the bond or other bid security of any bidder will be returned upon his request, provided he has not been notified of the acceptance of his bid prior to the date of such request.

6. WITHDRAWAL OR MODIFICATION OF BIDS

Bids may be withdrawn or modified by written or faxed notice received at the designated location from bidders prior to the deadline fixed for bid receipt. The withdrawal or modification may be made by the person signing the bid or by an individual(s) who is authorized by him on the face of the bid. Written modifications may be made on the bid form itself, on the envelope in which the bid is enclosed, or on a separate document. Written modifications, whether the original is delivered or faxed, must be signed by the person making the modification or withdrawal. The modification must state specifically what is to be modified and by what amount or it must state the item to be modified and what the corrected amount should be. (e.g. “Deduct $25,000 from Part A and from the Total Base Bid Amount”; or “Add $23,456 to the Total Base Bid Amount”; or “Deduct $15,650 from the Additive # 2 amount”. A modification to “Deduct $25,000 from Part A” will only be applied to Part A and not to the Total Base Bid Amount). **Unless otherwise specified by the Bidder in the modification, the modification will be applied to the TOTAL BASE BID AMOUNT shown on the Bid Form** (e.g. a modification stating only “Deduct $25,000” which is properly signed will be deducted from the Total Base Bid Amount shown on the Bid Form).

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\(^1\) [https://vascupp.org/sites/vascupp/files/2020-05/vascapp-governing-rules.pdf](https://vascupp.org/sites/vascupp/files/2020-05/vascapp-governing-rules.pdf)
7. RECEIPT OF BIDS

(a) Bids will be received at or before the date and the hour and at the place stipulated in the IFB as may be modified by subsequent Addenda.

(b) It is the responsibility of the bidder to assure that his bid and any bid modifications are delivered to the place designated for receipt of bids by the date and hour (deadline) set for receipt of bids. Therefore, it is the bidder’s responsibility to take into account all factors which may impact on its bid deliverer / courier’s ability to deliver the bid and to implement whatever actions are necessary to have the bid delivered to the proper bid receipt location prior to the bid receipt deadline. No bids or bid modifications submitted or offered after the date and hour designated for receipt of bids will be accepted or considered.

(c) The Bid Officer is the University's representative designated to receive bids at the time and place noted in the IFB and to open the bids received at the appointed time.

(d) The official time used for the receipt of responses is determined by reference to the clock designated by the Bid Officer. The Bid Officer shall determine when the Bid Receipt Deadline has arrived and shall announce that the Deadline has arrived and that no further bids or bid modifications will be accepted. All bids and bid modifications in the possession of the Bid Officer and his assistants at the time the announcement is completed are deemed to be timely, whether or not the bid envelope has been physically date/time stamped or otherwise marked by the time the Bid Officer makes the deadline announcement.

8. OPENING OF BIDS

(a) Bids will be opened at the time and place stated in the IFB or as modified by subsequent Addenda, and their contents publicly announced. The Bid Officer shall decide when the specified time for bid opening has arrived. No responsibility will be attached to any officer or agent for the premature opening of a bid not properly addressed and identified. Bid opening shall be no sooner than 24 hours after the time set for receipt of bids.

(b) The provisions of §34 of the Governing Rules, as amended, shall be applicable to the inspections of bids received.

9. ERRORS IN BIDS

A bidder may withdraw his bid from consideration if the price bid was substantially lower than the other bids due solely to a mistake therein, provided the bid was submitted in good faith, and the mistake was a clerical mistake as opposed to a judgment mistake, and was actually due to an unintentional arithmetic error or an unintentional omission of a quantity of work, labor or material made directly in the compilation of a bid, which unintentional arithmetic error or unintentional omission can be clearly shown by objective evidence drawn from inspection of original work papers, documents and materials used in the preparation of the bid sought to be withdrawn.
In accordance with §23 of the Governing Rules, the bidder must submit to the University his original work papers, documents and materials used in the preparation of the bid within one day after the date fixed for submission of bids. Such work papers must be submitted in an envelope or package separate and apart from the envelope containing the bid and marked clearly as to the contents and shall be delivered to the University by the bidder in person or by registered mail prior to the time fixed for the opening of bids and may not be withdrawn until after the two-hour period (referred to later) has elapsed.

The bids shall be opened at the time designated in the IFB, as amended by addendum. Bid opening is usually one day following the time fixed by the University for the submission of bids, but no sooner. Once the bids have been opened, the bidder shall have two (2) hours after the opening of bids within which to claim in writing any mistake as defined herein and withdraw his bid. The Contract shall not be awarded by the University until such two-hour period has elapsed. Such mistake shall be proved only from the original work papers, documents and materials delivered to the University prior to bid opening. This procedure (ii) shall not apply to when the entire bid is required to be submitted on a unit price basis.

Failure of a bidder to submit his original work papers, documents and materials used in the preparation of his bid on or before the time, date and place required shall constitute a waiver by that bidder of his right to withdraw his bid due to a mistake.

No bid may be withdrawn under this section when the result would be the awarding of the Contract on another bid of the same bidder or of another bidder in which the ownership of the withdrawing bidder is more than five (5%) percent.

No bidder who is permitted to withdraw a bid shall, for compensation, supply any material or labor to or perform any subcontract or other work agreement for the person or firm to whom the Contract is awarded or otherwise benefit, directly or indirectly, from the performance of the project for which the withdrawn bid was submitted. The person or firm to whom the Contract was awarded and the withdrawing bidder are jointly liable to the University in an amount equal to any compensation paid to or for the benefit of the withdrawing bidder without such approval.

If a bid is withdrawn under authority of this section, the lowest remaining bid shall be deemed to be the low bidder on the project.

10. REJECTION OF BIDS

The University reserves the right to cancel the IFB, to reject any and all bids at its sole discretion when such rejection is in the interest of the University, or to reject the bid of any bidder who is determined to be not responsive or not responsible. See §16, Governing Rules, as amended.
11. DETERMINATION OF RESPONSIBILITY

Each bidder shall be prepared, if so requested by the University, to present evidence of his experience, qualifications and financial ability to carry out the terms of the Contract.

Prior to award of the Contract, an evaluation will be made to determine if the low bidder has the capability, in all respects, to perform fully the contract requirements and the moral and business integrity and reliability which will assure good faith performance, and who has been prequalified, if required. Factors to be evaluated include, but are not limited to:

(a) Sufficient financial ability to perform the contract as evidenced by the bidder's ability to obtain payment and performance bonds from an acceptable surety;

(b) Appropriate experience to perform the Work described in the bid documents;

(c) Any judgments entered against the bidder, or any officers, directors, partners or owners for breach of a contract for construction;

(d) Any substantial noncompliance with the terms and conditions of prior construction contracts with a public body without good cause where the substantial noncompliance is documented; or

(e) a conviction of the bidder or any officer, director, partner, project manager, procurement manager, chief financial officer, or owner in the last five years of a crime relating to governmental or nongovernmental construction or contracting;

(f) Any current debarment of the contractor, any officer, director or owner, from bidding or contracting by any public body of any state, any state agency, or any agency of the federal government.

The University reserves the right to disqualify or refuse to accept the bid of any bidder who has been convicted, or entered a plea of guilty or nolo contendere, in any federal or state court to any charge involving any unlawful, corrupt or collusive practice involving a public contract whether federal, state, or local, or who has been determined in any judicial proceeding to have violated any antitrust, bid-rigging or collusive practice statute in connection with any public contract, or against whom such formal criminal prosecution or other judicial proceeding has been initiated.

A bidder who, despite being the apparent low bidder, is determined not to be a responsible bidder shall be notified in writing in conformance with the procedures in §49 of the Governing Rules, as amended.

12. AWARD OF CONTRACT

(a) Basis for Contract Award: The Contract, if awarded, will be awarded to the lowest responsive and responsible bidder, if any, provided his bid is reasonable and it is in the best interest of the University to accept it and subject to the University's right to reject any and all bids and to waive
informality in the bids and in the bidding. The Bid Form contains a multipart Base Bid and may contain Additive Bid Items. Determination of the lowest responsible bidder, if any, will be based on the Total Base Bid Amount \textbf{entered on the Bid Form} including any properly submitted bid modifications plus as many Additive Bid Items taken in sequence as the University in its discretion chooses to Award. \textit{Where the sum of the values entered in the multiple parts do not agree with the Total Base Bid amount, the Total Base Bid amount entered on the bid form, including any properly submitted bid modifications, shall take precedence}. In the event that the Total Base Bid from the lowest responsible bidder exceeds available funds, the University may negotiate the Total Base Bid amount with the apparent low bidder to obtain a contract price within available funds, pursuant to \$15 of the \textit{Governing Rules}, as amended, and Section 12(c) herein.

(b) \textbf{Informalities}: The University reserves the right to waive any informality in the bids when such waiver is in the interest of the University.

(c) \textbf{Negotiation With Lowest Responsible Bidder}: If award of a contract to the lowest responsive and responsible bidder is precluded because of limitations on available funds, under the provisions of \$15 of the \textit{Governing Rules}, the University reserves the right to negotiate the Total Base Bid amount with the lowest responsive, responsible bidder to obtain a contract price within the available funds. This may involve changes in either the features or scope of the work included in the Base Bid. Such negotiations with the apparent low bidder may include reducing the quantity, quality, or other cost saving mechanisms involving items in the Total Base Bid. Negotiations for Additive Bid Items are excluded. The University shall notify the lowest responsive and responsible bidder that such a situation exists and the University and bidder shall then conduct their negotiations in person, by mail, by telephone or by any means they find convenient. If an acceptable contract can be negotiated, the changes to the IFB documents agreed upon in the negotiations shall be summarized in a "Post Bid Modification" and included in the contract. If an acceptable contract cannot be negotiated, the University shall terminate negotiations and reject all bids.

(d) \textbf{Notice of Intent to Award and Notice of Award}: The Notice of Award or the Notice of Intent to Award will be posted at the University’s standard location for posting notices \textit{as shown on the “Notice of Invitation to Bid”}. In addition the University may also post such notice on the University’s Website and/or the DGS central electronic procurement Website.

13. \textbf{CONTRACT SECURITY}

For contracts of more than $1,000,000, the Standard Performance Bond (Form HECO-10) and the Standard Labor and Material Payment Bond (Form HECO-10.1) shall be required, as specified in the IFB documents. See the General Conditions and §§29 & 30 of The Rules. The University reserves the right to require such bonds for contracts less than $1,000,000. If the University so elects, the requirement shall be set forth in the IFB.
14. **CERTIFICATION**

The bidder, by his signature on the Bid Form, certifies that neither his organization nor any of its officers, directors, partners or owners is currently barred from bidding on contracts by any Agency of the Commonwealth of Virginia, or any public body or agency of another state, or any agency of the federal government. See the statement "Disqualification of Contractors" in the Bid Form.

15. **ETHICS IN PUBLIC CONTRACTING**

The provisions, requirements and prohibitions as contained in §57 of the *Governing Rules*, as amended, pertaining to bidders, officers, contractors, and subcontractors are applicable to this project.

16. **BUILDING PERMITS**

Because this is a Project of the Commonwealth of Virginia, codes or zoning ordinances of local political subdivisions do not apply. However, the Virginia Uniform Statewide Building Code shall apply to the Work and shall be administered by the Building Official for the University. The Building Permit will be provided by the University. All other permits, local license fees, business fees, taxes, or similar assessments imposed by the appropriate political subdivision shall be obtained and paid for by the Contractor. See Section 25 of the General Conditions for utility connection fees and services.

17. **SMALL, WOMEN & MINORITY-OWNED BUSINESS UTILIZATION**

It is the policy of Virginia Commonwealth University to contribute to the establishment, preservation, and strengthening of small, women, and minority-owned (SWaM) business enterprises and to encourage the participation of SWaM businesses in University procurement activities. Towards that end, the University encourages firms to provide for the participation of SWaM businesses through partnerships, joint ventures, subcontracts, and other contractual opportunities.

18. **BID DOCUMENTS**

Bid Documents are the property of the University and a deposit in an amount as stated in the IFB may be required for each paper set or for each set provided on removable electronic media as a guarantee of the safe return of the documents within ten (10) days of bid opening. This deposit, if required, will be refunded in full on not more than two paper sets or sets provided on removable electronic media to each bidder who submits a prime contract bid and who returns the documents in good condition. Refund will be made on paper sets and sets provided on removable electronic media to non-bidders and subcontractors in the amount of half of the deposit when the sets are returned in good condition within 10 days. A deposit is not required for downloading of electronic construction documents through an FTP site. A non-refundable shipping charge may be required for paper sets or sets provided on removable electronic media if stated in the Notice or the IFB. In
IFBs which allow for the prime bidder and the subcontractor(s) to each receive one (1) free paper set or set provided on removable electronic media, there may be a charge for additional sets at the discretion of the University.

19. GENERAL CONDITIONS

The General Conditions of the Construction Contract, Form CO-7, as modified by the HECO7, are incorporated in the bid documents. If these General Conditions are incorporated by reference, the bidder may obtain a copy of the current edition at no cost by written request to the A/E and/or the University.

20. PREBID CONFERENCE

See the IFB for requirements for a pre-bid conference and whether such conference is mandatory or optional.

21. INSPECTION OF BID DOCUMENTS

Copies of the IFB documents including Plans and Specifications and the General Conditions of the Construction Contract, Forms HECO-7 and CO-7, current editions, will be available for inspection at the University, at the A/E's office, and at the locations listed in the Notice of the IFB. HECO and CO Forms can be downloaded from VCU Construction Management’s website at: https://fmd.vcu.edu/departments/construction-management/resources/. Do Not Download or use the forms from the DGS website

22. DRUG-FREE WORKPLACE REQUIRED

Bidders are reminded that §11 of the Governing Rules requires that the during the performance of the contract resulting from this solicitation, 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 contractor's workplace and specifying the actions that will be taken against employees for violations of such prohibition; (iii) state in all solicitations or advertisements for employees placed by or on behalf of the contractor that the contractor maintains a drug-free workplace; and (iv) include the provisions of the foregoing clauses in every subcontract or purchase order of over $10,000, so that the provisions will be binding upon each subcontractor or vendor.

For the purposes 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 in accordance with this solicitation, the employees of whom are prohibited from engaging in the unlawful manufacture, sale, distribution, dispensation, possession or use of any controlled substance or marijuana during the performance of the contract.
KNOW ALL MEN BY THESE PRESENTS: That _____, the Contractor (“Principal”) whose principal place of business is located at _____ and _____ (“Surety”) whose address for delivery of ‘Notices’ is located at _____ are held and firmly bound unto the Commonwealth of Virginia, Virginia Commonwealth University, the Owner (“Obligee”) in the amount of five percent (5%) of the Amount (Total Base Bid plus all Additive Bid Items) Bid by Principal, for the payment whereof, Principal and Surety bind themselves, their heirs, executors, administrators, successors and assigns, jointly and severally, firmly by these presents.

WHEREAS, the Principal has submitted a bid for _____

NOW, THEREFORE, the conditions of this obligation are as follows. This Bid Bond shall guarantee that the Principal will not withdraw his bid during the period of thirty (30) days following the opening of bids; that if his bid is accepted, Principal will enter into a formal contract with the Owner in accordance with the Contract Between Owner and Contractor, Form HECO-9, included as a part of the Invitation for Bids (IFB Documents); that Principal will submit a properly executed and authorized Standard Performance Bond and Standard Labor and Material Payment Bond on the forms included in the IFB documents; and that in the event of the withdrawal of said bid within said period, or failure to enter into said contract and give said bonds within ten (10) days after Principal has received notice of acceptance of his bid, Principal and Surety shall be jointly and severally liable to the Owner for the difference between the amount specified in said bid and such larger amount for which the Owner may contract with another party to perform the work covered by said bid, up to the amount of the bid guarantee. This amount represents the damage to the Owner of account of the default of the bidder in any particular thereof.

The Surety represents to the Principal and to the Obligee that it is legally authorized to do business in the Commonwealth of Virginia.
Affidavit and Acknowledgement of Attorney-in-Fact

COMMONWEALTH OF VIRGINIA
(or alternatively, Commonwealth or State of _____)

CITY of _____

I, the undersigned notary public, do certify that _____, whose name is signed to the foregoing bid bond in the amount of five percent (5%) of the Total Bid Amount and which names the Commonwealth of Virginia, and Virginia Commonwealth University, as Obligee, personally appeared before me today in the above jurisdiction and made oath that he/she is the attorney-in-fact of _____, a _____ corporation which is the Surety in the foregoing bond, that he/she is duly authorized to execute on the above Surety’s behalf the foregoing bond pursuant to the Power of Attorney noted above and attached hereto, and on behalf of the surety, he/she acknowledged the foregoing bond before me as the above Surety’s act and deed.

She/he has further certified that her/his Power of Attorney has not been revoked.

[Complete if Power is recorded: Clerk’s Office: _____; Deed Book/Page No. or Instrument No.: _____.]

Given under my hand this _____ day of ____. 
DATE: ________________________

IFB / Project Code#: 236-12708-00700

Project Title: Founders Hall - Building Envelope Rehabilitation

Project Location: 827 West Franklin Street, Richmond, Virginia 23284

Date IFB Issued: 4/13/2023

The following question concerns Drawings Sheet (number) ________________

The following question concerns Specifications Section (number) ________________

page ______ paragraph ______

The following question concerns "Scope of Work": ________________

All responses to questions will be made by Addendum. Questions must be submitted on this Pre-Bid Question form and sent to: Jason Mobraten, at jason.mobraten@raymondllc.com no later than 12:00 NOON on April 27, 2023. No questions will be answered after this date.

Question submitted by:

Name
Organization
Email
Vendor eVA Registration Requirements

**eVA Business-to-Government Vendor Registration, Contracts, and Order:** The eVA Internet electronic procurement solution, web site portal [www.eVA.virginia.gov](http://www.eVA.virginia.gov), streamlines and automates government purchasing activities in the Commonwealth. The eVA portal is the gateway for vendors to conduct business with state agencies and public bodies. All vendors desiring to provide construction and/or professional services to the Commonwealth shall participate in the eVA Internet e-procurement solution by completing the free eVA Vendor Registration. All bidders or offerors must register in eVA and pay the Vendor Transaction Fees specified below; failure to register will result in their bid/proposal being rejected.

Vendor transaction fees are determined by the date the original purchase order is issued and the current fees can be found on the eVA website at [https://eva.virginia.gov/eva-billing.html](https://eva.virginia.gov/eva-billing.html).

**eVA Orders and Contracts:** The solicitation/contract will result in (__________) purchase order(s) with the eVA applicable transaction fee assessed for each order.
It is the policy of Virginia Commonwealth University (VCU) to contribute to the establishment, preservation, and strengthening of small, women and minority owned businesses (SWaM), as certified by the Commonwealth of Virginia’s Department of Small Business and Supplier Diversity (DSBSD), and to encourage their participation in VCU procurement activities. To this end, and in compliance with the Commonwealth of Virginia’s Executive Order 35, VCU has established an overall Fiscal Year 2023 SWaM participation goal of 42% for non-capital projects and 50% for Capital Outlay projects. Contractors are also encouraged to provide for the participation of SWaM businesses through partnerships, joint ventures, subcontracts or other contractual opportunities.

Where it is practicable for any portion of the awarded contract to be subcontracted, the Contractor is encouraged to offer such subcontracted work to SWaM businesses. Names of certified SWaM businesses may be obtained from VCU’s Construction Management Department or DSBSD. When business has been subcontracted to SWaM firms and upon submission of each month’s pay request, the Contractor agrees to furnish VCU Construction Management Department the following information: name of firm, phone number, total dollar amount subcontracted, dollar amount paid subcontractor each period, subcontractor’s DSBSD certification number, and type of product/service provided. The CO-12 requires that you also list your subcontractor’s dollars and registration number alongside each respective line item. The CO-12 shall break out the general conditions from the subcontractor’s cost thus indicating the true contract amount with the subcontractor. The contractor’s O&P for each particular subcontractor will be allowed to be listed in the following line marked General Conditions. It is the General Contractor’s responsibility to ensure the DSBSD Certification is valid at all times during the project.

The contractor shall submit quarterly reports on the utilization of DSBSD certified SWaM businesses. The report will specify the actual contracted dollars spent with SWaM businesses under the contract, both during the reporting period and total to date. The contractor shall provide this information on the spreadsheet sent to the contractor’s Project Manager by Evelyn Hinant with the VCU Construction Management Department and return to Evelyn Hinant at ewhinant@vcu.edu by the required deadline.

Failure to submit the required information will be considered a contract compliance issue and will be addressed accordingly. In addition, failure to submit the required information will result in invoices being returned without payment.
Date: _______________

Project: Founders Hall – Building Envelope Rehabilitation

Location: 827 West Franklin Street Richmond, VA 23284

Project Code: 236-12708-00700

To: Virginia Commonwealth University
Construction Management
ATTN: Agency’s VCO
700 West Grace Street, Suite 1600
Richmond, Virginia 23284

In compliance with and subject to your Invitation for Bids and the documents therein specified, all of which are incorporated herein by reference, the undersigned bidder proposes to furnish all labor, equipment, and materials and perform all work necessary for construction of this project, in accordance with the Plans and Specifications dated March 24, 2023, and any Addenda noted below, as prepared by Raymond Engineering - Georgia, Inc. 1601 Summit Avenue, Richmond, VA 23230, for the consideration of the following amount:

**BASE BID** (Lump sum price for construction in accordance with the Plans and Specifications, but excluding work in Additive Bid Items):

**TOTAL BASE BID AMOUNT IS:**

_______________________________________________________ DOLLARS ($ _____)

**ADDITIVE BID ITEM 1:** Masonry repairs of Building A:

_______________________________________________________ DOLLARS ($ _____)

**ADDITIVE BID ITEM 2:** Roof replacement of Roof Areas C and D:

_______________________________________________________ DOLLARS ($ _____)

**ADDITIVE BID ITEM 3:** Interior Removable Storm Window of Building A:

_______________________________________________________ DOLLARS ($ _____)

**ADDITIVE BID ITEM 4:** Window Glazing Replacement of Building A:

_______________________________________________________ DOLLARS ($ _____)
Contract award will be based on the **Total Base Bid Amount shown above** (including any properly submitted bid modifications) plus as many Additive Bid Items taken in sequence as the Owner in its discretion decides to award.

**UNIT PRICES** Unit Prices quoted and accepted shall apply throughout the life of the contract, except as otherwise specifically noted. Unit prices shall be applied, as appropriate, to compute the total value of changes in the quantity of the work all in accordance with the contract documents.

**Unit Price No. 1:** Replace Deteriorated or Damaged Wood Roof Deck:

Unit Price Dollars ($)_______________ per s.f.

**Unit Price No. 2:** Mortar Joint Repointing:

Unit Price Dollars ($)_______________ per l.f.

**Unit Price No. 3:** Wood Window Epoxy Patching:

Unit Price Dollars ($)_______________ per l.f.

**Unit Price No. 4:** Wood Window Wood Component Replacement:

Unit Price Dollars ($)_______________ per b.f.

**Unit Price No. 5:** Replace Deteriorated or Damaged Wood Trim and Paint:

Unit Price Dollars ($)_______________ per b.f.

**Unit Price No. 6:** Replace Deteriorated or Damaged Slate Shingles:

Unit Price Dollars ($)_______________ per s.f.

The bidder has relied upon the following public historical climatological records:

**National Oceanic and Atmospheric Administration (NOAA) for Richmond, VA.**

The undersigned understands that time is of the essence and agrees that the time for Substantial Completion of the entire project shall be 365 consecutive calendar days from the date of commencement of the Work as specified in the Notice to Proceed, and Final Completion shall be achieved within 30 consecutive calendar days after the date of Substantial Completion as determined by the A/E.

Acknowledgment is made of receipt of the following Addenda: 

______________________________
If notice of acceptance of this bid is given to the undersigned within 30 days after the date of opening of bids, or any time thereafter before this bid is withdrawn, the undersigned will execute and deliver a contract in the prescribed form (Contract Between Virginia Commonwealth University and Contractor, Form HECO-9) within 10 days after the contract has been presented to him for signature. The required Certificate of Liability Insurance Payment and Performance Bonds, on the forms prescribed, shall be delivered to the Owner along with the signed Contract.


DISQUALIFICATION OF CONTRACTORS: By signing this bid or proposal, the undersigned certifies that this Bidder or any officer, director, partner or owner is not currently barred from bidding on contracts by any Agency of the Commonwealth of Virginia, or any public body or agency of another state, or any agency of the federal government, nor is this Bidder a subsidiary or affiliate of any firm/corporation that is currently barred from bidding on contracts by any of the same. We have attached an explanation of any previous disbarment(s) and copies of notice(s) of reinstatement(s).

Either the undersigned or one of the following individuals, if any, is authorized to modify this bid prior to the deadline for receipt of bids by writing the modification and signing his name on the face of the bid, on the envelope in which it is enclosed, on a separate document, or on a document which is telefaxed to the Owner:

________________________________________________________________________

________________________________________________________________________

________________________________________________________________________

I certify that the firm name given below is the true and complete name of the bidder and that the bidder is legally qualified and licensed by the Virginia Department of Professional and Occupational Regulation, Board for Contractors, to perform all Work included in the scope of the Contract.

Virginia License No.: _____________________________ Bidder: _____________________________
(Name of Firm) 

Contractor Class: _____________________________ By: _____________________________
(Signature)

Specialty: _____________________________ (Print Name)

Valid until: _____________________________ Title: _____________________________

FEIN/SSN: _____________________________ Business Address: _____________________________

Email Address: _____________________________ _____________________________

Telephone: _____________________________ _____________________________

Fax: _____________________________ _____________________________

________________________________________________________________________

Standard Bid Form Format Page 3 of 4
If General Partnership (List Partners’ Name): If Corporation, affix Corporate Seal & list State of Incorporation:

____________________________________________________ State: ________________________________

____________________________________________________ (Affix Corporate Seal Here)

Virginia State Corporation Commission ID No.: ______________________; or

If Contractor is a foreign business entity not required to be authorized to transact business in the Commonwealth under Titles 13.1 or 50 of the Code of Virginia, or as otherwise required by law, please provide an explanation as to why such entity is not required to be so authorized:

____________________________________________________

____________________________________________________

VCU’s Annual SWaM Goal: _______________ 42%

Contractor’s Proposed SWaM Participation: _______________ % (Contractor must insert percentage)
HECO-7

GENERAL CONDITIONS OF THE CONSTRUCTION CONTRACT FOR CAPITAL OUTLAY PROJECTS

1. This addendum, HECO-7, modifies the Commonwealth of Virginia’s General Conditions of the Construction Contract DGS-30-054 Form CO-7 (04/15), (attached) for use on all Capital Outlay Projects.

2. For all forms referenced in the attachment by “CO-,” replace “CO-” with “HECO-,” except the CO-9a and CO-13.

3. In §1, add definition for the term “Rules,” as follows:


4. In §2(a), delete the words “Commonwealth of Virginia in its Construction and Professional Services Manual” and insert in their place the words “Virginia Commonwealth University in its Higher Education Capital Outlay Manual.”

5. In §3(e), delete the words “Building Official for State-owned Buildings” and insert in their place the words “Building Official for Virginia Commonwealth University.”

6. Delete §4(a) and insert the following in its place:

   (a) §10 of the Rules shall be applicable. It provides as follows:
1. 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, national origin, age, disability, or other basis prohibited by state law relating to discrimination in employment, except where there 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. 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.

   c. 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.

2. The contractor will include the provisions of the foregoing paragraphs 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.

7. Delete §5(a) and insert the following in its place:

   (a) §11 of the Rules shall be applicable. It provides as follows:

   "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 contractor's workplace and specifying the actions that will be taken against employees for violations of such prohibition; (iii) state in all solicitations or advertisements for employees placed by or on behalf of the contractor that the contractor maintains a drug-free workplace; and (iv) include the provisions of the foregoing clauses in every subcontract or purchase order of over $10,000, so that the provisions will be binding upon each subcontractor or vendor."
For the purposes 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 in accordance with these Rules, the employees of whom are prohibited from engaging in the unlawful manufacture, sale, distribution, dispensation, possession or use of any controlled substance or marijuana during the performance of the contract."

8. Delete §8(a) and insert the following in its place:

For contracts with a value exceeding one million dollars ($1,000,000), the Contractor shall deliver to the Owner or its designated representative, a Virginia Commonwealth University Standard Performance Bond (HECO-10) and Standard Labor and Material Payment Bond (Form HECO-10.1), each fully executed by the Contractor and one or more surety companies legally licensed to do business in Virginia and each in an amount equal to one hundred percent (100%) of the accepted bid. If more than one Surety executes a bond, each shall be jointly and severally liable to the Owner for the entire amount of the bond. Sureties shall be selected by the Contractor, subject to approval by the Owner. No payment on the Contract shall be due and payable to the Contractor until the bonds have been approved by the Owner and the Office of the Attorney General of Virginia. In order to facilitate review of the bonds by the Office of the Attorney General, the power of attorney from the surety company to its agent who executes the bond shall be attached to the bond.

9. In §8(b), delete the references to “§2.2-4337.A.2 of the Code of Virginia” and insert in their place references to “§29(A) (2) of the Rules.”

10. In §8(e), delete the reference to “§2.2-4338 of the Code of Virginia” and insert in its place a reference to “§30 of the Rules.”

11. In §8(d), delete the reference to “five hundred thousand dollars ($500,000)” and insert in its place a reference to “one million dollars ($1,000,000).”

12. In §11(b), delete the reference to “§2.2-4332 of the Code of Virginia” and insert in its place a reference to “§25 of the Rules.”

13. Delete §11(c) and insert the following in its place:

(c) During the performance of the Work under this Contract, the Contractor shall maintain Commercial General Liability insurance to include Premises / Operations Liability, Products and Completed Operations Coverage, Independent
Contractor's Liability, Owner's and Contractor's Protective Liability, Contractual, and Personal Injury Liability, which shall insure him against claims of personal injury, including death, as well as against claims for property damage, which may arise from operations under this Contract, whether such operations be by himself or by any Subcontractor, or by anyone directly or indirectly employed by either of them. The amounts of general liability insurance shall be not less than $1,000,000 per occurrence and $2,000,000 aggregate combined limit. The Commonwealth of Virginia, Virginia Commonwealth University and their respective officers, employees and agents, shall be named as additional insureds with respect to the Work being procured. The Supplemental General Conditions may require the Contractor to provide an Umbrella insurance policy in a specified amount for the Project.

14. Delete §11(e) and insert the following in its place:

(e) The Asbestos Contractor or Subcontractor, as the case may be, shall provide occurrence-based liability insurance with asbestos coverages in an amount not less than $1,000,000 and shall name the following as additional insureds: The Commonwealth of Virginia, Virginia Commonwealth University, their respective officers, employees and agents; the Architect/Engineer (if not the Asbestos Project Designer); and the Contractor (where the asbestos work is being performed by the Asbestos Subcontractor). In those cases where only claims-made liability insurance is available, the policy will remain in force throughout the time of the asbestos work and for a minimum of two years beyond the completion of the work without coverage interruption, and if coverage is discontinued within that two year period, the extended reporting period endorsement must be added to the policy to cover the two year requirement beyond work completion.

15. In §12 delete the entire existing section and section title and insert the following in its place:

```
12. INSURANCE FOR OWNER, UNIVERSITY, AND CM/GC
```

(a) Virginia Commonwealth University maintains property insurance on existing buildings (including fire, vandalism, and extended coverage).
(b) For all projects the CM/GC, at its cost, shall obtain and maintain in the names of the Owner, University, and CM/GC, **Builders’ Risk Insurance for the total Project in an amount equal to one hundred percent (100%) of the construction Contract Price.**

(c) Builders’ Risk Insurance shall be adjusted as required if the Contract Price changes.

(d) Insurance agreements shall include a provision that Virginia Commonwealth University may take occupancy of portions of the Work as it is completed, and prior to Substantial Completion of the Work, and that the Builders’ Risk Insurance provided by the CM/GC shall continue until Virginia Commonwealth University accepts the entire, completed Work, unless alternative insurance coverage has been approved by Virginia Commonwealth University’s Office of Risk Management (i.e. University property coverage of completed and occupied areas).

(e) The amount of any deductible must be acceptable to Virginia Commonwealth University. The CM/GC will be liable for any deductible whenever a claim arises.

(f) The loss, if any, is to be made adjustable with and payable to the Owner and University, in accordance with its interests, as they may appear.

(g) The Owner and University and their officers, employees, and its agents, shall be named as additional insured in any liability policy of insurance issued.

(h) Written evidence of the insurance shall be filed with Virginia Commonwealth University no later than thirty (30) days following the award of the construction phase Contract. In the event of cancellation of this insurance, not less than thirty (30) days prior written notice must be sent to Virginia Commonwealth University. A copy of the policy or certificate of insurance shall be given to Virginia Commonwealth University upon demand.

(i) The value of the Builders’ Risk Insurance shall **include** the costs of excavations, backfills, foundations, underground utilities, and site work.
(j) The CM/GC and the individual Subcontractors and CM Agency Trade Contractors are responsible for providing any desired coverage for their buildings, equipment, materials, tools, or supplies that are on-site.

(k) Any insurance provided through Virginia Commonwealth University on buildings, construction, additions, or renovations will not extend to the CM/GC nor the individual Subcontractors and CM Agency Trade Contractors buildings, equipment, materials, tools, or supplies unless these items are to become property of the Owner upon completion of the Project and the Owner has assumed responsibility for such items at the time of the loss.

(l) **Subcontractors and CM Agency Trade Contractors are covered under the CM/GC’s Builders’ Risk Insurance policy and need not provide Builders’ Risk Insurance.**

16. In §13, delete the last sentence.

17. In §36(d), delete the reference to “§2.2-4333 of the Code of Virginia” and insert in its place a reference to “§26 of the Rules.”

18. Delete §36(i) and insert the following in its place:

(i) **Interest.**

(1) Interest shall accrue, at the rate determined pursuant to subsection 2, on all amounts owed by the Owner to the Contractor that remain unpaid after seven (7) days following the payment date.

(2) The rate of interest charged the Owner pursuant to subsection 1 shall be the base rate on corporate loans (prime rate) at large United States money center commercial banks as reported daily in the publication entitled The Wall Street Journal. Whenever a split prime rate is published, the lower of the two rates shall be used. However, in no event shall the rate of interest charged exceed the rate of interest established pursuant to §58.1-1812 of the Code of Virginia.

(3) Notwithstanding subsection 1, no interest penalty shall be charged when payment is delayed because of disagreement between the Owner and the Contractor regarding the quantity, quality or time of delivery of goods or services or the accuracy of any invoice received for the goods or
services. The exception from the interest penalty provided by this subsection shall apply only to that portion of a delayed payment that is actually the subject of the disagreement and shall apply only for the duration of the disagreement.

(4) This section shall not apply to retainage during the period of time prior to the date the final payment is due.

(5) Notwithstanding subsection 1, no interest penalty shall be paid to any debtor on any payment, or portion thereof, withheld pursuant to the Comptroller’s Debt Setoff Program, as authorized by the Virginia Debt Collection Act (§2.2-4800 et seq. of the Code of Virginia), commencing with the date the payment is withheld. If, as a result of an error, a payment or portion thereof is withheld, and it is determined that at the time of setoff no debt was owed to the Commonwealth of Virginia, then interest shall accrue at the rate determined pursuant to subsection 2 on amounts withheld that remain unpaid after seven days following the payment date.

(6) These same provisions relating to payment of interest to the Contractor shall apply also to the computation and accrual of interest on any amounts due from the Contractor to the Owner for deductive change orders and to amounts due on any claims by the Owner.

(7) The date of mailing of any payment by the U.S. Mail is deemed to be the date of payment to the addressee.

19. In §37, delete the references to §2.2-4354, Code of Virginia” and insert in their place references to “§45 of the Rules.”

20. In §38(a), delete the last sentence in the first paragraph and insert the following in its place:

The Contractor agrees and understands that the authority of the Owner’s designee is limited by §8 of the Rules and any applicable statute.

21. In §38(b), delete the last sentence in the second paragraph and insert the following in its place:

Changes to the Contract time and/or Price shall be effective when signed by both parties.
22. In §43(f), delete the reference to "§2.2-4335 of the Code of Virginia" and insert in its place a reference to "§27 of the Rules."

23. In §47, delete the respective references to §§2.2-4363, 2.2-4364, 2.2-4365 and 2.2-4366 of the Code of Virginia and insert in their place references to §§53, 54, 55 and 56 of the Rules, respectively.
# COMMONWEALTH OF VIRGINIA

## GENERAL CONDITIONS OF THE CONSTRUCTION CONTRACT

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49. TRAINING, OPERATION AND MAINTENANCE OF EQUIPMENT
50. PROJECT MEETINGS
51. SMALL BUSINESSES AND WOMEN-OWNED AND MINORITY-OWNED (SWAM)

BUSINESS PROCUREMENT PLAN

PLEASE NOTE: The CO-7, General Conditions of the Construction Contract, has been created specifically for the use of agencies of the Commonwealth of Virginia, which may not alter any provisions without the express written approval of the Virginia Department of General Services, Division of Engineering and Buildings. The General Conditions have significant legal implications and shall not be altered or modified. Nothing in the CO-7, General Conditions of the Construction Contract, shall be amended or deleted or its intent changed, except by an approved and properly issued Supplemental General Condition. The Commonwealth makes no representation as to their suitability for any other purpose. (Note: Political subdivisions intending to modify the General Conditions for their use should consult with their legal counsel.)
1. DEFINITIONS

Whenever used in these General Conditions of the Construction Contract ("General Conditions") or in the Contract Documents, the following terms have the meanings indicated, which are applicable to both the singular and plural and the male and female gender thereof:

**Agency:** The Agency, institution or department which is a party to the Contract. For purposes of the Contract, the term Owner shall include such Agency, whether or not the Agency owns the site or the building.

**Architect, Engineer, Architect/Engineer or A/E:** The term used to designate the Architect and/or the Engineer that contracts with the Owner to provide the Architectural and Engineering services for the Project. The A/E is a separate contractor and not an agent of the Owner. The term includes any associates or consultants employed by the A/E to assist in providing the A/E services.

**Beneficial Occupancy:** The condition after Substantial Completion but prior to Final Completion of the Project at which time the Project, or portion thereof, is sufficiently complete and systems operational such that the Owner could, after obtaining necessary approvals and certificates, occupy and utilize the space for its intended use. Guarantees and warranties applicable to that portion of the Work begin on the date the Owner accepts the Project, or a portion thereof, for such Beneficial Occupancy, unless otherwise specified in the Supplemental General Conditions or by separate agreement.

**Change Order:** A document (Form CO-11) issued on or after the effective date of the Contract Between Owner and Contractor (Form CO-9) which is agreed to by the Contractor and approved by the Owner, and which authorizes an addition, deletion or revision in the Work, including any adjustment in the Contract Price and/or the Contract Completion Date. The term Change Order shall also include written orders to proceed issued pursuant to Section 38 (a) (3). A Change Order, once signed by all parties, is incorporated into and becomes a part of the Contract.

**Code of Virginia:** 1950 Code of Virginia as amended. Sections of the Code referred to herein are noted by § xx-xx.

**Construction:** The term used to include new construction, reconstruction, renovation, restoration, major repair, demolition and all similar work upon buildings and ancillary facilities, including any draining, dredging, excavation, grading or similar work upon real property.

**Contract:** The Contract Between Owner and Contractor, Form CO-9, hereinafter referred to as the Contract.

**Contract Completion Date:** The date by which the Work must be substantially complete. The Contract Completion Date is customarily established in the Notice to Proceed, based on the Time for Completion. In some instances, however, the Contract contains a mandatory Contract Completion Date, which shall be stated in the Invitation for Bid or Request for Proposal, as applicable.

**Contract Documents:** The Contract between Owner and Contractor (Form CO-9) signed by the Owner and the Contractor and any documents expressly incorporated therein. Such incorporated documents customarily include the bid submitted by the Contractor, these General Conditions, any Supplemental General Conditions, any Special Conditions, the plans and the specifications, and all modifications, including addenda and subsequent Change Orders.

**Contract Price:** The total compensation payable to the Contractor for performing the Work, subject to modification by Change Order.

**Contractor:** The person with whom the Owner has entered into a contractual agreement to do the Work on this project.
Date of Commencement: the date as indicated in the written Notice to Proceed, the receipt of the earliest Building Permit, or a date mutually agreed to between the Owner and Contractor in writing, whichever is the latest.

Day(s): Calendar day(s) unless otherwise noted.

Defective: An adjective which, when modifying the word Work, refers to Work that is unsatisfactory, faulty, deficient, does not conform to the Contract Documents or does not meet the requirements of inspections, standards, tests or approvals required by the Contract Documents, or Work that has been damaged prior to the A/E’s recommendation of Final Payment (unless responsibility for the protection thereof has been assumed by Owner at Substantial Completion or Beneficial Occupancy).

Drawing: A page or sheet of the Plans which presents a graphic representation, usually drawn to scale, showing the technical information, design, location, and dimensions of various elements of the Work. The graphic representations include, but are not limited to, plan views, elevations, transverse and longitudinal sections, large and small scale sections and details, isometrics, diagrams, schedules, tables and/or pictures.

DSBSD: Virginia Department of Small Business and Supplier Diversity

Emergency: Any unforeseen situation, combination of circumstances, or a resulting state that poses imminent danger to health, life or property.

Final Completion Date: The date of the Owner's acceptance of the Work from the Contractor upon confirmation from the Architect/Engineer and the Contractor that the Work is totally complete in accordance with Section 44(b).

Field Order: A written order issued by the A/E which clarifies or explains the plans or specifications, or any portion or detail thereof, without changing the design, the Contract Price, the Time for Completion or the Contract Completion Date.

Final Payment: The final payment that the Contractor receives pursuant to the applicable provisions of Section 36, except in the event no final payment is made due to termination of the Contract under either Sections 41 or 42. In the event of a termination for cause under Section 41, the Final Payment shall be when the termination became effective. In the event of a termination for convenience under Section 42, the Final Payment shall be either the payment of compensation for termination that the Contractor receives according to the provisions of Subsection 42, or the Owner’s determination that no compensation for termination is due the Contractor under Subsection 42, as the case may be.

Float: The excess time included in a construction schedule to accommodate such items as inclement weather and associated delays, equipment failures, and other such unscheduled events. It is the contingency time associated with a path or chain of activities and represents the amount of time by which the early finish date of an activity may be delayed without impacting the critical path and delaying the overall completion of the Project. Any difference in time between the Contractor's approved early completion date and the Contract Completion Date shall be considered a part of the Project float.

Float, Free: The time (in days) by which an activity may be delayed or lengthened without impacting upon the start day of any activity following in the chain.

Float, Total: The difference (in days) between the maximum time available within which to perform an activity and the duration of an activity. It represents the time by which an activity may be delayed or lengthened without impacting the Time for Completion or the Contract Completion Date.

Notice: All written notices, including demands, instructions, claims, approvals and disapprovals, required or authorized under the Contract Documents. Any written notice by either party to the Contract shall be
sufficiently given by any one or combination of the following, whichever shall first occur: (1) delivered by hand to the last known business address of the person to whom the notice is due; (2) delivered by hand to the person's authorized agent, representative or officer wherever they may be found; or (3) enclosed in a postage prepaid envelope addressed to such last known business address and delivered to a United States Postal Service official or mailbox. Notice is effective upon such delivery. All notices to the Owner should be directed to the Project Manager.

If the Owner and the Contractor agree in writing that Notices transmitted by Facsimile (Fax) or e-mail are acceptable for the Project, such Notice shall be transmitted to the Fax number or e-mail address listed in the agreement and shall have a designated space for the Fax or e-mail Notice recipient to acknowledge his receipt by authorized signature and date. The Fax or e-mail Notice with authorized signature acknowledging receipt shall be Faxed or e-mailed back to the sender. The Faxed or e-mailed Notice shall be effective on the date it is acknowledged by authorized signature. All Faxed or e-mailed Notices shall also be sent by hard copy, which shall be effective upon delivery, as provided herein. Notice shall be effective upon the date of acknowledgment of the Faxed or e-mailed Notice or the date of delivery, whichever occurs first.

Notice to Proceed: A written notice given by the Owner to the Contractor (with a copy to A/E) fixing the date on which the Contract time will commence for the Contractor to begin the prosecution of the Work in accordance with the requirements of the Contract Documents. The Notice to Proceed will customarily identify a Contract Completion Date.

Owner: The public body with whom the Contractor has entered into a contractual agreement and for whom the Work or services is to be provided. The term "Owner", as used herein, shall also mean the Agency.

Person: This term includes any individual, corporation, partnership, association, company, business, trust, joint venture, or other legal entity.

Plans: The term used to describe the group or set of project-specific drawings which are included in the Contract Documents.

Project: The term used instead of the specific or proper assigned title of the entire undertaking which includes, but is not limited to, the "Work" described by the Contract Documents.

Project Inspector: One or more persons employed by the Owner to inspect the Work for the Owner and/or to document and maintain records of activities at the Site to the extent required by the Owner. The Owner shall notify the Contractor in writing of the appointment of such Project Inspector(s). The scope of the Project Inspector's authority with respect to the Contractor is limited to that indicated in Section 16 (e) and (f) and as supplemented by the Owner in writing to the Project Inspector and to the Contractor.

Project Manager: The Project Manager as used herein shall be the Owner's designated representative on the Project. The Project Manager shall be the person through whom the Owner generally conveys written decisions and notices. All notices due the Owner and all information required to be conveyed to the Owner shall be conveyed to the Project Manager. The scope of the Project Manager's authority is limited to that authorized by the Owner, who shall provide written information to the Contractor at the Preconstruction meeting defining those limits. Upon receipt of such information, the Contractor shall be on notice that it cannot rely on any decisions of the Project Manager outside the scope of his authority. Nothing herein shall be construed to prevent the Owner from issuing any notice directly to the Contractor. The Owner may change the Project Manager from time to time and may, in the event that the Project Manager is absent, disabled or otherwise temporarily unable to fulfill his duties, appoint an interim Project Manager.

Provide: Shall mean furnish and install ready for its intended use.
Schedule of Values: The schedule prepared by the Contractor and acceptable to the Owner which indicates the value of that portion of the Contract Price to be paid for each trade or major component of the Work.

Site: Shall mean the location at which the Work is performed or is to be performed.

Specifications: That part of the Contract Documents containing the written administrative requirements and the technical descriptions of materials, equipment, construction systems, standards, and workmanship which describe the proposed Work in sufficient detail and provide sufficient information for the Building Official to determine code compliance and for the Contractor to perform the Work. (The General Conditions, any Supplemental General Conditions, various bidding information and instructions, and blank copies of various forms to be used during the execution of the Work are usually bound with the Specifications.)

Subcontractor: A person having a direct contract with Contractor or with any other Subcontractor for the performance of the Work. Subcontractor includes any person who provides on-site labor but does not include any person who only furnishes or supplies materials for the Project.

Submittals: All shop, fabrication, setting and installation drawings, diagrams, illustrations, schedules, samples, and other data required by the Contract Documents which are specifically prepared by or for the Contractor to illustrate some portion of the Work and all illustrations, brochures, standard schedules, performance charts, instructions, diagrams and other information prepared by a Supplier and submitted by the Contractor to illustrate material or equipment conformance of some portion of the Work with the requirements of the Contract Documents.

Substantial Completion: The condition when the Owner agrees that the Work, or a specific portion thereof, is sufficiently complete, in accordance with the Contract Documents, so that it can be utilized by the Owner for the purposes for which it was intended. The Owner at its sole discretion may, after obtaining the necessary approvals and certificates, take Beneficial Occupancy at this time or choose to wait to occupy until after Final Completion is achieved.

Supplemental General Conditions: That part of the Contract Documents which amends or supplements the General Conditions.

Supplier: A manufacturer, fabricator, distributor, material-man or vendor who provides material for the Project but does not provide on-site labor.

Small Business Procurement Plan: The proposed percentage of small business participation in the Total Base Bid Amount submitted by the Contractor as part of its Bid.

Time for Completion: The number of consecutive calendar days following the Date of Commencement which the Contractor has to substantially complete all Work required by the Contract.

Underground Facilities: All pipelines, conduits, ducts, cables, wires, manholes, vaults, tanks, tunnels or other such facilities or attachments, and any encasements containing such facilities which are or have been installed underground to furnish any of the following services or materials: electricity, gases, steam, liquid petroleum products, telephone or other communications, cable television, sewage and drainage removal, traffic or other control systems or water.

Work: The services performed under this Contract including, but not limited to, furnishing labor, and furnishing and incorporating materials and equipment into the construction. The Work also includes the entire completed construction, or the various separately identifiable parts thereof, required to be provided under the Contract Documents or which may reasonably be expected to be provided as part of a complete, code compliant and functioning system for those systems depicted in the plans and specifications.
2.  CONTRACT DOCUMENTS

(a)  The Contract Between Owner and Contractor (CO-9), the Workers' Compensation Certificate of Coverage (CO-9a), the Standard Performance Bond (CO-10), the Standard Labor and Material Payment Bond (CO-10.1), the Schedule of Values and Certificate for Payment (CO-12), the Affidavit of Payments of Claims (CO-13), the Contractor's Certificate of Substantial Completion (CO-13.2a), and the Contractor's Certificate of Completion (CO-13.2) issued by the Commonwealth of Virginia are forms incorporated in these General Conditions by reference and are made a part hereof to the same extent as though fully set forth herein. They must be used by the Contractor for their respective purposes.

(b)  All time limits stated in the Contract Documents, including but not limited to the Time for Completion of the Work, are of the essence of the Contract.

(c)  The Contract Between Owner and Contractor shall be signed by the Owner and the Contractor in as many original counterparts as may be mutually agreed upon, each of which shall be considered an original.

(d)  Anything called for by one of the Contract Documents and not called for by the others shall be of like effect as if required or called for by all, except that a provision clearly designed to negate or alter a provision contained in one or more of the other Contract Documents shall have the intended effect. In the event of conflicts among the Contract Documents, the Contract Documents shall take precedence in the following order: the Contract between Owner and Contractor; the Supplemental General Conditions; the General Conditions; the Special Conditions; the specifications with attachments; and the plans.

(e)  If any provision of this Contract shall be held invalid by any court of competent jurisdiction, such holding shall not invalidate any other provision.

(f)  All correspondence, invoices, memoranda, submittals and other documents related to this Project whether generated by the Owner, the A/E, the Contractor or others should be identified at the beginning of the document with the eleven digit (XXX-XXXXX-XXX) Project Code Number. Additional identification such as a job number, purchase order number or such may also be shown at the generator's option.

3.  LAWS AND REGULATIONS

(a)  The Contractor shall comply with all laws, ordinances, rules, regulations and lawful orders of any public authority bearing on the performance of the Work and shall give all notices required thereby. The Contractor shall assure that all Subcontractors and tradesmen who perform Work on the project are properly licensed by the Department of Professional and Occupational Regulation as required by Title 54.1, Chapter 11, Articles 1 and 3 and by applicable regulations.

(b)  This Contract and all other contracts and subcontracts are subject to the provisions of Articles 3 and 5, Chapter 4, Title 40.1, Code of Virginia, relating to labor unions and the "right to work." The Contractor and its Subcontractors, whether residents or nonresidents of the Commonwealth, who perform any Work related to the Project shall comply with all of the said provisions.

(c)  IMMIGRATION REFORM AND CONTROL ACT OF 1986: By signing this Contract, the Contractor certifies that it does not and will not during the performance of this Contract violate the provisions of the Federal Immigration Reform and Control Act of 1986, which prohibits employment of illegal aliens.

(d)  E-VERIFY PROGRAM: Pursuant to Code of Virginia, § 2.2-4308.2, any employer with more than an average of 50 employees for the previous 12 months entering into a contract in excess of
$50,000 with any agency of the Commonwealth to perform work or provide services pursuant to such contract shall register and participate in the E-Verify program to verify information and work authorization of its newly hired employees performing work pursuant to such public contract. Any such employer who fails to comply with these provisions may be debarred from contracting with any agency of the Commonwealth for a period up to one year. Such debarment may cease upon the employer’s registration and participation in the E-Verify program. If requested, the employer shall present a copy of their Maintain Company page from E-Verify to prove that they are enrolled in E-Verify.

(e) The provisions of all rules and regulations governing safety as adopted by the Safety Codes Commission of the Commonwealth of Virginia and as issued by the Department of Labor and Industry under Title 40.1 of the Code of Virginia shall apply to all Work under this Contract. Inspectors from the Department of Labor and Industry shall be granted access to the Work for inspection without first obtaining a search or administrative warrant.

(f) Building Permit: Because this Project is on Commonwealth of Virginia property, codes or zoning ordinances of local political subdivisions do not apply to Work on the property. The Virginia Uniform Statewide Building Code applies to the Work and is administered by the Building Official for State-owned Buildings. The Building Permit will be obtained and paid for by the Owner. All other permits, local license fees, business fees, taxes, or similar assessments imposed by the appropriate political subdivision and the Department of Environmental Quality shall be obtained and paid for by the Contractor. See Section 25 for utility connection fees and services.

(g) The Contractor shall include in each of its subcontracts a provision requiring each Subcontractor to include or otherwise be subject to the same payment and interest requirements in Subsections (a), (b), and (c) of Section 37 of these General Conditions with respect to each lower-tier Subcontractor and Supplier.

(h) The Contractor, if not licensed as an asbestos abatement contractor in accordance with § 54.1-514, Code of Virginia, shall have all asbestos-related Work performed by subcontractors who are duly licensed as asbestos contractors for the Work required.

(i) Lead Based Paint Activities: If the Contract Documents indicate that lead based paint is present on existing materials, components, or surfaces, the Contractor shall conform to the following:

1. The requirements set forth in 59 Federal Register 45,872 (September 2, 1994) Proposed Rule - Lead; Requirements for Lead based Paint Activities (Proposed Rules) in selecting and performing the means, methods and procedures for performing the Work. This includes, but is not limited to, training of personnel, lead abatement, encapsulation of lead containing materials, removal and handling of lead containing materials, and methods of disposal. When the Final Rule, to be codified at 40 CFR 745, supersedes the Proposed Rule, the Contractor shall be responsible for conforming to the Final Rule, as of the effective date set forth therein.


3. The Virginia Department of Labor and Industry’s (DLI) Emergency Regulation published in the May 27, 1996 Virginia Register, requiring, among other things, that a permit be issued to the lead abatement contractor, or any subsequent regulation issued by DLI.

(j) If the Contractor violates laws or regulations that govern the Project, the Contractor shall take prompt action to correct or abate such violation and shall indemnify and hold the Owner harmless against any fines, and/or penalties that result from such violation. To the extent that such violation is the result of negligence or other actionable conduct of the Contractor, the Contractor shall
indemnify and hold the Owner harmless against any third party claims, suits, awards, actions, causes of action or judgments, including but not limited to attorney's fees and costs incurred thereunder, that arise or result from such violation.

(k) If the Work includes any land disturbing activities, the Contractor shall have on-site an individual certified by the Department of Environmental Quality as a Responsible Land Disturber in accordance with § 10.1-563, Code of Virginia.

(l) The Contractor is neither required nor prohibited from entering into or adhering to agreements with one or more labor organizations, or otherwise discriminating against subcontractors for becoming or refusing to become, or remaining signatories to or otherwise adhering to, agreements with one or more labor organizations. This section does not prohibit contractors or subcontractors from voluntarily entering into agreements with one or more labor organizations. Both the agency and contractor are entitled to injunctive relief to prevent any violation of this section.

This section does not apply to any public-private agreement for any construction in which the private body, as a condition of its investment or partnership with the state agency, requires that the private body have the right to control its labor relations policy and perform all work associated with such investment or partnership in compliance with all collective bargaining agreements to which the private party is a signatory and is thus legally bound with its own employees and the employees of its contractors and subcontractors in any manner permitted by the National Labor Relations Act, 29 U.S.C. § 151 et seq., or the Railway Labor Act, 45 U.S.C. § 151 et seq.

This section does not prohibit an employer or any other person covered by the National Labor Relations Act or the Railway Labor Act from entering into agreements or engaging in any other activity protected by law.

This section shall not be interpreted to interfere with the labor relations of persons covered by the National Labor Relations Act or the Railway Labor Act.

4. NONDISCRIMINATION

(a) § 2.2-4311 of the Code of Virginia shall be applicable. It provides as follows:

1. 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, national origin, age, disability, or other basis prohibited by state law relating to discrimination in employment, except where there 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. 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.
   c. 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.

2. The Contractor will include the provisions of the foregoing paragraphs 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.”
Where applicable, the Virginians with Disabilities Act and the federal Americans with Disabilities Act shall apply to the Contractor and all Subcontractors.

5. PROHIBITION OF ALCOHOL AND OTHER DRUGS

(a) § 2.2-4312 of the Code of Virginia shall be applicable. It provides as follows:
“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 contractor's workplace and specifying the actions that will be taken against employees for violations of such prohibition; (iii) state in all solicitations or advertisements for employees placed by or on behalf of the contractor that the contractor maintains a drug-free workplace; and (iv) include the provisions of the foregoing clauses in every subcontract or purchase order of over $10,000, so that the provisions will be binding upon each subcontractor or vendor. For the purposes 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 in accordance with this chapter, the employees of whom are prohibited from engaging in the unlawful manufacture, sale, distribution, dispensation, possession or use of any controlled substance or marijuana during the performance of the contract."

(b) The Contractor shall also establish, maintain and enforce policies which prohibit the following acts by all Contractor, Subcontractor and Supplier personnel at the Site:

1. The manufacture, distribution, dispensation, possession, or use of alcohol, marijuana or other drugs, except possession and medically prescribed use of prescription drugs; and

2. The impairment of judgment or physical abilities due to the use of alcohol, marijuana or other drugs, including impairment from prescription drugs.

6. TIME FOR COMPLETION

(a) The Time for Completion shall be designated by the Owner on the Invitation for Bids, Request for Proposals, or other prebid/proposal documents. In some instances, the Time for Completion may be stated on the Invitation for Bids, Request for Proposals, or other prebid/pre-proposal document in the form of a Contract Completion Date. The Work must be substantially completed by the Time for Completion or the Contract Completion Date. Unless otherwise specified, the Contractor shall achieve Final Completion within thirty (30) days after the date of Substantial Completion.

(b) The Time for Completion shall be stated in the Contract between Owner and Contractor and shall become a binding part of the Contract upon which the Owner may rely in planning the use of the facilities to be constructed and for all other purposes. If the Contractor fails to substantially complete the Work within the Time for Completion or Contract Completion Date, as set forth in the Contract, he shall be subject to payment of actual damages incurred by the Owner or liquidated damages, if provided for in the Contract.

(c) The Contractor, in submitting his bid or proposal, acknowledges that he has taken into consideration normal weather conditions. Normal weather does not mean statistically average weather, but rather means a range of weather patterns which might be anticipated based on weather data for the past ten (10) years, (i.e., conditions which are not extremely unusual). Normal weather conditions shall be determined from the public historical records available, including the U.S. Department of Commerce, Local Climatological Data Sheets, National Oceanic and Atmospheric Administration / Environmental Data and Information Service, National Climatic Center and National Weather Service. The data sheets to be used shall be those for the locality or localities closest to the site of the work. No additional compensation will be paid to the Contractor because of adverse weather conditions; however, an extension of time for abnormal weather will
be considered by the Owner under the following conditions, all of which must be strictly complied with by the contractor:

(1) The request for additional time shall be further substantiated by weather data collected during the period of delay at the Site. Said data must demonstrate that an actual departure from normal weather occurred at the Site during the dates in question.

(2) The extension requested must be supported by a delay in completion of the entire Project shown on the critical path of the accepted CPM Schedule or the approved bar graph schedule required for the Project. Extensions will be granted only for delays in completion of the Project, not for that portion of any delay which consumes only "float" time.

(3) A request for extension of time based on abnormal weather must be made in writing within fourteen (14) calendar days of the completion of the calendar month during which abnormal weather is claimed at the Site.

(4) All of the evidence and data supporting the request (including both historical data and the recordings at the Site during the time of delay) must be furnished to the Owner before any consideration will be given to the request. That supporting data shall be submitted by the end of the calendar month following the month for which the request is made.

(d) The failure by the Contractor to comply with any and all of the conditions in (c) above shall constitute a waiver of claims for the extension of time for abnormal weather.

(e) The Contractor represents and agrees that he has taken into account in his bid the requirements of the bid documents, the Contract Documents, local conditions, availability of materials, equipment, and labor, and any other factors which may affect the performance of the Work. The Contractor agrees and warrants that he will achieve Substantial Completion of the Work to allow the Owner to have Beneficial Occupancy not later than the Time for Completion or Contract Completion Date. The Contractor agrees and warrants that he will achieve Final Completion of the Work (the entire completion of all Work, including "punch list" items), not later than thirty (30) days after achieving Substantial Completion.

7. CONDITIONS AT SITE

(a) The Contractor shall have visited the Site prior to bidding or submitting its proposal and is totally responsible for having ascertained pertinent local conditions such as location, accessibility and general character of the Site, and the character and extent of existing conditions, improvements and work within or adjacent to the Site. Claims, which result from the Contractor's failure to do so, will be deemed waived.

(b) If, in the performance of the Contract, hidden physical conditions of a building being modified are exposed revealing unusual or materially different conditions from those ordinarily encountered or inherent in work of this nature, or if subsurface or latent conditions at the Site are found which are materially different from those frequently present in the locality or from those indicated in the Contract Documents, the Contractor must report such conditions to the Owner and to the Architect/Engineer before the conditions are disturbed. Upon such notice, or upon his own observation of such conditions, the Architect/Engineer shall promptly propose such changes in the Contract Documents as he finds necessary to conform to the different conditions. Any change in the cost of the Work or additional time needed for completion must be requested pursuant to Sections 38, 39 and/or 43 of these General Conditions.

(c) If the Contractor, during the course of the Work, observes the existence of any material which he knows, should know, or has reason to believe is hazardous to human health, the Contractor shall
promptly notify the Owner. The Owner will provide the Contractor with instructions regarding the disposition of the material. The Contractor shall not perform any Work involving the material or any Work causing the material to be less accessible prior to receipt of special instructions from the Owner.

8. CONTRACT SECURITY

(a) For contracts with a value exceeding five hundred thousand dollars ($500,000), the Contractor shall deliver to the Owner or its designated representative, a Commonwealth of Virginia Standard Performance Bond, DGS-30-084 (Form CO-10) and a Commonwealth of Virginia Standard Labor and Material Payment Bond, DGS-30-088 (Form CO-10.1) each fully executed by the Contractor and one or more surety companies legally licensed to do business in Virginia and each in an amount equal to one hundred percent (100%) of the accepted bid or proposal. If more than one Surety executes a bond, each shall be jointly and severally liable to the Owner for the entire amount of the bond. Sureties shall be selected by the Contractor, subject to approval by the Owner. No payment on the Contract shall be due and payable to the Contractor until the bonds have been approved by the Owner and the Office of the Attorney General of Virginia. In order to facilitate review of the bonds by the Office of the Attorney General, the power of attorney from the surety company to its agent who executes the bond shall be attached to the bond, or, if not so attached, prior to the execution of the bonds by the surety, recorded in the Office of the Clerk of Court for the City of Richmond, Virginia, at the John Marshall Court Building, 400 North Ninth Street, except when the Owner is one of the following, in which case the power of attorney must be recorded with the Clerk of Court in the place shown:

<table>
<thead>
<tr>
<th>OWNER</th>
<th>PLACE OF RECORDATION</th>
</tr>
</thead>
<tbody>
<tr>
<td>University of Virginia</td>
<td>City of Charlottesville</td>
</tr>
<tr>
<td>Old Dominion University</td>
<td>City of Norfolk</td>
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<tr>
<td>Norfolk State University</td>
<td>City of Norfolk</td>
</tr>
<tr>
<td>Christopher Newport University</td>
<td>City of Newport News</td>
</tr>
<tr>
<td>Virginia Polytechnic Institute and State University</td>
<td>County of Montgomery</td>
</tr>
</tbody>
</table>

(b) For the purposes of all Standard Labor and Material Payment Bonds entered into, the term "subcontractors" as used in § 2.2-4337(A)(2) of the Code of Virginia is interpreted to mean any contractors who participated in the prosecution of the Work undertaken by the Contractor (referred to in § 2.2-4337(A)(2) of the Code of Virginia as the "prime contractor"), whether such contractor had a direct contract with the Contractor (prime contractor) or whether there were one or more other intervening Subcontractors contractually positioned between it and the Contractor (prime contractor).

(c) See § 2.2-4338 of the Code of Virginia, for alternative forms of security for payment and/or performance bonds.

(d) For contracts with a value of less than five hundred thousand dollars ($500,000), the Contractor will not be required to provide a Standard Performance Bond and a Standard Labor and Material Payment Bond as described above unless the Invitation for Bid or Request for Proposal states that such bonds will be required.
9. **SUBCONTRACTS**

(a) The Contractor shall, as soon as practicable after the signing of the Contract, notify the Owner and Architect/Engineer in writing of the names of all Subcontractors proposed for the principal parts of the Work and of such others as the Architect/Engineer may direct. Where the specifications establish qualifications or criteria for Subcontractors, manufacturers, or individuals performing Work on the Project, the Contractor shall be responsible for ascertaining that those proposed meet the criteria or qualifications. The Contractor shall not employ any Subcontractor that the Owner may, within a reasonable time, object to as unsuitable. Neither the Owner nor the Architect/Engineer shall direct the Contractor to contract with any particular Subcontractor unless provided in the specifications or Invitation for Bids or Request for Proposal.

(b) The Owner may select a particular Subcontractor for a certain part of the Work and designate on the Invitation for Bids or Request for Proposal that the Subcontractor shall be used for the part of the Work indicated and that the Subcontractor has agreed to perform the Work for the subcontract amount stipulated on the bid or Proposal form. The Contractor shall include the stipulated amount plus his Contractor markups in the bid or Proposal. In such case, the Contractor shall be responsible for that Subcontractor and its work and the Subcontractor shall be responsible to the Contractor for its work just as if the Contractor had selected the Subcontractor. If the Contractor has a reasonable objection to the Subcontractor being assigned, then the Contractor shall note the exception in his bid or proposal and the reason for the exception and maintain appropriate provisions for coordinating the work of the Subcontractor. The Owner, at its sole discretion, may accept the Contractor’s bid or proposal with the exception noted and contract separately with the Subcontractor under the provisions Section 10 of the contract or assign a different Subcontractor.

(c) The Owner shall, on request, furnish to any Subcontractor, if practicable, the amounts of payments made to the Contractor, the Schedule of Values and Requests for Payment submitted by the Contractor and any other documentation submitted by the Contractor which would tend to show what amounts are due and payable by the Contractor to the Subcontractor.

(d) The Contractor shall be fully responsible to the Owner for all acts and omissions of his agents and employees and all succeeding tiers of Subcontractors and Suppliers performing or furnishing any of the Work. Nothing in the Contract Documents shall create any contractual relationship between Owner or Architect/Engineer and any such Subcontractor, Supplier or other person or organization, nor shall it create any obligation on the part of Owner or Architect/Engineer to pay for or to see to the payment of any moneys due any such Subcontractor, Supplier or other person or organization, except as may otherwise be required by law.

(e) The Contractor shall be fully responsible for his invitees at the Site and for those of his Subcontractors, Suppliers, and their employees, including any acts or omissions of such invitees.

(f) The Contractor agrees that he alone is responsible for all dealings with his Subcontractors and Suppliers, and their subcontractors, employees and invitees, including, but not limited to, the Subcontractors' or Suppliers' claims, demands, actions, disputes and similar matters unless specifically provided otherwise by the Contract or by statute.

10. **SEPARATE CONTRACTS**

(a) The Owner reserves the right to let other contracts in connection with the Project, the Work under which may proceed simultaneously with the execution of this Contract. The Contractor shall afford other separate contractors reasonable opportunity for the introduction and storage of their materials and the execution of their work. The Contractor shall cooperate with them and shall take all reasonable action to coordinate his Work with theirs. If the Owner has listed other separate contracts in the Invitation for Bids or Requests for Proposal which it expects to proceed simultaneously with the Work of the Contractor, and has included the estimated timing of such
other Contracts in the Invitation for Bids or Requests for Proposal, the Contractor shall integrate the schedule of those separate contracts into his scheduling. The Contractor shall make every reasonable effort to assist the Owner in maintaining the schedule for all separate contracts. If the work performed by the separate contractor is defective or performed so as to prevent or threaten to prevent the Contractor from carrying out his Work according to the Contract, the Contractor shall immediately notify the Owner and the Architect/Engineer upon discovering such conditions.

(b) If a dispute arises between the Contractor and any separate contractor(s) as to their responsibility for cleaning up as required by Sections 31 (c) and 31 (d) of these General Conditions, the Owner may clean up and charge the cost thereof to the respective contractors in proportion to their responsibility. If a Contractor disputes the Owner's apportionment of clean-up costs, it shall be that contractor's burden to demonstrate and prove the correct apportionment.

11. CONTRACTOR'S AND SUBCONTRACTOR'S INSURANCE

(a) The Contractor shall not commence Work under this Contract until he has obtained all the insurance required hereunder from an insurer authorized to do business in Virginia and such insurance has been approved by the Owner; nor shall the Contractor allow any Subcontractor to commence Work on his subcontract until the same types of insurance in an appropriate amount have been obtained by the Subcontractor and approved by the Contractor. Approval of insurance by the Owner shall not relieve or decrease the liability of the Contractor hereunder.

(b) The Contractor shall take out, and shall maintain in force at all times during the performance of the Work, Workers' Compensation and Employers' Liability Insurance for all of his employees engaged in the Work in an amount not less than the minimum required by § 2.2-4332 and § 65.2-100 et seq. of the Code of Virginia. In case any of the Work is sublet, the Contractor shall require each Subcontractor similarly to provide Workers' Compensation and Employers' Liability Insurance for all of the latter's employees to be engaged in the Work. Prior to award of the Contract, the Contractor shall submit, on the form provided by the Owner, a Certificate of Coverage verifying Workers' Compensation. The Contractor shall likewise obtain a Certificate of Coverage for Workers' Compensation coverage from each subcontractor prior to awarding the subcontract and shall provide a copy to the Owner.

(c) During the performance of the Work under this Contract, the Contractor shall maintain commercial general liability insurance to include Premises / Operations Liability, Products and Completed Operations Coverage, Independent Contractor's Liability, Owner's and Contractor's Protective Liability, and Personal Injury Liability, which shall insure him against claims of personal injury, including death, as well as against claims for property damage, which may arise from operations under this Contract, whether such operations be by himself or by any Subcontractor, or by anyone directly or indirectly employed by either of them. The amounts of general liability insurance shall be not less than $1,000,000 per occurrence and $2,000,000 aggregate combined limit. The Commonwealth of Virginia, its officers, employees and agents, shall be named as an additional insured with respect to the Work being procured. The Supplemental General Conditions may require the Contractor to provide an Umbrella insurance policy in a specified amount for the Project.

(d) During the performance of the Work under this Contract, the Contractor shall maintain automobile liability insurance which shall insure him against claims of personal injury, including death, as well as against claims for property damage, which may arise from operations under this Contract, whether such operations be by himself or by any Subcontractor, or by anyone directly or indirectly employed by either of them. The amounts of automobile insurance shall be not less than $1,000,000 combined limit for bodily injury and property damage per occurrence.

(e) The Asbestos Contractor or Subcontractor, as the case may be, shall provide occurrence-based liability insurance with asbestos coverages in an amount not less than $1,000,000 and shall name
the following as additional insureds: The Commonwealth of Virginia, its officers, its employees and its agents; the Architect/Engineer (if not the Asbestos Project Designer); and the Contractor (where the asbestos work is being performed by the Asbestos Subcontractor).

12. "ALL RISK" BUILDER'S RISK INSURANCE

(a) **Contractor Controlled During Construction:** The Contractor, at his cost, shall obtain and maintain in the names of the Owner and the Contractor "all-risk" builder's risk insurance (or fire, extended coverage, vandalism and malicious mischief insurance, if approved by the Owner and the Director, Division of Engineering and Buildings) upon the entire structure or structures on which the Work of this Contract is to be done and upon all material in or adjacent thereto which is intended for use thereon, to one hundred percent (100%) of the insurable value thereof (i.e. construction costs, soft costs, FF&E, and the residual value of the existing structure to remain). Such insurance may include a deductible provision if the Owner so provides in the Supplemental General Conditions, in which case the Contractor will be liable for such deductions, whenever a claim arises. The loss, if any, is to be made adjustable with and payable to the Owner, in accordance with its interests, as they may appear. The Owner, its officers, employees and its agents, shall be named as an additional insured in any policy of insurance issued. Written evidence of the insurance shall be filed with the Owner no later than thirty (30) days following the award of the Contract. In the event of cancellation of this insurance, not less than thirty (30) days prior written notice must be sent to the Owner. A copy of the policy of insurance shall be given to the Owner upon demand.

(b) **Owner Controlled During Construction:** The Owner maintains insurance coverage on its buildings. On re-roofing, renovation, and interior modifications of existing building projects where the Owner continues to occupy the building, or a portion thereof, while the Work is being performed, the Contractor shall provide “all risk” builders risk insurance, as described above, in an amount equal to one hundred percent (100%) of the cost of the Work (i.e. construction costs, soft costs, and FF&E costs). In those instances, the Contract between the Owner and Contractor for the project shall expressly exclude the project from the requirements of Subsection 12(a). The Contractor is responsible for providing any desired coverage for Contractor's or Subcontractors' buildings, equipment, materials, tools or supplies that are on-site.

(c) The value of the builder's risk insurance shall exclude the costs of excavations, backfills, foundations, underground utilities and sitework.

(d) Any insurance provided through the Department of Treasury, Division of Risk Management, on buildings, construction, additions or renovations will not extend to Contractor's nor Subcontractors' buildings, equipment, materials, tools or supplies unless these items are to become property of the Owner upon completion of the Project and the Owner has assumed responsibility for such items at the time of the loss.

13. TAXES, FEES AND ASSESSMENTS

The Contractor shall, without additional expense to the Owner, pay all applicable federal, state, and local taxes, fees, and assessments except the taxes, fees and assessments on the real property comprising the Site of the project. If the State Building Official elects to have the local building official inspect the Work as provided by § 36-98.1 of the Code of Virginia, the Owner shall pay the resulting fees to the local building official.

14. PATENTS

The Contractor shall obtain all licenses necessary to use any invention, article, appliance, process or technique of whatever kind and shall pay all royalties and license fees. The Contractor shall hold the Owner, its officers, agents and employees, harmless against any loss or liability for or on account of the
infringement of any patent rights in connection with any invention, process, technique, article or appliance manufactured or used in the performance of the Contract, including its use by the Owner, unless such invention, process, technique, article or appliance is specifically named in the specifications or plans as acceptable for use in carrying out the Work. If, before using any invention, process, technique, article or appliance specifically named in the specifications or plans as acceptable for use in carrying out the Work, the Contractor has or acquires information that the same is covered by letters of patent making it necessary to secure the permission of the patentee, or other, for the use of the same, he shall promptly advise the Owner and the Architect/Engineer. The Owner may direct that some other invention, process, technique, article or appliance be used. Should the Contractor have reason to believe that the invention, process, technique, article or appliance so specified is an infringement of a patent, and fail to inform the Owner and the Architect/Engineer, he shall be responsible for any loss or liability due to the infringement.

15. ARCHITECT/ENGINEER'S STATUS

(a) The Architect/Engineer shall have authority to endeavor to secure the faithful performance by Owner and Contractor of the Work under the Contract. He shall review the Contractor's Submittals for conformance to the requirements of the Contract Documents and return copies to the Contractor with appropriate notations. He shall interpret the requirements of the plans and specifications and issue Field Orders to the Contractor as may be required. He shall recommend to the Owner suspension of the Work (in whole or in part) whenever such suspension may be necessary to ensure the proper execution of the Contract. He shall have authority to reject, in writing, Work, including material, installation or workmanship, which does not conform to the requirements of the plans and specifications. He shall determine the progress and quality of the Work, subject to the right of the Owner to make an overriding decision to the contrary. Upon request by the Contractor, the Architect/Engineer shall confirm, in writing within fourteen (14) days, any oral order or determination made by him.

(b) The Architect/Engineer shall have no authority to approve or order changes in the Work which alter the design concept or which call for an extension of time or a change in the Contract Price.

(c) Although the Owner is bound by the terms of the Contract with the Contractor, including the plans and specifications, the Owner shall have the right, but not the duty, to countermand any decision of the Architect/Engineer and to follow or reject the advice of the Architect/Engineer, including but not limited to acceptance of the Work, as it deems best. In those instances where the Architect/Engineer has been given authority to act, the Architect/Engineer shall promptly do so, but in the case of disagreement between the Architect/Engineer and the Owner, the decision of the Owner shall be final. The Contractor shall not be bound by any determination, interpretation or decision of the Architect/Engineer, if it is later determined that the same is not in accord with the Contract Documents. The party taking issue with the determination, interpretation or decision of the Architect/Engineer shall give the other party written notice of such fact within fourteen (14) days after the determination, interpretation or decision is communicated by the Architect/Engineer. In the actual performance of the Work, however, the Contractor shall, in the first instance, proceed in accordance with instructions given by the Architect/Engineer unless the Owner and the Contractor mutually agree that the Contractor shall proceed otherwise.

(d) All orders from the Owner to the Contractor shall either be transmitted through the Architect/Engineer or communicated directly to the Contractor and the Architect/Engineer by the Owner.

(e) Should the Owner choose to employ another or different Architect/Engineer, the status of the Architect/Engineer so employed shall be the same as that of the former Architect/Engineer.

(f) The Architect/Engineer will provide to the Owner and the Contractor after each visit to the Site, a written report indicating the date, time of day, weather conditions and the names of the persons representing the Architect/Engineer who participated in the visit. The report will advise the Owner
of any problems that were noted and shall compare the Architect/Engineer's observations of the actual progress of the Work with that reported by the Contractor. On the basis of his on-site observations as Architect/Engineer, he will make every reasonable effort to guard the Owner against defects and deficiencies in the Work of the Contractor. He shall have the authority to inspect the Work, to note and report Defective Work and deviations from the Contract Documents to the Owner, to reject same, and to recommend to the Owner the suspension of the Work when necessary to prevent Defective Work from proceeding or being covered.

(g) The Architect/Engineer shall not be responsible for construction means, methods, techniques, sequences or procedures (other than those expressly specified in Contract Documents), or for safety precautions and programs in connection with the Work, and he shall not be responsible for the Contractor's failure to carry out the Contractor's own responsibilities.

(h) The Architect/Engineer generally conveys written decisions and notices to the Contractor through the Project Manager and shall generally receive information and Notices from the Contractor through the Project Manager unless otherwise agreed. The Owner may delegate from the Architect/Engineer to the Project Manager certain inspection, verification, acceptance, rejection, and administrative duties and authority, but any such delegation shall be in writing and a copy thereof provided to the Contractor.

(i) The provisions of this section are included as information only to describe the relationship between the Owner, A/E, and Contractor. No failure of the A/E to act in accordance with this section shall relieve the Contractor from his obligations under the Contract or create any rights in favor of the Contractor.

16. INSPECTION

(a) All material and workmanship shall be subject to inspection, examination and testing by the Owner, the Architect/Engineer, the Project Inspector, authorized inspectors and authorized independent testing entities at any and all times during manufacture and/or construction. The Architect/Engineer and the Owner shall have authority to reject defective material and workmanship and require its correction. Rejected workmanship shall be satisfactorily corrected and rejected material shall be satisfactorily replaced with proper material without charge therefor, and the Contractor shall promptly segregate and remove the rejected material from the Site. If the Contractor fails to proceed at once with replacement of rejected material and/or the correction of defective workmanship, the Owner may, by contract or otherwise, replace such material and/or correct such workmanship and charge the cost to the Contractor, or may terminate the right of the Contractor to proceed as provided in Section 41 of these General Conditions, the Contractor and surety being liable for any damage to the same extent as provided in Section 41 for termination thereunder.

(b) Site inspections, tests conducted on Site or tests of materials gathered on Site, which the Contract requires to be performed by independent testing entities, shall be contracted and paid for by the Owner. Examples of such tests are the testing of cast-in-place concrete, foundation materials, soil compaction, pile installations, caisson bearings and steel framing connections. The Contractor shall promptly furnish, without additional charge, all reasonable facilities, labor and materials necessary and convenient for making such tests. Except as provided in (d) below, whenever such examination and testing finds defective materials, equipment or workmanship, the Contractor shall reimburse the Owner for the cost of reexamination and retesting. Although conducted by independent testing entities, the Owner will not contract and pay for tests or certifications of materials, manufactured products or assemblies which the Contract, codes, standards, etc., require to be tested and/or certified for compliance with industry standards such as Underwriters Laboratories, Factory Mutual or ASTM. If fees are charged for such tests and certifications, they shall be paid by the Contractor. The Contractor shall also pay for all inspections, tests, and certifications which the Contract specifically requires him to perform or to pay, together with any
inspections and tests which he chooses to perform for his own purposes, but are not required by the Contract.

(c) Where Work is related to or dependent on the Defective Work, the Contractor shall stop such related or dependent Work until the Defective Work or deficiency is corrected or an alternative solution is presented that is satisfactory to the Owner. Where Work is rejected because of defective material or workmanship, the Contractor shall stop like Work in other areas or locations on the Project until the matter is resolved and the Owner has approved corrective measures.

(d) Should it be considered necessary or advisable by Owner or the Architect/Engineer at any time before final acceptance of the entire Work to make an examination of any part of the Work already completed, by removing or tearing out portions of the Work, the Contractor shall on request promptly furnish all necessary facilities, labor and material to expose the Work to be tested to the extent required. If such Work is found to be defective in any respect, due to the fault of the Contractor or his Subcontractors, the Contractor shall bear all the expenses of uncovering the Work, of examination and testing, and of satisfactory reconstruction. If, however, such Work is found to meet the requirements of the Contract, the actual cost of the Contractor's labor and material necessarily involved in uncovering the Work, the cost of examination and testing, and Contractor's cost of material and labor necessary for replacement including a markup of fifteen (15%) percent for overhead and profit shall be paid to the Contractor and he shall, in addition, if completion of the Work has been delayed thereby, be granted a suitable extension of time. Notwithstanding the foregoing, the Contractor shall be responsible for all costs and expenses in removing and replacing the Work if the Contractor had covered the Work prior to any inspection or test contrary to the instructions of the A/E, Owner or Project Inspector.

(e) The Project Inspector has the authority to recommend to the Architect/Engineer and the Owner that the Work be suspended when in his judgment the Contract Documents are not being followed. Any such suspension shall be continued only until the matter in question is resolved to the satisfaction of the Owner. The cost of any such Work stoppage shall be borne by the Contractor unless it is later determined that no fault existed in the Contractor's Work.

(f) The Project Inspector has the right and the authority to:

1. Inspect all construction materials, equipment, and supplies for quality and for compliance with the Contract Documents and/or approved shop drawings and Submittals.

2. Inspect workmanship for compliance with the standards described in the Contract Documents.

3. Observe and report on all tests and inspections performed by the Contractor.

4. Recommend rejection of Work which does not conform to requirements of the Contract Documents.

5. Keep a record of construction activities, tests, inspections, and reports.

6. Attend all joint Site construction meetings and inspections held by the Owner and/or the A/E with the Contractor.

7. Check materials and equipment, together with documentation related thereto, delivered for conformance with approved Submittals and the Contract.

8. Check installations for proper workmanship and conformance with shop drawing and installation instructions.
(9) Assist in the review and verification of the CO-12, Schedule of Values & Certificate for Payment, submitted by the Contractor each month.

(10) Do all things for or on behalf of the Owner as the Owner may subsequently direct in writing.

(g) The Project Inspector has no authority to:

(1) Authorize deviations from the Contract Documents;

(2) Enter into the area of responsibility of the Contractor's superintendent;

(3) Issue directions relative to any aspect of construction means, methods, techniques, sequences or procedures, or in regard to safety precautions and programs in connection with the Work;

(4) Authorize or suggest that the Owner occupy the Project, in whole or in part; or

(5) Issue a certificate for payment.

(h) The duties of the Project Inspector are for the benefit of the Owner only and not for the Contractor. The Contractor may not rely upon any act, statement, or failure to act on the part of the Project Inspector, nor shall the failure of the Project Inspector to properly perform his duties in any way excuse Defective Work or otherwise improper performance of the Contract by the Contractor.

17. SUPERINTENDENCE BY CONTRACTOR

(a) The Contractor shall have a competent foreman or superintendent, satisfactory to the Architect/Engineer and the Owner, on the Site at all times during the progress of the Work. The superintendent or foreman shall be familiar with and be able to read and understand the plans and specifications, and be capable of communicating orally and in writing with the Owner's inspectors and the Contractor's workers. The Contractor shall be responsible for all construction means, methods, techniques, sequences and procedures, for coordinating all portions of the Work under the Contract except where otherwise specified in the Contract Documents, and for all safety and worker health programs and practices. The Contractor shall notify the Owner, in writing, of any proposed change in superintendent, including the reason therefor, prior to making such change.

(b) The Contractor shall, at all times, enforce strict discipline and good order among the workers on the Project, and shall not employ on the Work, or contract with, any unfit person, anyone not skilled in the Work assigned to him, or anyone who will not work in harmony with those employed by the Contractor, the Subcontractors, the Owner or the Owner's separate contractors and their subcontractors.

(c) The Owner may, in writing, require the Contractor to remove from the Site any employee or Subcontractor's employee the Owner deems to be incompetent, careless, not working in harmony with others on the Site, or otherwise objectionable, but the Owner shall have no obligation to do so.

18. CONSTRUCTION SUPERVISION, METHODS AND PROCEDURES

(a) The Contractor shall be solely responsible for supervising and directing the Work competently and efficiently, devoting such attention thereto and applying such skills and expertise as may be necessary to perform the Work in accordance with the Contract. The Contractor shall be solely responsible for the means, methods, techniques, sequences and procedures of construction and for coordinating all portions of the Work under the Contract, except where otherwise specified in the
Contract Documents. However, the Contractor shall not be responsible for the negligence of others in the design or selection of a specific means, method, technique, sequence or procedure of construction which is indicated in and required by the Contract. The Contractor is solely responsible to the Owner that the finished Work complies with the Contract Documents.

The Contractor shall be solely responsible for health and safety precautions and programs for workers and others in connection with the Work. No inspection by, knowledge on the part of, or acquiescence by the Architect or Engineer, the Project Inspector, the Owner, the Owner's employees and agents, or any other entity whatever shall relieve the Contractor from its sole responsibility for compliance with the requirements of the Contract or its sole responsibility for health and safety programs and precautions.

(b) If a specific means, method, technique, sequence or procedure of construction is indicated in or required by the Contract Documents, the Contractor may furnish or utilize a substitute means, method, sequence, technique or procedure of construction acceptable to Architect/Engineer, subject to the Owner's right to disapprove. The Contractor must submit its written request for the substitution to the Architect/Engineer with sufficient information to allow the Architect/Engineer to determine that the substitute proposed is equivalent to that indicated or required by the Contract.

(c) The divisions and sections of the Specifications and the identification of any drawings shall not control the Contractor in dividing the Work among Subcontractors or Suppliers or delineating the Work to be performed by any specific trade.

19. SCHEDULE OF THE WORK

(a) **General:** The Contractor is responsible for the scheduling and sequencing of the Work, for coordinating the Work, for monitoring the progress of the Work, and for taking appropriate action to keep the Work on schedule. The Contractor may attempt to achieve Substantial Completion on or before the Time for Completion or the Contract Completion Date established by the Contract and receive payment in accordance with Section 36 for the Work completed each period. However, the date established by the Contract Documents as the deadline for achieving Substantial Completion must be used in all schedules as the date on which Substantial Completion will be achieved. The time (in days) between the Contractor's planned early completion and the contracted Time for Completion is part of the Project "Total Float" time and will be used as such. Extensions of time pursuant to Sections 38, 39, and 43, damages for delay, and all other matters between the Owner and the Contractor will be determined using the contractually required Substantial Completion date, not an early Substantial Completion date planned by the Contractor.

Within two (2) weeks after the Contractor signs the Contract Between Owner and Contractor, unless otherwise extended by the Owner at the time of the signing, the Contractor shall prepare and submit to the Owner, with a copy to the Architect/Engineer, a preliminary bar graph schedule for accomplishing the Work based upon the Time for Completion stated in the Contract. The preliminary schedule shall be in sufficient detail to show the sequencing of the various trades for each floor level, wing or work area. The Owner will notify the Contractor of its acceptance of or objections to the preliminary schedule within fifteen (15) days of receipt by the Owner. A fully complete Project schedule for accomplishing the Work must be submitted in like manner no later than sixty (60) days after the Contract is signed by the Owner.

The Owner's failure to reject or its acceptance of any schedule, graph, chart, recovery schedule, updated schedule, plan of action, etc. shall not constitute a representation or warranty by the Owner, including but not limited to a representation or warranty that the schedule is feasible or practical nor shall any such acceptance or failure to reject relieve the Contractor from sole responsibility for completing the Work within the time allowed.
No progress payments will be payable to the Contractor until it has submitted a preliminary schedule which is acceptable to the Owner. Neither the second progress payment nor any subsequent payment shall be payable to the Contractor until it has submitted a fully complete Project schedule accepted by the Owner. Nor shall subsequent progress payments be payable to the Contractor unless and until he submits the monthly bar graphs or status reports required by Section 19(d) herein or unless and until he provides any recovery schedule pursuant to Section 19(e) herein.

Failure to provide a satisfactory preliminary or fully complete Project schedule within the time limits stated above shall be a breach of contract for which the Owner may terminate the Contract in the manner provided in Section 41 of these General Conditions.

The fully complete Project schedule for accomplishing the Work shall be of the type set forth in subparagraph (1) or (2) below, as appropriate:

(1) For Contracts with a price of $1,500,000 or less, a bar graph schedule will satisfy the above requirement. The schedule shall indicate the estimated starting and completion dates for each major element of the work. See (b) below.

(2) For Contracts with a price over $1,500,000, a Critical Path Method (CPM) schedule shall be utilized to control the planning and scheduling of the Work. The CPM schedule shall be the responsibility of the Contractor and shall be paid for by the Contractor. See (c) below.

(b) **Bar Graph Schedule:** Where a bar graph schedule is required, it shall be time-scaled in weekly increments, shall indicate the estimated starting and completion dates for each major element of the Work by trade and by area, level, or zone, and shall schedule dates for all salient features, including but not limited to the placing of orders for materials, submission of shop drawings and other Submittals for approval, approval of shop drawings by Architect/Engineer, the manufacture and delivery of material, the testing and installation of materials, supplies and equipment, and all Work activities to be performed by the Contractor.

The Contractor shall allow sufficient time in his schedule for the A/E to conduct whatever associated reviews or inspections as may be required under the A/E’s contract with the Owner. If the A/E and the Contractor are unable to agree as to what constitutes sufficient time, the Owner shall determine the appropriate duration for such Architect/Engineer activities. Each Work activity will be assigned a time estimate by the Contractor. One day shall be the smallest time unit used.

It is the Contractor's responsibility to submit a schedule that shows Substantial Completion of the Work by the Contract Time for Completion or the Contract Completion Date and any interim deadlines established by the Contract.

(c) **CPM Schedule:** Where a CPM schedule is required, it shall be in the time-scaled precedence format using the Contractor's logic and time estimates. The CPM schedule shall be drawn or plotted with activities grouped or zoned by Work area or subcontract as opposed to a random (or scattered) format.

The CPM schedule shall be time-scaled on a weekly basis and shall be drawn or plotted at a level of detail and logic which will schedule all salient features of the Work, including not only the actual construction Work for each trade, but also the submission of shop drawings and other Submittals for approval, approval of shop drawings by Architect/Engineer, placing of orders for materials, the manufacture and delivery of materials, the testing and installation of materials and equipment, and all Work activities to be performed by the Contractor. Failure to include any element of Work required for the performance of this Contract shall not excuse the Contractor
from completing all Work required within the Time for Completion, Contract Completion Date and any interim deadlines established by the Contract.

The Contractor shall allow sufficient time in his schedule for the A/E to conduct whatever associated reviews or inspections as may be required under the A/E's contract with the Owner. If the A/E and the Contractor are unable to agree as to what constitutes sufficient time, the Owner shall determine the appropriate duration for such Architect/Engineer activities. Each Work activity will be assigned a time estimate by the Contractor. One day shall be the smallest time unit used.

It is the Contractor's responsibility to submit a schedule that shows Substantial Completion of the Work by the Contract Time for Completion or the Contract Completion Date and any interim deadlines established by the Contract.

When completed, the CPM schedule shall be submitted to the Architect/Engineer and the Owner for review. The CPM schedule will identify and describe each activity, state the duration of each activity, the calendar dates for the early and late start and the early and late finish of each activity, and clearly highlight all activities on the critical path. "Total float" and "free float" shall be indicated for all activities. Float time, whether "free float" or "total float" as defined in Section 1, shall not be considered for the exclusive use or benefit of either the Owner or the Contractor, but must be allocated in the best interest of completing the Work within the Time for Completion or the Contract Completion Date. Extensions to the Time for Completion or the Contract Completion Date, when granted by Change Order, will be granted only when equitable time adjustment exceeds the Total Float in the activity or path of activities affected by the change provided that the Owner has reasonably provided information necessary to allow for the orderly progression of the Work. On contracts with a price over $5,000,000, the CPM schedule shall also show what part of the Contract Price (expressed in U.S. dollars) is attributable to each activity on the schedule and shall be in agreement with the schedule of values, the sum of which for all activities shall equal the total Contract Price. The CPM schedule shall have no line-item activities longer than thirty (30) days in duration, and activities shall be included to provide sufficient detail for effectively managing the sequence of the Work. When acceptable to the Owner and Architect/Engineer as to compliance with the requirements of this Section, the schedule shall become the CPM schedule for the Project. Acceptance of the schedule by the Owner does not indicate agreement with, nor responsibility for the proposed or actual duration of any activity or logic shown on the accepted schedule.

**Monthly Project Reports:** The Contractor shall review progress not less than each month, but as often as necessary to properly manage the Project and stay on schedule. The Contractor shall collect and preserve information on Change Orders, including extensions of time. The Contractor shall evaluate this information and update the latest accepted schedule as often as necessary to finish within the Time for Completion or before the Contract Completion Date. The Contractor shall submit to the A/E along with his monthly request for payment a copy of the bar graph schedule annotated to show the current progress. For projects requiring a CPM schedule, the Contractor shall submit a monthly report of the status of all activities. The bar graph schedule or monthly status report submitted with each periodic request for payment shall show the Work completed to date in comparison with the Work scheduled for completion, including but not limited to the dates for the beginning and completion of the placing of orders; the manufacture, testing and installation of materials, supplies and equipment. The form shall be approved by the A/E and the Owner; however, a bar graph or a CPM schedule marked, colored or annotated to reflect the above will usually satisfy this requirement. If any elements of the Work are behind schedule, regardless of whether they may prevent the Work from being completed on time, the Contractor must indicate in writing in the report what measures he is taking and plans to take to bring each such element back on schedule and to ensure that the Time for Completion or Contract Completion Date is not exceeded.
(e) **Progress Delay:** Should any of the following conditions exist, the Owner may require the Contractor to prepare, at no extra cost to the Owner, a plan of action and a recovery schedule for completing the Work by the Contract Time for Completion or the Contract Completion Date:

1. The Contractor's monthly project report indicates delays that are, in the opinion of the A/E or the Owner, of sufficient magnitude that the Contractor's ability to complete the Work by the scheduled Time for Completion or the Contract Completion Date is brought into question;

2. The CPM schedule sorted by early finish shows the Contractor to be thirty (30) or more days behind the critical path schedule at any time during construction up to thirty (30) days prior to scheduled Substantial Completion date;

3. The Contractor desires to make changes in the logic (sequencing of Work) or the planned duration of future activities of the CPM schedule which, in the opinion of the Architect/Engineer or the Owner, are of a major nature.

The plan of action and recovery schedule, when required, shall explain and display how the Contractor intends to regain compliance with the current accepted, fully completed, Project CPM schedule, as updated by approved change orders.

The plan of action, when required, shall be submitted to the Owner for review within two (2) business days of the Contractor receiving the Owner's written demand. The recovery schedule, when required, shall be submitted to the Owner within five (5) calendar days of the Contractor's receiving the Owner's written demand.

(f) **Early Completion of Project:** The Contractor may attempt to achieve Substantial Completion on or before the Time for Completion or the Contract Completion Date. However, such planned early completion shall be for the Contractor's convenience only and shall not create any additional rights of the Contractor or obligations of the Owner under this Contract, nor shall it change the Time for Completion or the Contract Completion Date. The Contractor shall not be required to pay damages to the Owner because of its failure to achieve Substantial Completion by its planned earlier date. Likewise, the Owner shall not pay the Contractor any additional compensation for achieving Substantial Completion early nor will the Owner owe the Contractor any compensation should the Owner, its officers, employees, or agents cause the Contractor not to achieve Substantial Completion earlier than the date required by the Contract Documents.

If the Contractor seeks to change the Time for Completion or the Contract Completion Date to reflect an earlier completion date, he may request or propose such a change. The Owner may, but is not required to, accept such proposal. However, a change in the Time for Completion or the Contract Completion Date shall be accomplished only by Change Order. If the Contractor's proposal to change the Time for Completion or the Contract Completion Date is accepted, a Change Order will be issued stating that all references in the Contract, including these General Conditions, to the Time for Completion or the Contract Completion Date shall thereafter refer to the date as modified, and all rights and obligations, including the Contractor's liability for actual damages, delay damages and/or liquidated damages, shall be determined in relation to the date, as modified.

20. **SCHEDULE OF VALUES AND CERTIFICATE FOR PAYMENT**

(a) Before submittal of the first partial payment request under the Contract, the Contractor shall prepare for review and approval of the Architect/Engineer and the Owner, a schedule of the estimated values listed by trades or by specification sections of the Work, totaling the Contract Price. Where the total project has multiple parts or phases, the Contractor shall prepare appropriate schedules of values to facilitate reviews and justifications for payments.
All requests for payment shall be made in the ASTM Uniformat II structure on the Schedule of Values and Certificate for Payment (Form CO-12) pages 1 and 2. Succeeding pages may be on the Form CO-12 continuation sheets or a computerized spreadsheet which is in the same format and which contains the same information. Where a computerized spreadsheet is used, one copy of the entire Schedule of Values shall be provided to the Owner in an agreed electronic format (e.g. EXCEL) with the initial request for payment.

(b) If the Contractor requests, or intends to request, payment for materials stored in an approved and secure manner, the Schedule of Values must indicate the amount for labor and the amount for materials, and in a supplement thereto must include an itemized list of materials for that trade or Work section. The material breakdown shall be in sufficient detail to allow verification of the quantities required for the Project, the quantities delivered, the Work completed, and the quantities stored on or off Site.

(c) The "Value of Work Completed" portion of the Form CO-12 shall be completed, the Contractor's certification completed and signed, and the appropriate substantiating material attached to each Certificate for Payment (CO-12). Such substantiating material includes, but is not limited to, invoices for materials, delivery tickets, time sheets, payroll records, daily job logs/records, and similar materials which, in the opinion of the Owner and the A/E, are necessary or sufficient to justify payment of the amount requested.

(d) The labor progress for any task or activity shall be calculated based upon the percentage of Work complete up to fifty percent (50%) of the completion of the task or activity. Thereafter, the evaluation of labor progress will be based upon the effort required to complete that task or activity. The material progress shall be calculated as the invoiced dollar cost of materials used in relationship to the amount estimated as necessary to complete a particular element of Work. When calculating material progress, credit shall be given for installed material as well as that stored on the Site and any material stored off Site which has been certified by the Architect/Engineer in accordance with Section 36 of these General Conditions.

(e) Should Work included in previous Form CO-12 submittals, and for which payment has been made, subsequently be identified, by tests, inspection, or other means, as not acceptable or not conforming to Contract requirements, the "Value of Work Completed" portion of the first Form CO-12 submitted after such identification shall be modified to reduce the "completed" value of that Work by deleting the value of that which has been identified as not acceptable or nonconforming.

21. ACCESS TO WORK

The Architect/Engineer, the Owner, the Project Manager, the Owner's inspectors and other testing personnel, inspectors from the Department of Labor and Industry, and others authorized by the Owner, shall have access to the Work at all times. The Contractor shall provide proper facilities for access and inspection.

22. SURVEYS AND LAYOUT

(a) The Owner shall furnish the Contractor all necessary documents showing property lines and the location of existing buildings and improvements. The Contractor shall provide competent surveying and engineering services to execute the Work in accordance with the Contract and shall be responsible for the accuracy of these surveying and engineering services.

(b) The Owner shall provide such general reference points and benchmarks on the Site as will enable the Contractor to proceed with the Work will be established in the plans and specifications. If the
Contractor finds that any previously established reference points have been lost or destroyed, he shall promptly notify the Architect/Engineer.

(c) The Contractor shall protect and preserve the established benchmarks and monuments and shall make no changes in locations without written notice to the Architect/Engineer and the written approval from the Owner. Any of these which may be lost or destroyed or which require shifting because of necessary changes in grades or locations shall, subject to prior written approval of the Owner, be replaced and accurately located by the Contractor.

23. PLANS AND SPECIFICATIONS

(a) The general character and scope of the Work are illustrated by the plans and the specifications. If the Contractor deems additional detail or information to be needed, he shall request the same in writing from the Architect/Engineer. His request shall precisely state the detail or information needed and shall explain why it is needed. The Contractor shall also indicate a date when the requested information is required. The Architect/Engineer shall provide by Field Order such further detail and information as is necessary by the date required so long as the date indicated is reasonable. Any additional drawings and instructions supplied to the Contractor shall be consistent with the Contract Documents, shall be true developments thereof, and shall be so prepared that they can be reasonably interpreted as a part thereof. The Contractor shall carry out the Work in accordance with the additional detail drawings and instructions at no additional cost or time to the Owner.

(b) If the Contractor finds a conflict, error, omission, or other discrepancy in the plans or specifications, he shall notify the Architect/Engineer in writing as soon as possible, but before proceeding with the affected Work. The Architect/Engineer shall issue a clarification by Field Order to the Contractor stating the correct requirements. If the Contractor deems the Field Order requires additional Work, he shall notify the A/E of such prior to proceeding with that Work and he shall submit a request for Change Order along with a detailed substantiating cost proposal through the A/E to the Owner within fourteen (14) calendar days. If such conflict, error, omission or other discrepancy in plans or specifications was reasonably apparent or with reasonable diligence should have been apparent to the Contractor prior to submitting its bid or Proposal, and the Contractor failed to submit questions to the A/E in the time and manner required by the Instructions to Bidders or Request for Proposal, then any claims shall be deemed waived and the Contractor shall not be entitled to additional compensation or time, or entitled to sue the Owner based on such conflict, error, omission or other discrepancy. If the Contractor performs any Work, or is delayed in performing any Work, where such Work involves a conflict, error, omission, or other discrepancy in the plans and specifications that the Contractor knew about, or with reasonable diligence should have known about, and fails to notify the A/E and Owner as required, the Contractor shall assume full responsibility for such performance or delay and shall bear all costs attributable to correcting any Work requiring correction or to any delay, and such conflict, error, omission, or other discrepancy shall not be the basis for a claim, cause of action or right to sue the Owner.

(c) In case of differences between small and large scale drawings, the large scale drawings shall govern. Where on any of the drawings a portion of the Work is drawn out and the remainder is indicated in outline, the parts drawn out shall apply also to all other like portions of the Work.

(d) Where the word "similar" appears on the drawings, it shall be interpreted in its general sense and not as meaning identical, and all details shall be worked out in relation to their location and their connection with other parts of the Work.

(e) The specifications are divided into several parts, or sections, for convenience only, since the entire specifications must be considered as a whole. The divisions of the specifications are not intended to control the Contractor in dividing the Work among Subcontractors or to limit the Work
performed by any trade. The Contractor shall be solely responsible for the coordination of the trades, Subcontractors and vendors engaged in the Work and for the compensation of the trades, Subcontractors and vendors for the Work performed.

(f) Measurements or dimensions shown on the drawings for Site features, utilities and structures shall be verified at the Site by the Contractor before commencing the Work. The Contractor shall not scale measurements or dimensions from the drawings. If there are discrepancies, the Architect/Engineer shall be consulted. If new Work is to connect to, match with or be provided in existing Work, the Contractor shall verify the actual existing conditions and necessary dimensions prior to ordering or fabrication.

(g) As-Built Drawings: The Contractor shall maintain at the Site for the Owner one copy of all drawings, specifications, addenda, approved shop or setting drawings, Change Orders and other modifications (collectively referred to herein as "As-Built Drawings") in good order and marked to record all changes as they occur during construction. These shall be available to the Architect/Engineer, the Owner, the Project Inspector, the Owner's other inspectors and to the Owner's testing personnel. The drawings shall be neatly and clearly marked in color during construction to record all variations made during construction. The representation of such variations shall include such supplementary notes, symbols, legends, and details as may be necessary to clearly show the as-built construction.

(h) Record Drawings: Upon completion of the Work and prior to the final inspection, the Contractor shall deliver to the Architect/Engineer, for preparation of the Record Drawings, one complete set of "As-Built Drawings" referred to in the preceding subsection.

24. SUBMITTALS

(a) The Contractor shall submit a listing of all Submittals required by the Architect/Engineer or which the Contractor identifies as necessary, fixing the dates for the submission of shop or setting drawings, samples and product data. The listing shall be in a format acceptable to the Architect/Engineer. The Contractor shall identify all Submittals with the Owner's Project Code Number as required by Section 2(f).

(b) Submittals shall be forwarded to the Architect/Engineer for approval if required by the specifications or if requested by the Architect/Engineer or the Owner. No part of the Work dealt with by a Submittal shall be ordered, fabricated or installed by the Contractor, save at his own risk, until such approval has been given.

Working drawings, shop drawings and/or submittals for fire protection, fire alarm, fire detection and security systems shall be submitted to, and approved by, the Building Official prior to ordering, fabricating or installing such systems. The Contractor shall be solely responsible for obtaining such approval. No part of the Work involving such systems shall be ordered, fabricated or installed by the Contractor until such approval has been obtained.

(c) The Contractor shall furnish to the Architect/Engineer for approval the name of the manufacturer, the model number, and other identifying data and information respecting the performance, capacity, nature and rating of the machinery and mechanical and other equipment which the Contractor contemplates incorporating in the Work. When Submittals are required by this Contract for materials, the Contractor shall furnish full information concerning the material or articles which he contemplates incorporating in the Work. When required, samples shall be submitted for approval at the Contractor's expense, with all shipping charges prepaid. Machinery, equipment, material and articles installed or used without required approval shall be at the risk of subsequent rejection.
 Unless otherwise indicated or required elsewhere in the specifications, shop drawings shall be 
submitted in the form of one reproducible tracing and three blue line or black line prints. Catalog 
cuts, product data and other non-reproducible literature, except certificates, shall be submitted in 
six (6) copies minimum, of which three (3) will be retained by the Architect/Engineer and the 
remainder will be returned to the Contractor. As is mutually agreeable to the Owner, 
Architect/Engineer, and Contractor, Submittals may be provided in electronic format in lieu of 
hardcopy format.

Submittals shall be accompanied by a letter of transmittal which shall list the Project Code 
Number, the Submittals included, the specification section number applicable to each, and the date 
shown on each Submittal. Submittals shall be complete in every respect and bound in sets. Each 
Submittal shall be clearly marked to show each item, component and/or optional feature proposed 
to be incorporated into the Project. Cross reference to the plans or specifications as needed to 
identify the use for which the item or component is intended.

The Contractor shall check the Submittals for compliance with the requirements of the Contract 
Documents. The Contractor shall clearly note in writing any and all items which deviate from the 
requirements of the Contract Documents. Reasons for deviation shall be included with the 
Submittal. The Contractor shall be solely responsible for checking all dimensions and coordinating 
all materials and trades to ensure that the components or products proposed, individually or in 
combination, will fit in the space available and that they will be compatible with other components 
or products provided.

After checking each submittal, the Contractor shall stamp each sheet of the Submittal with the 
Contractor's review stamp. Data submitted in a bound volume or on one sheet printed on two 
sides, may be stamped on the front of the first sheet only. The Contractor's review stamp shall be 
worded as follows:

<table>
<thead>
<tr>
<th>The equipment and material shown and marked in this submittal is that proposed to be incorporated into this Project, is in compliance with the Contract drawings and specifications unless otherwise shown in bold face type or lettering and listed on a page or pages headed “DEPARTURES FROM DRAWINGS AND SPECIFICATIONS”, and can be installed in the allocated spaces.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reviewed by _______________________________________ Date ____________________</td>
</tr>
</tbody>
</table>

The person signing the review stamp shall be the person designated in writing by the Contractor as 
having that authority. (A copy of such designation shall be forwarded to the A/E prior to or with 
the first Submittal.) The signature on the stamped review statement shall be handwritten in ink, or 
in the case of electronic submittals, electronically signed in accordance with § 59.1-479 et seq. of 
the Code of Virginia. Stamped signatures are not acceptable.

The Contractor shall forward all Submittals sufficiently in advance of construction requirements to 
allow reasonable time for checking, correcting, resubmitting and rechecking.

If a Submittal indicates a departure from the Contract requirements, the Architect/Engineer may 
reject the Submittal or, if he deems it to have merit, may recommend it to the Owner, who shall 
approve or reject it as the Owner, in its sole discretion, sees fit. The departure from the Contract 
requirements shall be further authorized by a Change Order, if a reduction or increase in the 
Contract Price is appropriate.

The Architect/Engineer is responsible to the Owner, but not to the Contractor, to verify that the 
Submittals conform to the design concept and functional requirements of the plans and 
specifications, that the detailed design portrayed in shop drawings and proposed equipment and
materials shown in Submittals are of the quality specified and will function properly, and that the Submittals comply with the Contract Documents.

(k) The Work shall be in accordance with approved Submittals. Approval of the Contractor's Submittals by the A/E does not relieve the Contractor from responsibility of complying with the Contract and all drawings and specifications, except as changed by Change Order.

(l) The plans and/or specifications may indicate that the Architect/Engineer designed or detailed a portion of the plans around a particular product (most commonly a piece of equipment). Should a different product be proposed by the Contractor and accepted, all modifications, rerouting, relocations and variations required for proper installation and coordination to comply with the design concept and requirements of the Contract Documents shall be the responsibility of the Contractor and shall be made at no extra cost to the Owner. If the plans were noted as designed or detailed around a particular product and/or if a product is named when a "brand name or equal" specification has been used, this is not intended to favor or preclude the use of other products pursuant to Section 26 of these General Conditions. Rather such design merely acknowledges the reality that in many instances the Architect/Engineer must have a basis to design and detail around for dimensions and characteristics of a product or system.

(m) Additional Submittal requirements are shown in the specifications.

25. FEES, SERVICES AND FACILITIES

(a) The Contractor shall obtain all permits, except the Building Permit, and pay for all fees and charges necessary for temporary access and public right-of-way blockage or use, for temporary connections to utilities and for the use of property (other than the Site) for storage of materials and other purposes unless otherwise specifically stated in the Contract Documents.

(b) Certain projects such as renovations and interior modifications of existing buildings will usually have water and electric service to the building. In those instances, water and electric power, if required for the Work under the Contract, will be furnished by the Owner subject to reasonable use by the Contractor, only to the extent and capacity of present services. The Contractor shall be responsible for providing required connections, temporary wiring, piping, etc. to these services in a safe manner and in accordance with applicable codes. All temporary wire, pipe, etc. shall be removed before the Substantial Completion inspection. Acceptance by the Contractor of the use of Owner's water and electricity constitutes a release to the Owner of all claims and of all liability to the Contractor for whatever damages which may result from power and water outages or voltage variations.

(c) The Owner shall pay any connection charges for permanent utility connections directly to the utility Supplier. The Contractor shall coordinate such connections with the utility Supplier.

(d) It is understood that, except as otherwise specifically stated in the Contract Documents, the Contractor, either directly or through his Subcontractors, shall provide and pay for all material, labor, tools, equipment, water, light, power, telephone and other services or facilities of every nature whatsoever necessary to execute completely and deliver the Work within the Contract Time for Completion or before the Contract Completion Date.

(e) The Contractor shall provide temporary facilities including Contractor’s office space, Owner’s Project Inspector office space (if required by the specifications), toilet facilities, and storage space, as required for the operations and the protection of the material and work. Number, sizes and locations shall be subject to approval of the Owner. Sanitary facilities shall be plumbed into an approved waste treatment system or shall be an approved type of chemical toilet and shall be regularly serviced.
26. EQUALS

(a) **Brand names:** Unless otherwise stated in the specifications, the name of a certain brand, make or manufacturer denotes the characteristics, quality, workmanship, economy of operation and suitability for the intended purpose of the article desired, but does not restrict the Contractor to the specific brand, make, or manufacturer; it is set forth to convey to the Contractor the general style, type, character and quality of the article specified.

(b) **Equal materials, equipment or assemblies:** Whenever in these Contract Documents, a particular brand, make of material, device or equipment is shown or specified, such brand, make of material, device or equipment shall be regarded merely as a standard. Any other brand, make or manufacturer of a product, assembly or equipment which in the opinion of the Architect/Engineer is the equal of that specified, considering quality, capabilities, workmanship, configuration, economy of operation, useful life, compatibility with design of the Work, and suitability for the intended purpose, will be accepted unless rejected by the Owner as not being equal.

(c) **Substitute materials, equipment or assemblies:** The Contractor may propose to substitute a material, product, equipment, or assembly which deviates from the requirements of the Contract Documents but which the Contractor deems will perform the same function and have equal capabilities, service life, economy of operations, and suitability for the intended purpose. The proposal must include any cost differentials proposed. The Owner will have the A/E provide an initial evaluation of such proposed substitutes and provide a recommendation on acceptability and indicate the A/E's redesign fee to incorporate the substitution in the design. If the proposed substitute is acceptable to the Owner, a Change Order will be proposed to the Contractor to accept the substitute and to deduct the cost of the A/E redesign fee and the proposed cost savings from the Contract Price. The Owner shall have the right to limit or reject substitutions at its sole discretion.

(d) The Contractor shall be responsible for making all changes in the Work necessary to adapt and accommodate any equal or substitute product which it uses. The necessary changes shall be made at the Contractor's expense.

27. AVAILABILITY OF MATERIALS

If a brand name, product, or model number included in the Contract Documents is not available on the present market, alternate equal products or model numbers may be proposed by the Contractor through the Architect/Engineer for approval by the Owner.

28. CONTRACTOR'S TITLE TO MATERIALS

No materials or supplies for the Work shall be purchased by the Contractor, or by any Subcontractor or Supplier, subject to any security interest, installment or sales contract or any other agreement or lien by which an interest is retained by the seller or is given to a secured party. The Contractor warrants that he has clear and good title to all materials and supplies which he uses in the Work or for which he accepts payment in whole or in part.

29. STANDARDS FOR MATERIALS INSTALLATION & WORKMANSHIP

(a) Unless otherwise specifically provided in the Contract, all equipment, material, and accessories incorporated in the Work are to be new and in first class condition.

(b) Unless specifically approved by the Owner or required by the Contract, the Contractor shall not incorporate into the Work any materials containing asbestos or any material known by the industry to be hazardous to the health of building construction workers, maintenance workers, or occupants. If the Contractor becomes aware that a material required by the Contract contains
asbestos or other hazardous materials, he shall notify the Owner and the Architect/Engineer immediately and shall take no further steps to acquire or install any such material without first obtaining Owner approval.

(c) All workmanship shall be of the highest quality found in the building industry in every respect. All items of Work shall be done by craftsmen or tradesmen skilled in the particular task or activity to which they are assigned. In the acceptance or rejection of Work, no allowance will be made for lack of skill on the part of workmen. Poor or inferior workmanship (as determined by the Architect/Engineer, the Owner or other inspecting authorities) shall be removed and replaced at Contractor's expense such that the Work conforms to the highest quality standards of the trades concerned, or otherwise corrected to the satisfaction of the Architect/Engineer, the Owner, or other inspecting authority, as applicable.

(d) Under the various sections of the plans or specifications, where specified items are supplied with the manufacturer's printed instructions, recommendations, or directions for installation, or where such instructions, recommendations, or directions are available, installation of the specified items shall be in strict accordance with the manufacturer's printed instructions unless those instructions contradict the plans or specifications, in which case the Architect/Engineer will be notified for an interpretation and decision.

(e) Under the various sections of the plans or specifications, where reference is made to specific codes or standards governing the installation of specified items, installation shall in all cases be in strict accordance with the referenced codes and standards. Where no reference is made to specific codes or standards, installation shall conform to the generally recognized applicable standards for first-class installation of the specific item to be installed. Contractors are expected to be proficient and skilled in their respective trades and knowledgeable of the Codes and Standards of the National Fire Protection Association (NFPA), National Electric Code (NEC), Occupational Safety and Health Act (OSHA) and other codes and standards applicable to installations and associated work by his trade.

(f) Where the manufacturer's printed instructions are not available for installation of specific items, where specific codes or standards are not referenced to govern the installation or specific items, or where there is uncertainty on the part of the Contractor concerning the installation procedures to be followed or the quality of workmanship to be maintained in the installation of specific items, the Contractor shall consult the Architect/Engineer for approval of the installation procedures or the specific standards governing the quality of workmanship the Contractor proposes to follow or maintain during the installation of the items in question.

(g) During and/or at the completion of installation of any items, the tests designated in the plans or specifications necessary to assure proper and satisfactory functioning for its intended purpose shall be performed by the Contractor or by its Subcontractor responsible for the completed installation. All costs for such testing are to be included in the Contract Price. If required by the Contract Documents, the Contractor shall furnish prior to final inspection the manufacturers' certificates evidencing that products meet or exceed applicable performance, warranty and other requirements, and certificates that products have been properly installed and tested.

30. WARRANTY OF MATERIALS AND WORKMANSHIP

(a) The Contractor warrants that, unless otherwise specified, all materials and equipment incorporated in the Work under the Contract shall be new, in first class condition, and in accordance with the Contract Documents. The Contractor further warrants that all workmanship shall be of the highest quality and in accordance with the Contract Documents and shall be performed by persons qualified at their respective trades.

(b) Work not conforming to these warranties shall be considered defective.
(c) This warranty of materials and workmanship is separate and independent from and in addition to any of the Contractor's other guarantees or obligations in the Contract or under Virginia law.

31. USE OF SITE AND REMOVAL OF DEBRIS

(a) The Contractor shall:

(1) Perform the Work in such a manner as not to interrupt or interfere with the operation of any existing activity on, or in proximity to, the Site or with the Work of any other separate contractor;

(2) Store his apparatus, materials, supplies and equipment in such orderly fashion at the Site of the Work as will not unduly interfere with the progress of his Work or the work of any other separate contractor; and

(3) Place upon the Work or any part thereof only such loads as are consistent with the safety of that portion of the Work.

(b) The Contractor expressly undertakes, either directly or through his Subcontractor(s), to effect all cutting, filling or patching of the Work required to make the same conform to the plans and specifications, and, except with the consent of the Architect/Engineer, not to cut or otherwise alter the Work of any other separate contractor. The Contractor shall not damage or endanger any portion of the Work or Site, including existing improvements, unless called for by the Contract.

(c) The Contractor expressly undertakes, either directly or through his Subcontractor(s), to clean up frequently all refuse, rubbish, scrap materials and debris caused by his operations, to the end that at all times the Site shall present a neat, orderly and workmanlike appearance. No such refuse, rubbish, scrap material and debris shall be left within the completed Work nor buried on the building Site, but shall be removed from the Site and properly disposed of in a licensed landfill or otherwise as required by law.

(d) The Contractor expressly undertakes, either directly or through his Subcontractor(s), before Final Payment or such prior time as the Owner may require, to remove all surplus material, false Work, temporary structures, including foundations thereof, plants of any description and debris of every nature resulting from his operations and to put the Site in a neat, orderly condition; to thoroughly clean and leave reasonably dust free all finished surfaces including all equipment, piping, etc., on the interior of all buildings included in the Contract; and to clean thoroughly all glass installed under the Contract, including the removal of all paint and mortar splatters and other defacements.

If the Contractor fails to clean up at the time required herein, the Owner may do so and charge the costs incurred thereby to the Contractor in accordance with Section 10 (b) of these General Conditions.

(e) The Contractor shall have, On-Site, an employee certified by the Department of Environmental Quality as a Responsible Land Disturber who shall be responsible for the installation, inspection and maintenance of erosion control and stormwater management measures and devices. The Contractor shall prevent Site soil erosion, the runoff of silt and/or debris carrying water from the Site, and the blowing of debris off the Site in accordance with the applicable requirements and standards of the Contract and the Virginia Department of Environmental Quality’s Erosion and Sediment Control Regulations and the Virginia Stormwater Management Regulations.
32. **TEMPORARY ROADS**

Temporary roads, if required, shall be established and maintained until permanent roads are accepted, then removed and the area restored to the conditions required by the Contract Documents. Crushed rock, paving and other road materials from temporary roads shall not be left on the Site unless permission is received from the Owner to bury the same at a location and depth approved by the Owner.

33. **SIGNS**

The Contractor may, at his option and without cost to the Owner, erect signs acceptable to the Owner on the Site for the purpose of identifying and giving directions to the job. No signs shall be erected without prior approval of the Owner as to design and location.

34. **PROTECTION OF PERSONS AND PROPERTY**

(a) The Contractor expressly undertakes, both directly and through his Subcontractors, to take every reasonable precaution at all times for the protection of all persons and property which may come on the Site or be affected by the Contractor's Work.

(b) The Contractor shall be solely responsible for initiating, maintaining and supervising all safety precautions and programs in connection with the Work. Any violation of these requirements or duties or any potential safety hazard that is brought to the attention of the Contractor by the Architect/Engineer, the Owner, or any other persons shall be immediately abated.

(c) The provisions of all rules and regulations governing health and safety as adopted by the Safety Codes Commission of the Commonwealth of Virginia, issued by the Department of Labor and Industry under Title 40.1 of the *Code of Virginia*, shall apply to all Work under this Contract.

(d) The Contractor shall continuously maintain adequate protection of all his Work from damage and shall protect the Owner's property from injury or loss arising in connection with this Contract. He shall make good any such damage, injury or loss, except as may be directly and solely due to errors in the Contract Documents or caused by agents or employees of the Owner. The Contractor shall adequately protect adjacent property to prevent any damage to it or loss of use and enjoyment by its owners. The Contractor shall provide and maintain all passageways, guard fences, lights and other facilities for protection as required by public authority, local conditions, or the Contract.

(e) In an emergency affecting the health, safety or life of persons or of the Work, or of the adjoining property, the Contractor, without special instruction or authorization from the Architect/Engineer or the Owner, shall act, at his discretion, to prevent such threatened loss or injury. Also, should he, to prevent threatened loss or injury, be instructed or authorized to act by the Architect/Engineer or the Owner, he shall so act immediately, without appeal. Any additional compensation or extension of time claimed by the Contractor on account of any emergency work shall be determined as provided by Section 38 of these General Conditions.

(f) When necessary for the proper protection of the Work, temporary heating of a type approved by the Architect/Engineer must be provided by the Contractor, at the Contractor's expense, unless otherwise specified.

35. **CLIMATIC CONDITIONS**

The Contractor shall suspend activity on and protect any portion of the Work that may be subject to damage by climatic conditions.
36. PAYMENTS TO CONTRACTOR

(a) Unless otherwise provided in the Contract, the Owner will make partial payments to the Contractor on the basis of a duly certified and approved Schedule of Values and Certificate for Payment, Form CO-12, showing the estimate of the Work performed during the preceding calendar month or work period, as recommended by the Architect/Engineer. When evaluating the Contractor's Form CO-12, the Architect/Engineer will consider the value of the Work in place, the value of approved and properly stored materials, the status of the Work on the critical path with regard to the Time for Completion, and the estimated value of the Work necessary to achieve Final Completion. The Architect/Engineer will schedule a monthly pay meeting to occur no earlier than the 25th day of the month represented by the payment request or not later than the 5th day of the following month. The Contractor shall submit his monthly estimate of Work completed on Form CO-12 in accordance with the Contract between the Owner and Contractor so that it is received by the Architect/Engineer and the Owner's Project Manager at least one work day prior to the date scheduled by the Architect/Engineer for the monthly pay meeting. The Owner will review the estimate with the Architect/Engineer and the Contractor at the monthly pay meeting, which shall be considered the receipt date, and may approve any or all of the estimate of Work for payment. In preparing estimates, the material delivered to the Site and preparatory Work done shall be taken into consideration, if properly documented as required by Section 20 of these General Conditions, or as may be required by the Architect/Engineer so that quantities may be verified. In addition to material delivered to the Site, material such as large pieces of equipment and items purchased specifically for the Project, but stored off the Site within the Commonwealth of Virginia, may be considered for payment, provided all of the following are accomplished prior to the submission of the monthly payment request in which payment for such materials is requested:

(1) The Contractor must notify the Owner in writing, at least ten (10) days prior to the submission of the payment request, through the Architect/Engineer, that specific items will be stored off Site in a designated, secured place within the Commonwealth of Virginia. The Schedule of Values must be detailed to indicate separately both the value of the material and the labor/installation for trades requesting payment for stored materials. By giving such notification and by requesting payment for material stored off Site, the Contractor warrants that the storage location is safe and suitable for the type of material stored and that the materials are identified as being the property of the Contractor, and agrees that loss of materials stored off the Site shall not relieve the Contractor of the obligation to timely furnish these types and quantities of materials for the Project and meet the Time for Completion or Contract Completion Date, subject to Section 43 (b) of these General Conditions. If the storage location is more than 20 miles from the Site, the Contractor may be required to reimburse the Owner for the cost incurred for travel to the storage location to verify the Contractor's request for payment for materials stored off Site. A Supplementary Agreement shall be required for payment by the Owner to the Contractor for materials or equipment that is stored offsite at a location that is not within the Commonwealth of Virginia.

(2) Such notification, as well as the payment request, shall:

(a) Itemize the quantity of such materials and document with invoices showing the cost of said materials;

(b) Indicate the identification markings used on the materials, which shall clearly reference the materials to the particular project;

(c) Identify the specific location of the materials, which must be within reasonable proximity to the Site and within the Commonwealth of Virginia;
(d) Include a letter from the Contractor's Surety which confirms that the Surety on the Performance Bond and the Labor and Material Payment Bond has been notified of the request for payment of materials stored off the Site and agrees that the materials are covered by the bond; and

(e) Include a certificate of all-risk builder's risk insurance in an amount not less than the fair market value of the materials, which shall name the Owner and the Contractor as co-insureds.

(3) The Architect/Engineer shall indicate, in writing, to the Owner that Submittals for such materials have been reviewed and meet the requirements of the Contract Documents, that the stored materials meet the requirement of the plans and specifications, and that such materials conform to the approved Submittals. Should the A/E deem it necessary to visit the storage site to make such review, the Contractor shall bear the costs incurred therewith.

(4) The Owner, through the Architect/Engineer, shall notify the Contractor in writing of its agreement to prepayment for such materials.

(5) The Contractor shall notify the Owner in writing, through the Architect/Engineer, when the materials are to be transferred to the Site and when the materials are received at the Site.

(b) Payment will not be made for materials or equipment stored on or off the Site which are not scheduled for incorporation into the Work within the six months next following submission of the request for payment, unless the Contractor has the prior consent of the Owner, which consent may be granted or withheld by the Owner in its discretion if, in the opinion of the Owner, it is not necessary to procure the materials more than six months in advance of use to assure their availability when needed.

(c) No payment shall be made to the Contractor until:

(1) The Contractor furnishes to the Owner its Social Security Number (SSN) if an individual, or its Federal Employer Identification Number (FEIN) if a proprietorship, partnership, corporation or other legal entity.

(2) Certificates of Insurance or other satisfactory evidence of compliance by the Contractor with all the requirements of Section 11 (and Section 12 if applicable) of these General Conditions have been delivered to the Owner.

(3) Copies of any certificates of insurance required of a Subcontractor under Section 11 have been delivered to the Owner for payments based on Work performed by a Subcontractor.

(4) The Contractor has (i) submitted a preliminary schedule which is acceptable to the Owner in accordance with Section 19(a), (ii) submitted a fully complete Project schedule accepted by the Owner in accordance with Section 19(a), (iii) maintained the monthly bar graphs or status reports required by Section 19(d), or (iv) provided a recovery schedule pursuant to Section 19(e), as each of them may be required.

(d) In making such partial payments, five percent (5%) of each payment to the Contractor shall be retained until Final Completion and acceptance of all Work covered by the Contract, unless otherwise provided by any law, regulation or program of the federal government. Such retainage shall be held to assure faithful performance of the Contract and may also be used as a fund to deduct amounts due to or claimed by the Owner, including, but not limited to, payment to the Owner of all moneys due for deductive change orders, credits, uncorrected Defective Work,
interest, damages, and the like. (§ 2.2-4333 of the Code of Virginia) The Owner may, at its sole discretion, agree on an item by item basis to release the retainage on items which are fully 100% complete and which have accepted by the Owner as being tested and complete and on which no further action or work will be required. Retainage which is released by the Owner shall be distributed by the Contractor in conformance with Section 37 of these General Conditions.

(e) All material and Work for which partial payments are made shall thereupon become the sole property of the Owner, but this provision shall not relieve the Contractor from the sole responsibility for all materials and Work, including those for which payment has been made, or for the restoration of any damaged materials or Work. Nor shall this provision serve as a waiver of the right of the Owner to require the fulfillment of all of the terms and conditions of the Contract.

(f) The Final Payment, which shall include the retainage, less any amounts due to or claimed by the Owner, shall not become due until the Architect/Engineer and the Owner agree that Final Completion has been achieved and until the Contractor shall deliver to the Owner through the Architect/Engineer a Certificate of Completion by the Contractor (Form CO-13.2) and an Affidavit of Payment of Claims (Form CO-13), stating that all Subcontractors and Suppliers of either labor or materials have been paid all sums claimed by them for Work performed or materials furnished in connection with this Project less retainage. Amounts due the Owner which may be withheld from the Final Payment may include, but are not limited to, amounts due pursuant to Section 3(i), Section 16(a)-(d), Section 31(d), costs incurred to repair or replace Defective Work, costs incurred as a result of the Contractor's negligent acts or omissions or omissions of those for whom the Contractor is responsible, delay damages under Section 43(h), and any liquidated or actual damages. If all Subcontractors and Suppliers of labor and materials have not been paid the full amount claimed by them, the Contractor shall list each to which an agreed amount of money is due or which has a claim in dispute. With respect to all such Subcontractors and Suppliers, the Contractor shall provide to the Owner, along with the Affidavit of Payment of Claims (Form CO-13), an affidavit from each such Subcontractor and Supplier stating the amount of their subcontract or supply contract, the percentage of completion, the amounts paid to them by the Contractor and the dates of payment, the amount of money still due if any, any interest due the Subcontractor or Supplier pursuant to Section 37(b) below, and whether satisfactory arrangements have been made for the payment of said amounts. If no agreement can be reached between the Contractor and one or more Subcontractors or Suppliers as to the amounts owed to the Subcontractors or Suppliers, the Owner may, in its discretion, pay such portion of the moneys due to the Contractor which is claimed by the Subcontractor or Supplier into a Virginia Court or Federal Court sitting in Virginia, in the manner provided by law. Said payment into court shall be deemed a payment to the Contractor. Nothing in this Section shall be construed as creating any obligation or contractual relationship between the Owner and any Subcontractor or Supplier, and the Owner shall not be liable to any Subcontractor or Supplier on account of any failure or delay of the Owner in complying with the terms hereof.

Before Final Payment is made, the Owner shall confirm that the Contractor has certified compliance with the contract’s small business procurement plan by providing a report in accordance with DSBSD’s requirements. If there are variances between the Contractor’s required small business procurement plan and the actual participation, the Contractor shall provide a written explanation which shall be kept with the contract file and made available upon request. The Owner, in its sole discretion, may withhold the Final Payment until the Contractor is in compliance with its small business procurement plan.

(g) Upon successful completion of the final inspection and all Work required by the Contract, including but not limited to the delivery of As-Built drawings, equipment manuals, written warranties, acceptance of the Work by the Owner and the delivery of the affidavits required in Section 36(f) of these General Conditions, the Architect/Engineer shall deliver the written Certificate of Completion by the Architect/Engineer (Form CO-13.1) to the Owner, with a copy to the Contractor, stating the entire amount of Work performed and compensation earned by the
Contractor, including extra work and compensation therefor. The Owner may accept the Work for occupancy or use while asserting claims against the Contractor; disputing the amount of compensation due to the Contractor; disputing the quality of the Work, its completion, or its compliance with the Contract Documents; or any other reason.

(h) Unless there is a dispute about the compensation due to the Contractor, Defective Work, quality of the Work, compliance with the Contract Documents, completion itself, claims by the Owner, other matters in contention between the parties, or unless monies are withheld pursuant to the Comptroller's Debt Setoff Program, within thirty (30) days after receipt and acceptance of the Schedule of Values and Certificate for Payment (Form CO-12) in proper form by the Architect/Engineer at the monthly pay meeting, which shall be considered the receipt date, the Owner shall pay to the Contractor the amount approved by the Architect/Engineer, less all prior payments and advances whatsoever to or for the account of the Contractor. In the case of Final Payment, the completed Affidavit of Payment of Claims (Form CO-13), the Certificate of Completion by the Contractor (Form CO-13.2) and the Certificate of Completion by the Architect/Engineer (Form CO-13.1) shall accompany the final Schedule of Values and Certificate for Payment (Form CO-12) which is forwarded to the Owner for payment. The date on which payment is due shall be referred to as the Payment Date. In the event of disputes, payment shall be mailed on or before the Payment Date for amounts and Work not in dispute, subject to any set offs claimed by the Owner; provided, however in instances where further appropriations are required by the General Assembly or where the issuance of further bonds is required, in which case, payment shall be made within thirty (30) days after the effective date of such appropriation or within thirty (30) days after the receipt of bond proceeds by the Owner. All prior estimates and payments including those relating to extra Work may be corrected and adjusted in any payment and shall be corrected and adjusted in the Final Payment. In the event that any request for payment (CO-12) by the Contractor contains a defect or impropriety, the Owner shall notify the Contractor of any defect or impropriety which would prevent payment by the Payment Date, within five (5) days after receipt of the Schedule of Values and Certificate for Payment (Form CO-12) by the Owner from the Architect/Engineer.

(i) Interest shall accrue on all amounts owed by the Owner to the Contractor which remain unpaid seven (7) days following the Payment Date. Said interest shall accrue at the discounted ninety-day U.S. Treasury bill rate as established by the Weekly Auction and as reported in the publication entitled The Wall Street Journal on the weekday following each such Weekly Auction. During the period of time when the amounts due to the Contractor remain unpaid following the seventh (7) day after the Payment Date, the interest accruing shall fluctuate on a weekly basis and shall be that established by the immediately prior Weekly Auction. It shall be the responsibility of the Contractor to gather and substantiate the applicable weekly interest rates to the satisfaction of the Owner and to calculate to the satisfaction of the Owner the interest due. In no event shall the rate of interest charge exceed the rate of interest charged pursuant to § 58.1-1812 of the Code of Virginia. No interest shall accrue on retainage or when payment is delayed because of disagreement between the Owner and the Contractor regarding the quantity, quality or timeliness of the Work, including, but not limited to, compliance with Contract Documents or the accuracy of any Request for Payment received. This exception to the accrual of interest stated in the preceding sentence shall apply only to that portion of a delayed payment which is actually the subject of such a disagreement and shall apply only for the duration of such disagreement. Nothing contained herein shall be interpreted, however, to prevent the withholding of retainage to assure faithful performance of the Contract. These same provisions relating to payment of interest to the Contractor shall apply also to the computation and accrual of interest on any amounts due from the Contractor to the Owner for deductive change orders and to amounts due on any claims by the Owner. The date of mailing of any payment by the U.S. Mail is deemed to be the date of payment to the addressee.

(j) The acceptance by the Contractor of the Final Payment shall be and operate as a release to the Owner of all claims by the Contractor, its Subcontractors and Suppliers, and of all liability to the
Contractor whatever, including liability for all things done or furnished in connection with this Work, except for things done or furnished which are the subject of unresolved claims for which the Contractor has filed a timely written notice of intent, provided a claim is submitted no later than sixty (60) days after Final Payment. Acceptance of any interest payment by the Contractor shall be a release of the Owner from claims by the Contractor for late payment.

(k) No certificate for payment issued by the Architect/Engineer, and no payment, final or otherwise, no certificate of completion, nor partial or entire use or occupancy of the Work by the Owner, shall be an acceptance of any Work or materials not in accordance with the Contract, nor shall the same relieve the Contractor of responsibility for faulty materials or Defective Work or operate to release the Contractor or his Surety from any obligation under the Contract, the Standard Performance Bond and the Standard Labor and Material Payment Bond.

37. PAYMENTS BY CONTRACTOR (§ 2.2-4354, Code of Virginia)

Under § 2.2-4354, Code of Virginia, the Contractor is obligated to:

(a) Within seven (7) days after receipt of amounts paid to the Contractor by the Owner for Work performed by the Subcontractor or Supplier under this Contract,

(1) Pay the Subcontractor or Supplier for the proportionate share of the total payment received from the Owner attributable to the Work performed by the Subcontractor or the materials furnished by the Supplier under this Contract; or

(2) Notify the Subcontractor or Supplier, in writing, of his intention to withhold all or a part of the Subcontractor or Supplier's payment with the reason for nonpayment;

(b) Pay interest to the Subcontractor or Supplier on all amounts owed by the Contractor that remain unpaid after seven (7) days following receipt by the Contractor of payment from the Owner for Work performed by the Subcontractor or materials furnished by the Supplier under this contract, except for amounts withheld as allowed under subsection (a) (2) of this Section.

(c) Include in each of his subcontracts a provision requiring each Subcontractor to include in each of its subcontracts a provision requiring each subcontractor to include or otherwise be subject to the same payment and interest requirements with respect to each lower tier subcontractor. Each Subcontractor shall include with its invoice to, or request for payment from, the Contractor, a certification that the Subcontractor has paid each of its suppliers and lower tier subcontractors their proportionate share of previous payments received from the Contractor attributable to the Work performed or the materials furnished by it under this Contract.

The Contractor's obligation to pay interest to the Subcontractor or Supplier pursuant to subsection (b) of this Section is not an obligation of the Owner. A modification to this Contract shall not be made for the purpose of providing reimbursement for such interest charge. A Contractor's cost reimbursement claim shall not include any amount for reimbursement of such interest charge.

38. CHANGES IN THE WORK

(a) The Owner may at any time, by written order utilizing the Commonwealth of Virginia Change Order Form CO-11 and without notice to the sureties, make changes in the Work which are within the general scope of the Contract, except that no change will be made which will increase the total Contract Price to an amount more than twenty percent (20%) in excess of the original Contract Price without notice to sureties. At the time of the Preconstruction Meeting described in Section 50(b), the Contractor and the Owner shall advise each other in writing of their designees authorized to accept and/or approve changes to the Contract Price and of any limits to each designee's authority. Should any designee or limits of authority change during the time this
Contract is in effect, the Contractor or Owner with such a change shall give written notice to the other within seven (7) calendar days, utilizing the procedures set forth in these General Conditions. The Contractor agrees and understands that the authority of the Owner's designee is limited by Virginia Code §2.2-4309 and any other applicable statute.

In making any change, the charge or credit for the change shall be determined by one of the following methods as selected by the Owner:

(1) **Fixed Price:** By a mutually agreed fixed amount change to the Contract Price and/or time allowed for completion of the Work. The Change Order shall be substantiated by documentation itemizing the estimated quantities and costs of all labor, materials, and equipment required as well as any mark-up used. The price change shall include the Contractor's reasonable overhead and profit, including overhead for any unreasonable delay arising from or related to the Change Order and/or the change in the Work. See Subsections (d), (e) and (f), below.

(2) **Unit Price:** By using unit prices and calculating the number of net units of Work in each part of the Work which is changed, either as the Work progresses or before Work on the change commences, and by then multiplying the calculated number of units by the applicable unit price set forth in the Contract or multiplying by a mutually agreed unit price if none was provided in the Contract. No additional percentage markup for overhead or profit shall be added to the unit prices.

(3) **Cost Reimbursement:** By ordering the Contractor to perform the changed Work on a cost reimbursement basis by issuing two Change Orders citing this Subsection, an initiating Change Order, authorizing the changed Work, and a confirming Change Order approving the additional cost and time for the changed Work. The initiating Change Order shall:

(i) Describe the scope or parameters of the change in the Work;

(ii) Describe the cost items to be itemized and verified for payment and the method of measuring the quantity of work performed;

(iii) Address the impact on the schedule for Substantial Completion;

(iv) Order the Contractor to proceed with the change to the Work;

(v) Order the Contractor to keep in a form acceptable to the Owner, an accurate, itemized account of the actual cost of the change in the Work, including, but not limited to, the actual costs of labor, materials, equipment, and supplies;

(vi) Order the Contractor to annotate a copy of the Project schedule to accurately show the status of the Work at the time this first Change Order is issued, to show the start and finish dates of the changed Work, and the status of the Work when the changed Work is completed; and

(vii) State that a confirming Change Order will be issued to incorporate the cost of the ordered changed in the Work into the Contract Price and any change in the Contract Time for Completion or Contract Completion Date.

The Contractor shall sign the initiating Change Order acknowledging he has been ordered to proceed with the change in the Work. The Contractor's signature on each initiating Change Order citing this Subsection 38(a)(3) as the method for determining the cost of
the Work shall not constitute the Contractor's agreement on the cost or time impact of the ordered Work.

Except as otherwise may be agreed to in writing by the Owner, such costs shall not exceed those prevailing for the trades or crafts (based upon rates established by the US Department of Labor, Bureau of Labor Statistics, or other generally recognized cost data publication), materials, and equipment in the locality of the Project, may include only those items listed as allowable in Subsection 38(e), and shall not include any of the costs listed as not allowable in Subsection 38(f). The Owner shall be permitted, on a daily basis, to verify such records and may require such additional records as are necessary to determine the cost of the change to the Work.

Within fourteen (14) days after the conclusion of such ordered Work, the Contractor and the Owner shall reach agreement on (i) a cost for the ordered Work, based on the records kept and the Contractor's allowance for overhead and profit determined in accordance with the provisions set forth in Subsections 38(d), (e), and (f) below; and (ii) the change in the Contract Time for Completion or Contract Completion Date, if necessary, as a result of the ordered Work. Such costs and time shall be incorporated into a confirming Change Order which references the initiating Change Order. If agreement on the cost and time of the changed Work cannot be reached within the fourteen (14) days allotted, the Contractor may submit a claim for the disputed cost or time as provided for in Section 47.

(4) By issuing a unilateral change order in the amount deemed appropriate by the Owner for the Work. If the Contractor objects to the amount or scope of the change order then the Contractor may within the 14 days of the date of the change order file a claim for the disputed amount as provided for in section 47.

(b) The Contractor shall review any Owner requested or directed change and shall respond in writing within fourteen (14) calendar days after receipt of the proposed change (or such other reasonable time as the Owner may direct), stating the effect of the proposed change upon his Work, including any increase or decrease in the Contract time and price. The Contractor shall furnish to the Owner an itemized breakdown of the quantities and prices used in computing the proposed change in Contract Price.

The Owner shall review the Contractor's proposal and respond to the Contractor within thirty (30) days of receipt. If a change to the Contract Price and Time for Completion or Contract Completion Date are agreed upon, both parties shall sign the Change Order. If the Contract Price and Time for Completion or Contract Completion Date are not agreed upon, the Owner may direct the Contractor to proceed under Subsection 38(a)(3), above. Change Orders shall be effective when signed by both parties, unless approval by the Governor or his designee is required, in which event the Change Order shall be effective when signed by the Governor or his designee.

(c) In figuring changes, any instructions for measurement of quantities set forth in the Contract shall be followed.

(d) Overhead and profit for both additive and deductive changes in the Work (other than changes covered by unit prices) shall be paid by applying the specified percentage markups only on the net cost of the changed Work (i.e. difference in cost between original and changed Work excluding overhead and profit). Said percentages for overhead and profit shall reasonably approximate the Contractor’s overhead and profit, but shall not exceed the percentages for each category listed below:

(1) If a Subcontractor does all or part of the changed Work, the Subcontractor's mark-up for overhead and profit on the Work it performs shall be a maximum of fifteen percent
(15%). The Contractor's mark-up for overhead and profit on the Subcontractor's price shall be a maximum of ten percent (10%).

(2) If the Contractor does all or part of the changed Work, its markup for overhead and profit on the changed Work it performs shall be a maximum of fifteen percent (15%).

(3) If a Sub-subcontractor at any tier does all or part of the changed Work, the Sub-subcontractor's markup on that Work shall be a maximum of fifteen percent (15%). The markup for overhead and profit on a sub-subcontractor's Work by the Contractor and all intervening tiers of Subcontractors shall not exceed a total of ten percent (10%).

(4) Where Work is deleted from the Contract prior to commencement of that Work without substitution of other similar Work, one hundred percent (100%) of the Contract Price attributable to that Work shall be deducted from the Contract Price. However, in the event that material Submittals have been approved and orders placed for said materials, a lesser amount, but in no case less than eighty percent (80%) of the Contract Price attributable to that Work, shall be deducted from the Contract Price. The credit to the Owner for reduced premiums on labor and material bonds and performance bonds shall in all cases be one hundred percent (100%).

(e) Allowable costs for changes in the Work may include but are not limited to the following:

(1) Labor costs for employees directly employed in the change in the Work, including salaries and wages plus the cost of payroll charges and fringe benefits and overtime premiums, if such premiums are explicitly authorized by the Owner.

(2) Materials incorporated into the change to the Work, including costs of transportation and storage, if applicable. If applicable, all cash discounts shall accrue to the Contractor, unless the Owner deposits funds with the Contractor to make such payments, and all trade discounts, rebates, refunds, and returns from the sale of surplus materials shall accrue to the Owner.

(3) Equipment incorporated in the changed Work or equipment used directly in accomplishing the Work. If rented expressly for accomplishing the change in the Work, the cost shall be the rental rate according to the terms of the rental agreement, which the Owner shall have the right to approve. If owned by the Contractor, the costs shall be a reasonable price based upon the life expectancy of the equipment and the purchase price of the equipment. If applicable, transportation costs may be included.

(4) Costs of increases in premiums for the Standard Labor and Material Payment Bond and the Standard Performance Bond, provided coverage for the cost of the change in the Work results in such increased costs. At the Owner's request, the Contractor shall provide proof of his notification to the Surety of the change in the Work and of the Surety's agreement to include such change in its coverage. The cost of the increase in premium shall be an allowable cost but shall not be marked up.

(5) Contractor and Subcontractor overhead costs as set forth in Subsection (d) markups above.

(6) **Agreed Compensation for Overhead for Changes to Time for Completion or Contract Completion Date for Changes to the Work:** If the change in the Work also changes the Time for Completion or the Contract Completion Date by adding days to complete the Work, an itemized accounting of the following direct Site overhead and home office overhead and other indirect overhead expenses set forth in subparagraphs (i) and (ii) below may be considered as allowable costs for compensation in addition to those shown above:
(i) **Direct Site Overhead Expenses:**

The Contractor’s per diem expenses, as shown by the itemized accounting, for the following allowable direct Site overhead expenses: The Site superintendent's pro-rata salary, temporary Site office trailer, and temporary Site utilities including basic telephone service, electricity, heat, water, and sanitary/toilet facilities for each day added. All other direct expenses are covered by and included in the Subsection 38(d) markups above.

(ii) **Home Office and Other Indirect Overhead Expenses:**

A five percent (5%) markup on the above direct Site overhead expenses will be allowed as compensation for the Contractor's home office overhead and all other direct or indirect overhead expenses for days added to the Time for Completion or the Contract Completion Date for a change in the Work. All other overhead and other direct or indirect overhead expenses are covered by and included in this markup and the Subsection (d) markups above.

(7) Any other costs directly attributable to the change in the Work with the exception of those set forth in Subsection 38(f), below.

(f) Allowable costs for changes in the Work shall not include the following:

(1) Costs due to the negligence of the Contractor, any Subcontractor, Supplier, their employees, or other persons for whom the Contractor is responsible, including, but not limited to, costs for the correction of Defective Work, for improper disposal of material, for equipment wrongly supplied, for delay in performing the Work, or for delay in obtaining materials or equipment.

(2) Home office expenses including payroll costs for the Contractor's officers, executives, administrators, accountants, counsel, timekeepers, clerks, and other similar administrative personnel employed by the Contractor, whether at the Site or in the Contractor's principal or branch office for general administration of the Work. These costs are deemed overhead included in the percentage markups allowable in Subsections 38(d) above.

(3) Home and field office expenses not itemized in Subsection 38(e)(6) above. Such items include, but are not limited to, expenses of Contractor's home and branch offices, Contractor's capital expenses, interest on Contractor's capital used for the Work, charges for delinquent payments, small tools, incidental job costs, rent, utilities, telephone and office equipment, and other general overhead expenses.

(4) Other items reasonably determined by the Owner to not be allowed.

(g) All Change Orders, except the "initial" Change Orders authorizing work citing Subsection 38(a)(3) procedures, must state that the Contract Time for Completion or Contract Completion Date is not changed or is either increased or decreased by a specific number of days. The old Time for Completion and, if changed, the new Time for Completion must be stated.

If the Contractor requests an extension to the Time for Completion or a later Contract Completion Date, he must provide written justification for the extension to the Architect/Engineer and to the Owner. The written justification must demonstrate an anticipated actual increase in the time required to complete the Work beyond that allowed by the Contract as adjusted by prior change orders or amendments to the Contract, not just an increase or decrease in the time needed to complete some portion of the total Work. When a CPM schedule is required by the Contract, no
extension to the Time for Completion or Contract Completion Date shall be allowed unless, and then only to the extent that, the additional or changed Work increases the length of the critical path beyond the Time for Completion or Contract Completion Date. If approved, the increase in time required to complete the Work shall be added to the Time for Completion or Contract Completion Date.

The Owner may decrease, by Change Order, the Time for Completion or Contract Completion Date when an Owner-requested deletion from the Work results in a decrease in the actual time required to complete the Work as demonstrable on the Bar Graph Schedule or on the CPM Schedule, whichever is appropriate. The Contractor may submit a request to decrease, by Change Order, the Time for Completion or Contract Completion Date under the procedures and subject to the considerations set forth in Section 19(f). No request for such decrease shall be considered for approval unless the proposed shorter schedule is otherwise acceptable under Sections 19(b) or (c), whichever is applicable. The Change Order decreasing the Time for Completion or changing the Contract Completion Date must be signed by both the Owner and the Contractor.

With the exception of Change Orders under Subsection 38(a)(3), which shall arrive at a change to the Contract Price and any change to time using the procedures set forth therein, each Change Order shall include all time and monetary impacts of the change, whether the Change Order is considered alone or with all other changes during the course of the Project. Failure to include a change to time and changes in the Contract Price attributable to the change in time under Subsections 38(a)(1) or (2) shall waive any change to the time and Contract Price unless the parties mutually agree in writing to postpone a determination of the time related impacts of the change. Such a determination may be postponed not more than forty-five (45) days to give the Contractor an opportunity to demonstrate a change in the time and price needed to complete the Work. During any such postponement, the Work shall proceed, unless the Owner agrees otherwise.

If at any time there is a delay in the critical path of the Work due to postponement, due to the Contractor's efforts to justify an extension of the time or an increase in the Contract Price, or due to the Contractor's refusal to proceed with any of the Work, pending agreement on a change in time or price, such delay and any Contractor costs resulting from it shall not serve as the basis for the extension of the Time for Completion or Contract Completion Date or for an increase in the Contract Price.

(h) The acceptance by the Contractor of any payment made by the Owner under a Change Order shall be and operate as a release to the Owner of all claims by the Contractor and of all liability owing to the Contractor for all things done or furnished in connection with the Work described in the Change Order. The execution of any Change Order by the Owner shall not be an acceptance of any Work or materials not in accordance with the Contract Documents, nor shall it relieve the Contractor of responsibility for faulty materials or workmanship or operate to release the Contractor or his surety from any obligation arising under the Contract, the Standard Performance Bond, or the Standard Labor and Material Payment Bond.

(i) Payments will not be made for any Work, labor, or materials performed on a unit price or a Subsection 38(a)(3) basis until the Contractor has furnished the Owner documents, certified as true and correct by an authorized officer or agent of the Contractor, evidencing the cost of such Work, labor, and materials. The Owner may require any or all of the following documentation to be provided by the Contractor.

For Work performed on a Unit Price basis:

(1) Certified measurements of authorized and approved excavations, over-excavations, fills and/or backfills, and similar work; and/or
(2) Certified measurements of piling installed, caissons installed, and similar work; and/or

(3) Daily records of waste materials removed from the Site and/or fill materials imported to the Site.

For Work performed on a Subsection 38(a)(3) basis:

(1) Certified payroll records showing the name, classification, date, daily hours, total hours, rate, and extension for each laborer, foreman, supervisor, or other worker; and/or

(2) Equipment type & model, dates, daily hours, total hours, rental rate, or other specified rate, and extension for each unit of equipment;

(3) Invoices for materials showing quantities, prices, and extensions;

(4) Daily records of waste materials removed from the Site and/or fill materials imported to the Site;

(5) Certified measurements of over-excavations, piling installed and similar work; and/or

(6) Transportation records for materials, including prices, loads, and extensions.

Requests for payment shall be accompanied and supported by invoices for all materials used and for all transportation charges claimed. If materials come from the Contractor's own stock, then an affidavit may be furnished, in lieu of invoices, certifying quantities, prices, etc. to support the actual cost.

39. EXTRAS

If the Contractor claims that any instructions given to him by the Architect/Engineer or by the Owner, by drawings or otherwise, involve extra Work which increases the scope of the Contract, then, except in emergencies endangering life or property, he shall give the Architect/Engineer and the Owner written notice thereof before proceeding to execute the Work. Said notice shall be given promptly enough to avoid delaying the Work and in no instance later than fourteen (14) days after the receipt of such instructions. Should it not be immediately clear to the Contractor that the change involves extra Work outside the scope of the Contract, written notice shall be sufficient if given as soon as possible after such realization, but in no event later than fourteen (14) days after the start of such Work. If the Owner agrees, a Change Order shall be issued as provided in Section 38 of these General Conditions, and any additional compensation shall be determined by one of the three (3) methods provided in Subsection 38(a), as selected by the Owner. If the Owner does not agree, then any claims for compensation for the extra Work shall be filed in accordance with Section 47.

40. CONTRACTOR'S RIGHT TO STOP WORK OR TERMINATE THE CONTRACT

If the Work should be stopped under an order of any court or other public authority for a period of ninety (90) days through no fault of the Contractor or anyone employed by him, or if the Owner should fail to pay to the Contractor within thirty (30) days any sum certified by the Architect/Engineer when no dispute exists as to the sum due or any provision of the Contract, then the Contractor may, upon ten (10) calendar days written notice to the Owner and the Architect/Engineer, stop Work or terminate the Contract and recover from the Owner payment for the cost of the Work actually performed, together with overhead and profit thereon, but profit on the Work performed shall be recovered only to the extent that the Contractor can demonstrate that he would have had profit on the entire Contract if he had completed the Work. The Contractor may not receive profit or any other type of compensation for parts of the Work not performed. The Contractor may recover the reasonable cost of physically closing down the Site, but no other costs of termination. The Owner may offset any claims it may have against the Contractor against the amounts due
to the Contractor. In no event shall termination of the Contract by the Contractor terminate the obligations of the Contractor's surety on its payment and performance bonds.

41. **OWNER'S RIGHT TO TERMINATE THE CONTRACT FOR CAUSE**

(a) If the Contractor should be adjudged as bankrupt, or if he should make a general assignment for the benefit of his creditors, or if a receiver should be appointed on account of his insolvency, the Owner may terminate the Contract. If the Contractor should refuse or should repeatedly fail, except in cases for which extension of time is provided, to supply enough properly skilled workmen or proper materials and equipment, or if he should fail to perform the Work in a diligent, efficient, workmanlike, skillful, and careful manner, or if he should fail or refuse to perform the Work in accordance with the Contract Documents, or if he should fail to make prompt payment to Subcontractors or Suppliers of material or labor, or if he should disregard laws, ordinances or the written instructions of the Architect/Engineer or the Owner, or otherwise be in substantial violation of any provision of the Contract, then the Owner may terminate the Contract.

(b) Prior to termination of the Contract, the Owner shall give the Contractor and his surety ten (10) days written notice of such termination in the manner provided in Section 1 (definition of "Notice") of these General Conditions and allow ten (10) days during which the Contractor and/or his surety may rectify the basis for the notice. If rectified to the satisfaction of the Owner within said ten (10) days, the Owner may rescind its notice of termination. If not, the termination for cause shall become effective at the end of the ten (10) day notice period without further notice to the Contractor. In the alternative, the Owner may, in writing, postpone the effective date of the termination for cause, at its sole discretion, if it should receive reassurances from the Contractor and/or its surety that the basis for the termination will be remedied in a time and manner which the Owner finds acceptable. If at any time after such postponement, the Owner determines that Contractor and/or its surety has not or is not likely to rectify the causes of termination in an acceptable manner or within the time allowed, then the Owner may immediately terminate the Contract for cause, without the necessity of further ten (10) day notice, by notifying the Contractor and his surety in writing of the termination. In no event shall termination for cause terminate the obligations of the Contractor's surety on its payment and performance bonds.

(c) Upon termination of the Contract becoming effective, the Owner shall take possession of the Site and of all materials, tools and equipment thereon and shall proceed as follows:

1. **No Security Provided:** If no security has been provided pursuant to Section 8 herein, the Owner shall finish the Work by whatever method he may deem expedient. If the expense of finishing the Work, including compensation for additional managerial and administrative services, shall exceed the unpaid balance of the Contract Price, the Contractor shall pay the difference to the Owner, together with any other expenses of terminating the Contract and having it completed by others.

2. **Security Provided:** If security has been provided pursuant to Section 8 herein, the Owner shall provide Notice to the Surety that termination of the Contract became effective and proceed as set forth in the Standard Performance Bond, CO-10, Form DGS-30-084, and the Terms and Conditions therein. If the expense of finishing the Work, including compensation for additional managerial and administrative services, shall exceed the unpaid balance of the Contract Price and the penal amount of the Standard Performance Bond, the Contractor shall pay the difference to the Owner, together with any other expenses of terminating the Contract and having it completed by others.

(d) If it should be judicially determined that the Owner improperly terminated this Contract for cause, then the termination shall be deemed to be a termination for the convenience of the Owner and the Contractor’s rights and remedies shall be solely limited to those provided by Section 42 of these General Conditions.
(e) Termination of the Contract under this Section is in addition to and without prejudice to any other right or remedy of the Owner. Any actions by the Owner permitted herein shall not be deemed a waiver of any other right or remedy of the Owner under the Contract or under the law. The Owner may offset any claims it may have against the Contractor against the amounts due to the Contractor. The provisions of this Section shall survive termination of the Contract.

42. TERMINATION BY OWNER FOR CONVENIENCE

(a) The Owner may terminate this Contract, in whole or in part, at any time without cause upon giving the Contractor written notice of such termination in the manner provided in Section 1 (definition of "Notice") of these General Conditions. Upon such termination, the Contractor shall immediately cease Work and remove from the Site all of its labor forces, equipment and such of its materials as Owner elects not to purchase or to assume in the manner hereinafter provided. Upon such termination, the Contractor shall take such steps as Owner may require to assign to the Owner the Contractor's interest in all Subcontracts and purchase orders designated by Owner. After all such steps have been taken to Owner's satisfaction, the Contractor shall receive as full compensation for termination and assignment the following:

(1) Amounts due for Work performed in accordance with the Contract subsequent to the latest approved Schedule of Values and Certificate for Payment (Form CO-12) through the date of termination; and

(2) All amounts then otherwise due under the terms of this Contract associated with the Work performed prior to the date of termination; and

(3) Reasonable compensation for the actual cost of demobilization incurred by the Contractor as a direct result of such termination.

The Contractor shall not be entitled to any compensation or damages for lost profits or for any other type of contractual compensation or damages other than those provided in Subsection 42(a). The Owner may offset any claims it may have against the Contractor against the amounts due to the Contractor. Upon payment of the foregoing, Owner shall have no further obligations to Contractor of any nature. The Contractor agrees to waive all claims against the Owner for any consequential damages that may arise from or relate to the Owner’s termination of the Contract including, but not limited to, damages for loss of revenue, income, profit, business, reputation, or bonding capacity.

(b) In no event shall termination for the convenience of the Owner terminate the obligations of the Contractor's surety on its payment and performance bonds.

(c) Any actions by the Owner permitted herein shall not be deemed a waiver of any other right or remedy of the Owner under the Contract or under the law. The provisions of this Section shall survive termination of the Contract.

43. DAMAGES FOR DELAYS; EXTENSION OF TIME

(a) Excusable Non-Compensable Delays: If and to the extent that the Contractor is delayed at any time in the progress of the Work by strikes, fires, unusual delays in transportation or unavoidable casualties, or other causes outside the control of the Owner or the Contractor, with the exception of delays caused by weather provided for in Section 6, for which the Contractor intends to request an extension of either the Time for Completion or the Contract Completion Date, as the case may be, then the Contractor shall give the Owner and Architect/Engineer written notice of the delay within fourteen (14) days of the inception of the delay. The Contractor shall also give written notice to the Owner and Architect/Engineer of the termination of the delay not more than fourteen
(14) days after such termination. If the Owner agrees with the existence and the impact of the delay, the Owner shall extend the Time for Completion, the Contract Completion Date or Final Completion Date, as the case may be, for the length of time that the date for Substantial Completion or Final Completion was actually delayed thereby, and the Contractor shall not be charged with liquidated or actual damages for delay during the period of such extension nor shall the Contractor be due compensation or damages of any kind, under any theory of law, as a result of such delay, the impact of such delay, or acceleration of Work as a result of such delay. In the event a CPM schedule is required by the Contract, no extension of the Time for Completion or Contract Completion Date shall be granted unless the Contractor demonstrates a delay in the critical path of the approved CPM schedule or approved bar graph schedule.

(b) **Excusable Compensable Delays:** If and to the extent that the Contractor is unreasonably delayed at any time in the progress of the Work by any acts or omissions of the Owner, its agents, or employees due to causes within the Owner's control, and the Contractor intends to request an extension of either the Time for Completion or the Contract Completion Date, as the case may be, and/or additional compensation for damages, if any, caused by the delay, then the Contractor shall notify the Owner and the Architect/Engineer immediately at the time of the occurrence giving rise to the delay by the fastest means available and shall give written notice no later than two (2) working days after inception of the delay. The Contractor's written notice shall specify the nature of the delay claimed by the Contractor, the cause of the delay, and the impact of the delay on the Contractor's Work schedule. The Owner shall then have three (3) working days to respond to the Contractor's notice with a resolution, remedy, direction to alleviate the delay, or rejection of the Contractor's notice of delay. The Owner's failure to respond within the time required shall be deemed to be a rejection of the Contractor's notice. The Contractor shall also give written notice to the Owner and Architect/Engineer of the termination of the delay not more than fourteen (14) days after such termination. If and to the extent that a delay is caused by or due to the Owner or A/E taking any actions permitted or required by the Contract, the Contractor shall be entitled to an extension of time or additional compensation only for the portion of the delay that is unreasonable, if any.

(c) **Non-Excusable Non-Compensable Delays:** The Contractor shall not be entitled to an extension of the Time for Completion or Contract Completion Date or to any additional compensation for delays if and to the extent they are (1) caused by acts, omissions, fault, or negligence of the Contractor or his Subcontractors, agents or employees or due to foreseeable causes within their control, including, but not limited to, delays resulting from Defective Work including workmanship and/or materials, from rejected work which must be corrected before dependent work can proceed, from Defective Work or rejected work for which corrective action must be determined before like work can proceed, from incomplete, incorrect, or unacceptable Submittals or samples, or from the failure to furnish enough properly skilled workers, proper materials or necessary equipment to diligently perform the work in a timely manner in accordance with the Project schedule; or (2) due to causes that would entitle the Owner to recover delay costs or damages.

(d) No extension of time or additional compensation, if applicable, will be granted for any delay unless the claimed delay directly affects the critical path of the approved CPM schedule or the schedule shown on the approved bar graph schedule, whichever is applicable, and any float has been consumed. No extension of time or additional compensation shall be given for a delay if the Contractor failed to give notice in the manner and within the time prescribed in Subsections 43(a) or (b) above, whichever applies. Furthermore, no extension of time or additional compensation shall be given for any delay unless a written request therefor is made in writing to the Owner, with a copy to the Architect/Engineer, within twenty (20) days of the end of the delay. The request shall state the cause of the delay, the number of days of extension requested, and any additional compensation requested by the Contractor. Failure to give written notice of either the inception or the termination of the cause of delay or failure to present a claim for extension of time and/or
monetary compensation within the times prescribed shall constitute a waiver of any claim for extension or additional compensation based upon that cause.

(e) Requests for extensions of time and/or compensation for delays pursuant to Subsection 43(b) above must be substantiated by itemized data and records clearly showing that the Work delayed was on the critical path of the approved CPM schedule or on the sequence of Work on the approved bar graph schedule, as modified, whichever applies, and that the additional time and/or costs incurred by the Contractor are directly attributable to the delay in the Work claimed. Furthermore, compensation for delay shall be calculated from the contractual Time for Completion or Contract Completion Date, as adjusted by Change Order, and shall not be calculated based on any early completion planned or scheduled by the Contractor, unless a Change Order has been executed pursuant to Section 19(f) changing the Time for Completion or the Contract Completion Date to reflect such early completion. See Section 19 for procedures for the Contractor to follow if he plans early completion of the Work and wishes to request a Change Order reflecting the early completion date.

Agreed Compensation/Liquidated Damages for Owner Delay:

If and to the extent that the Contractor is entitled to an extension in the Time for Completion or the Contract Completion Date and additional compensation purely as a result of delay under Subsection 43(b) and not as a result of a change in the Work under Section 38, the agreed compensation and liquidated damages due the Contractor for days added to the Time for Completion or the Contract Completion Date for each day of such delay shall be the per diem expenses as determined from an itemized accounting of the direct Site overhead expenses and home office and other indirect overhead expenses only as specified in Subsections 38(e)(6)(i) and (ii). These expenses shall exclude any and all expenses specified in Subsection 38(f).

(f) If the Contractor submits a claim for delay damages pursuant to Subsection 43(b) above, the Contractor shall be liable to the Owner for a percentage of all costs incurred by the Owner in investigating, analyzing, negotiating, and litigating or arbitrating the claim, which percentage shall be equal to the percentage of the Contractor's total delay claim which is determined through litigation or arbitration to be false or to have no basis in law or in fact. (§ 2.2-4335, Code of Virginia)

(g) Any change in the Contract Time for Completion or Contract Completion Date shall be accomplished only by issuance of a Change Order.

(h) Agreed Compensation/Liquidated Damages for Contractor Delay: If the Contractor fails to complete the Work within the Time for Completion or the Contract Completion Date, the Contractor shall be liable to the Owner in the amounts set forth in the Supplemental General Conditions, if any, not as a penalty, but as fixed, agreed, and liquidated damages for delay until the Work is substantially or finally completed as the case may be. If liquidated damages are not so fixed in the Supplemental General Conditions, the Contractor shall be liable for any and all actual damages sustained as a result of delay. In addition to damages for delay, whether liquidated or actual, the Contractor shall also be liable for any and all actual damages sustained by the Owner as a result of any other breach of the Contract, including, but not limited to, Defective Work and abandonment of the Contract.

(i) If liquidated damages are provided by the Supplemental General Conditions, the following provisions apply:

1. If the Work is not substantially complete by the Time for Completion or Contract Completion Date, the Contractor shall owe to the Owner, not as a penalty but as Step One liquidated damages, the sum stated in the Supplemental General Conditions for Step One
liquidated damages for each and every partial or total calendar day of delay in Substantial Completion.

(2) Once the Work is substantially complete, the accrual of Step One liquidated damages shall cease and the Contractor shall have thirty (30) calendar days in which to achieve Final Completion of the Work.

(3) If Final Completion of the Work is not achieved on or before the thirtieth (30th) calendar day after Substantial Completion, and if the Owner has not granted any extension of time, the Contractor shall owe to the Owner, not as a penalty but as Step Two liquidated damages, the sum stated in the Supplemental General Conditions as Step Two liquidated damages for each and every partial or total calendar day of delay in Final Completion.

(j) The Contractor waives any and all defenses as to the validity of any liquidated damage provisions in the General Conditions or other Contract Documents, or of any liquidated damages assessed against the Contractor, on the grounds that such damages are void as penalties or are not reasonably related to actual damages.

44. INSPECTION FOR SUBSTANTIAL COMPLETION & FINAL COMPLETION

(a) The Contractor shall notify the Owner, in writing on the Certificate of Partial or Substantial Completion by the Contractor (Form CO-13.2a), of the date when the Work or designated portion thereof, will be, in his opinion, substantially complete and ready for inspection and testing to determine if it has reached Substantial Completion. The notice shall be given at least ten (10) days in advance of said date and shall be forwarded through the Architect/Engineer, who will attach his written endorsement as to whether or not he concurs with the Contractor's statement that the Work will be ready for inspection and testing on the date given. The Architect/Engineer's endorsement is a convenience to the Owner only and shall not relieve the Contractor of his responsibility in the matter nor shall the Architect/Engineer's endorsement be deemed to be evidence that the Work was substantially complete and ready for inspection and testing. Inspection and testing shall take place at a time(s) mutually agreeable to the Contractor, Owner and Architect/Engineer.

The inspection shall include a demonstration by the Contractor that all equipment, systems and operable components of the project function properly and in accordance with the Contract Documents. The Contractor shall furnish access for the inspection and testing as provided in Section 21 of these General Conditions. The inspection and testing shall determine whether Substantial Completion has been accomplished and shall result in a written list of unfinished Work and Defective Work, commonly referred to as a "punch list", which must be finished and corrected to obtain Final Completion.

After successful completion of the testing and the Architect / Engineer determines that, in its opinion, the Work, either in whole or in part, is substantially complete, the Architect / Engineer shall notify the Owner, in writing on the Certificate of Partial or Substantial Completion by the Architect/Engineer (Form CO-13.1a), that the Work, or a specified portion thereof, is recommended to be declared substantially complete. The Owner shall notify the Contractor, in writing, of the date the Owner accepts the Work, or the specified portion thereof, as substantially complete or the Owner shall notify the Contractor of the deficiencies to be corrected or completed before such Work will be accepted as substantially complete.

(b) The Contractor shall notify the Owner, in writing on the Certificate of Completion by the Contractor (form CO-13.2), of the date when the Work has reached or will reach Final Completion and will be ready for final inspection and testing. The notice shall be given at least five (5) days in advance of said date and shall be forwarded through the Architect/Engineer, who will attach his endorsement as to whether or not he concurs in the Contractor's statement that the Work will be ready for inspection and testing on the date given. That inspection and any necessary testing shall be conducted in the same manner as the inspection for Substantial Completion. When the Work is
finally and totally complete, including the elimination of all defects, the Work shall be finally accepted by the Owner and Final Payment shall be made in accordance with Section 36 of these General Conditions.

(c) The Architect/Engineer shall conduct the inspections. The Owner may elect to have other persons of its choosing also participate in the inspections. If one or more Substantial or Final Completion re-inspections are required, the Contractor shall reimburse the Owner for all costs of re-inspection or, at the Owner's option, the costs may be deducted from payments due to the Contractor.

(d) A representative of the State Fire Marshal's Office will either be present at the Substantial and Final Completion inspections or otherwise inspect the completed Work and advise the Owner whether the Work meets the fire safety requirements of the applicable building code.

(e) Approval of Work at or as a result of any inspection required herein shall not release the Contractor or his surety from responsibility for complying with the Contract.

45. GUARANTEE OF WORK

(a) Except as otherwise specified, all Work shall be, and is hereby, guaranteed by the Contractor against defects resulting from the use of materials, equipment or workmanship, which are defective, inferior, or not in accordance with the terms of the Contract, for one (1) year from the date of Final Completion of the entire Project by the Owner. Equipment and facilities which have seasonal limitations on their operation (e.g. heating or air conditioning units) shall be guaranteed for one (1) full year from the date of seasonally appropriate tests and acceptance, in writing, by the Owner. Where the Owner agrees to take Beneficial Occupancy of a portion or phase of the Work which has been determined to be substantially complete before the entire Work is finally completed, the guarantees for the materials, equipment and workmanship in that portion or phase shall begin on the date that the Owner takes Beneficial Occupancy, unless otherwise specified in the Supplemental General Conditions, Special Conditions, or by separate agreement. At six (6) months and eleven (11) months after substantial completion, the Contractor shall meet with the Owner to review the status of and assign value to any unresolved warranty, guarantee, and punch list items.

(b) If, within any guarantee period, Work which is not in accordance with the Contract, Defective Work, or inferior material, equipment or workmanship is noted by the Owner or Architect/Engineer which requires or renders necessary repairs or changes in connection with the guaranteed Work, the Contractor shall, promptly upon receipt of notice from the Owner, such notice being given not later than two weeks after the guarantee period expires, and without expense to the Owner:

1. Place in satisfactory condition in every particular all of such guaranteed Work and correct all defects, inferior materials, equipment or workmanship therein;
2. Make good all damage to the structure or Site or equipment or contents thereof, which, in the opinion of the Owner or the Architect/Engineer, is the result of the use of materials, equipment or workmanship which are inferior, defective or not in accordance with the terms of the Contract; and
3. Make good any Work or materials or the equipment and contents of structures and/or Site disturbance that results from fulfilling the provisions of this Section.

(c) In any case, when in fulfilling the requirements of the Contract and this guarantee or any other guaranty or warranty, the Contractor disturbs any work performed by a separate contractor, he shall restore such work to a condition satisfactory to the Architect/Engineer and Owner and guarantee such restored work to the same extent as if it was guaranteed under this Contract.
(d) If the Contractor, after notice, fails to proceed promptly to comply with the terms of the guarantee as set forth in this Section, the Owner may have the defects or inferior materials, equipment or workmanship corrected and the Contractor and his surety shall be liable for all expense incurred.

(e) All special warranties and guarantees applicable to definite parts of the Work that may be stipulated in or required by the Contract Documents shall be subject to the terms of this Section during the first year of the life of such special warranty or guarantee.

(f) The guarantee of this Section shall be in addition to and not in lieu of all other warranties, express or implied, applicable to or arising from this Contract or by law.

(g) Nothing contained in this Section shall be construed to establish a period of limitation with respect to any other obligation which the Contractor might have under the Contract Documents, including liability for Defective Work under Section 30. This Section relates only to the specific obligation of the Contractor as set forth in this Section to correct the Work and does not limit the time within which his obligation to comply with the Contract Documents may be sought to be enforced, nor the time within which proceedings may be commenced to establish the Contractor's liability with respect to his other obligations under the Contract Documents.

(h) In the event the Work of the Contractor is to be modified by another contractor, either before or after the Final Inspection provided by Section 44 of the General Conditions, the first Contractor shall remain responsible in all respects under this Section's Guarantee of Work and under any other warranties or guarantees, express or implied, applicable to or arising from this Contract or by law. However, the Contractor shall not be responsible for any defects in material or workmanship introduced by the contractor modifying his Work. The first Contractor and the contractor making the modifications shall each be solely responsible for his respective work. The contractor modifying the earlier Work shall be responsible for any damage to or defect introduced into the Work by his modification. If the first contractor claims that a subsequent contractor has introduced defects of materials and/or workmanship into his Work, it shall be the burden of the contractor making the claim to demonstrate clearly the nature and extent of such introduced defects and the other contractor's responsibility for those defects. Any contractor modifying the work of another shall have the same burden if he asserts that defects in his work were caused by the contractor whose work he is modifying.

(i) The Contractor shall indemnify and hold harmless the Commonwealth of Virginia, the Owner and the Owner’s consultants, representatives, agents and employees from and against any and all claims, causes of action, losses, costs, expenses or damages, including but not limited to attorney's fees, of any kind or nature whatsoever, arising from or relating to any bodily injury, including sickness, disease or death, or any property damage, that result from or arise out of the work performed by the Contractor, or by or in consequence of any neglect in safeguarding the Work, through the use of unacceptable materials in the Work, or resulting from any act, omission, negligence, or misconduct of the Contractor, any of his subcontractors, anyone directly or indirectly employed by them or anyone for whose acts they may be liable. The Owner may retain as much of the moneys due the Contractor under the Contract as the Owner considers necessary to ensure that a fund will be available to pay a settlement or judgment of such suits, actions, or claims. If insufficient monies are or will become due, the Contractor’s surety and/or insurers will not be released from liability until all such claims and actions have been settled and suitable evidence to that effect has been furnished the Owner.

46. ASSIGNMENTS

Neither party to the Contract shall assign the Contract in whole or any part without the written consent of the other, nor shall the Contractor assign any moneys due or to become due to him hereunder, without the prior written consent of the Owner. Consent to assignment shall not be unreasonably withheld. No assignment shall relieve any party from its obligations under the Contract.
47. CONTRACTUAL DISPUTES (§ 2.2-4363, Code of Virginia)

(a) Contractual claims, whether for money or for other relief, shall be submitted, in writing, no later than sixty (60) days after Final Payment; however, written notice of the Contractor's intention to file such claim must be given within fourteen (14) days of the time of the occurrence or beginning of the Work upon which the claim is based. Such notice shall state that it is a “notice of intent to file a claim” and include a written statement describing the act or omission of the Owner or its agents that allegedly caused or may cause damage to the Contractor and the nature of the claimed damage. The submission of a timely notice is a prerequisite to recovery under this Section. Failure to submit such notice of intent within the time and in the manner required shall be a conclusive waiver of the claim by the Contractor. Oral notice, the Owner’s actual knowledge, or a written notice given after the expiration of fourteen (14) days of time of the occurrence or beginning of the Work upon which the claim is based, shall not be sufficient to satisfy the requirements of this Section. Although the Contractor may be required to submit certain classes of claims prior to Final Payment, and the Contractor is not prevented from submitting claims during the pendency of the Work, the Owner shall not be obligated to render a final written decision on any claim until after Final Payment. All claims shall state that they are “claims” pursuant to this Section, be submitted along with all practically available supporting evidence and documentation and the certification required by Subsection 47(f), and request a final decision. Certificates for payment, applications for payment, vouchers, invoices and similar requests for payment submitted for work done by the Contractor in accordance with the expected contract performance are routine submissions and shall not be considered claims under this Section. Proposed or requested change orders, demands for money compensation or other relief, and correspondence and e-mails to the Owner or its representatives, which do not strictly comply with the requirements of this Section, shall not be considered claims under this Section.

(b) No written decision denying a claim or addressing issues related to the claim shall be considered a denial pursuant to this Section unless the written decision makes express reference to this Section and is signed by the Agency head or his designee. The Contractor may not institute legal action prior to receipt of the Owner's final written decision on the claim unless the Owner fails to render such a decision within ninety (90) days of submission of the claim, at which time the claim shall be deemed denied.

(c) The decision of the agency head or other signatory on the Contract shall be final and conclusive unless the Contractor within six (6) months of the date of the final decision on a claim, initiates legal action as provided in § 2.2-4364 of the Code of Virginia. Failure of the Owner to render a decision within 90 days shall not result in the Contractor being awarded the relief claimed nor shall it result in any other relief or penalty. The sole result of the Owner's failure to render a decision within 90 days shall be the Contractor's right to immediately institute legal action. No administrative appeals procedure pursuant to § 2.2-4365 of the Code of Virginia has been established for contractual claims under this Contract.

(d) Pursuant to § 2.2-4366, Alternative Dispute Resolution, of the Code of Virginia, the Owner may enter into an agreement with the Contractor to submit disputes arising from the performance of this Contract to arbitration and utilize mediation and other alternative dispute resolution procedures. However, such procedures entered into by the Owner, the Commonwealth, or any department, institution, division, commission, board or bureau thereof, shall be non-binding and subject to § 2.2-514, as applicable.

(e) In the event that a dispute, claim or controversy between the Owner and the Contractor arises regarding the requirements of the Contract, the performance of the Work, payment due the Contractor, the terms of any Change Order, or otherwise, the Contractor shall not stop, suspend or delay the Work or any part of the Work to be performed under the Contract, or under any Change Order, or as ordered by the Owner. The Contractor shall continue to diligently prosecute the Work to completion, including work required in any Change Order or as directed by the Owner.
Along with a claim submitted under this Section, the Contractor shall submit a Claim Certification Form (DGS-30-234) certifying that the claim is a true and accurate representation of the claim. Claims submitted without the Claim Certification Form shall not constitute a proper claim and, if not submitted with the certification within the time required, shall be deemed to be waived.

The remedies provided in these General Conditions, including costs, expenses, damages or extensions of time, shall be the Contractor’s sole remedies for the acts, omissions or breaches of the Owner, which shall survive termination or breach of the Contract.

48. ASBESTOS

(a) This subsection applies to projects involving existing buildings where asbestos abatement is not a part of the Work, when the scope of the project has been reviewed and a comprehensive survey conducted by an individual licensed by the Virginia Department of Professional and Occupational Regulation to conduct building inspections for asbestos containing materials in buildings, and where the Owner has attempted to remove or encapsulate all asbestos containing material that may become friable or damaged during this Project.

Prior to commencement of Work, the results of the comprehensive survey or any other asbestos survey shall be made available to the Contractor, who shall be responsible for performing his Work so as not to disturb any remaining asbestos, encapsulated or otherwise, identified in such survey or surveys.

If the Contractor discovers or inadvertently disturbs any material that he knows, should have known or has reason to believe, may contain asbestos that has not been previously identified, was overlooked during the removal, was deemed not to be friable or was encapsulated, the Contractor shall stop Work in the area containing or suspected to contain the asbestos, secure the area, and notify the Owner and the Architect/Engineer immediately by telephone or in person with written notice as soon as possible. The Owner will have the suspect material sampled.

If the sample is positive and must be disturbed in the course of the Work, the Owner shall have the material repaired or removed and shall pay for the bulk sample analysis.

Except as provided in § 11-4.1 of the Code of Virginia, if the material disturbed is not within the Contractor's authorized Work and/or Work area or under this Contract, the Contractor shall pay for all associated sampling and abatement costs.

(b) If asbestos abatement is included as a part of the Work, the Contractor shall assure that the asbestos abatement work is accomplished by those duly licensed as described in Section 3 of these General Conditions and in accordance with the specific requirements of the Contract and all applicable laws and regulations.

(c) If asbestos abatement is included as part of the Work, the licensed asbestos Subcontractor shall obtain the insurance required under Section 11 (c) of these General Conditions.

49. TRAINING, OPERATION AND MAINTENANCE OF EQUIPMENT

(a) As a part of the Work, the Contractor in conjunction with his Subcontractors and Suppliers shall provide the Owner's operations and maintenance personnel with adequate instruction and training in the proper operation and maintenance of any equipment, systems, and related controls provided or altered in the Work. The training requirements may be further defined in the specifications.

(b) The Contractor shall provide the Owner with a minimum of two (2) copies of operating, maintenance and parts manuals for all equipment and systems provided in the Work. Further specific requirements may be indicated in the specifications.
50. PROJECT MEETINGS

(a) The intention of this Section is that the Contractor, the Owner and the A/E have timely exchange of information and cooperate to accomplish the Work as required by the Contract Documents. The Contractor is responsible for managing the Work, obtaining approvals and requesting clarifications on a timely, reasonable basis. The Owner and its A/E are responsible for making a reasonable effort to provide timely responses to the Contractor.

(b) Preconstruction Meeting:

Prior to the start of construction and no later than 15 calendar days after the Notice to Proceed, a "Preconstruction" meeting shall be held with attendees to include the Owner's Project Manager and Project Inspector, the Architect/Engineer's project manager and representatives of each design discipline involved in the Project, the Regional Fire Marshal, the Contractor's project manager and superintendent (and scheduler, if Contractor desires), and representatives of the Contractor's major Subcontractors. The purpose of the meeting is to clarify and discuss the specifics related to, but not limited to, the following:

1. Persons involved from each entity and their chain of authority including the names of persons authorized to sign Change Orders and any limits to their authority. Name of Contractor's on-site certified Responsible Land Disturber.

2. Names, addresses, telephone numbers and FAX numbers to be used for Requests for Information (RFI), Requests for Clarification (RFC), Requests for Proposals (RFP), shop drawings, Submittals, and notices.

3. Contractor's proposed construction schedule and Owner's sequencing requirements, if any.

4. Schedule of Values and Certificate for Payment (Form CO-12) requirements and procedures.

5. Procedures for shop drawings, product data and Submittals.

6. Procedures for handling Field Orders and Change Order Form CO-11.

7. Procedures for Contractor's request for time extension, if any.

8. Construction Site requirements, procedures and clarifications to include:
   - Manner of conducting the Work
   - Site specialties such as dust and erosion control, stormwater management, project signs, clean up and housekeeping, temporary facilities, utilities, security, and traffic
   - Safety
   - Layout of the Work
   - Quality control, testing, inspections, and notices required
   - Site visits by the A/E and others
   - Owner's Project Inspector duties
   - Running Punch List
   - As-Built Drawings

9. Procedures and documentation of differing or unforeseen Site conditions

10. Monthly Pay Meeting

11. Assignment of responsibility for generation of meeting minutes of all project meetings.

12. Project Close-Out requirements and procedures

13. Project records

(c) Monthly Pay Meeting:
Section 36 establishes the requirement for a monthly pay meeting which will usually be held at or near the Site. In addition to Owner, A/E and Contractor representatives, the following representatives, at a minimum, should be available to attend portions of the meeting, as applicable or necessary:

- Owner's Project Inspector
- Contractor's project superintendent
- A/E representative of each discipline where Work was performed for the current pay request or where Work is projected to be performed in the coming month.
- A representative of each subcontractor who performed work included in the current pay request.
- A representative of each subcontractor who is projected to perform work in the coming month.

The following topics should be included, as a minimum, in the monthly pay meeting:

1. Observations of status, quality and workmanship of Work in progress
2. Validation of the Schedule of Values and Certificate for payment
3. Conformance with proposed construction schedule
4. Outstanding Requests for Information, Requests for Clarification and Requests for Proposal
5. Submittals with action pending
6. Status of pending Change Orders
7. Status of Running Punch List items
8. Work proposed for coming pay period
9. Discussions of any problems or potential problems which need attention

(d) Other Meetings:
Requirements for other meetings, such as progress meetings, coordination meetings, pre-installation meetings and/or partnering meetings, may be included in the Contract Documents.

51. SMALL BUSINESS PROCUREMENT PLAN

The Owner has developed small business utilization requirements for increasing procurement from small businesses in its construction program. The Owner’s small business requirements may, at the Owner’s option, be included in the contract documents for use by the Contractor in developing its plan for involving small businesses through subcontracting, and through the purchasing of goods, materials, supplies and services in the Contractor’s construction program. The Owner’s plan provides requirements for the Contractor in developing a plan, for submitting its plan and for reporting its achievements in meeting the requirements established for the Contract.

If the Contractor is not a DSBSD certified small business, and the Contractor entered a small business participation percentage on the Bid Form, the Contractor shall, as soon as practicable after the posting of the Notice of Intent to Award but not later than 30 days after the effective date of the contract, provide a list of Subcontractors that are proposed to perform the work, including small business Subcontractors, vendors and suppliers showing their DSBSD certification numbers where applicable. Upon receipt of the list, the Owner may, based on the Agency small business procurement plan, require the Contractor to provide additional information on work that has been bid by small business Contractors, and areas in which the scope of work may be reduced in size to increase the pool of potential small business Contractors. Selection of particular Subcontractors for a certain part of the work shall be made in accord with Section 9, Subcontracts of the General Conditions.

***END OF GENERAL CONDITIONS***
This contract is subject to the requirements of the Payment of Prevailing Wages Pursuant to Virginia Code 2.2-4321.3.

**Prevailing Wage Rate:** Prevailing Wage Rate means that rate, amount, or level of wages, salaries, benefits and other remuneration prevailing for a classification of mechanics, laborers, or workers employed for the same work in the same trade, craft or occupation in the locality of the Project as determined by the Commissioner of Labor and Industry.

**Payment of Prevailing Wages Pursuant to Virginia Code 2.2-4321.3**

*Code of Virginia § 2.2-4321.3* and the following requirements shall be applicable to the Work of the Contract if the Contract Price is greater than Three Million Dollars ($3,000,000):

1. The Contractor agrees that all remuneration to any individual providing labor for the Project or the Work as a mechanic, laborer, worker or equivalent shall be paid at a rate not less than the Prevailing Wage Rate beginning upon the individual’s first day of work at or for the Project.

2. Upon award of the Contract, the Contractor shall certify, under oath, to the Commissioner of Labor and Industry the pay scale for each craft and trade to be employed for, or to provide labor for, the Project or the Work by the Contractor and any Subcontractors. The Contractor’s certification shall include all information required by *Code of Virginia § 2.2-4321.3*(G). The Contractor shall provide a copy of this certification to the University at the time it is provided to the Commissioner of Labor and Industry.

3. The Contractor shall ensure that each individual providing labor as a mechanic, laborer, worker or equivalent shall be accurately classified in conformance with the Prevailing Wage Rate determinations.

4. The Contractor and all Subcontractors shall keep, maintain, and preserve all records relating to the occupation, work classification, wages paid to and hours worked for each individual providing labor for the Project or the Work as a mechanic, laborer, worker or equivalent in a manner which complies with the requirements of *Code of Virginia § 2.2-4321.3*(H). The Contractor and all Subcontractors shall retain these and any other required payroll records for the period required by *Code of Virginia § 2.2-4321.3*(H). The Contractor and its Subcontractors shall make available to the University all records required by *Code of Virginia § 2.2-4321.3*(H) for inspection and copying within five (5) days of University’s request.
5. The Contractor and all Subcontractors shall post all Prevailing Wage Rates applicable to the Project and the Work in a prominent and easily accessible place at the Site. The Contractor and all Subcontractors shall timely make all postings, updates to postings, and certification required by *Code of Virginia* § 2.2-4321.3(I). The Contractor shall provide the University with a copy of each certification made to the Commissioner of Labor and Industry pursuant to *Code of Virginia* § 2.2-4321.3(I) at the time the certification is provided to the Commissioner of Labor and Industry.

6. The Contractor shall indemnify and hold harmless the University from any fines, demands, claims, suits and damages, including any attorney’s fees incurred by the University, resulting from or relating to the Contractor’s or any Subcontractor’s failure to pay the Prevailing Wage to a mechanic, laborer, worker or equivalent individual or to comply with the requirements of *Code of Virginia* § 2.2-4321.3.
CONTRACT BETWEEN VIRGINIA COMMONWEALTH UNIVERSITY AND CONTRACTOR

This Contract, dated this _____ day of _____, 2023, between Virginia Commonwealth University (collectively, the “Owner”), and ___________________________ (the “Contractor”), is binding among and between these parties as of the date of the University’s signature.

RECITALS

1. The legal address for the University and for the Contractor and the addresses for delivery of Notices and other project documents are as follows:

   **Owner**
   - Virginia Commonwealth University
   - Matthew Magruder, VCCO, LEED AP
   - Director of Construction Management
   - Box 843003
   - Richmond, Virginia 23284-3003
   - Telephone: (804) 827-7890
   - FAX: (804) 828-2528
   - E-mail Address: magrudermc@vcu.edu

   **Contractor**:
   - Attention:
   - Address:
   - City, State, Zip:
   - Telephone:
   - F.E.I.N.:
   - Virginia License #:
   - SSC ID #:
   - E-mail Address:

2. The Project is identified as:

   **Project Title:**

   **Project Code:**

   **GENERAL PROJECT DESCRIPTION:**
The Project Title and Project Code indicated above, along with the Purchase Order Number, are required to be shown for identification purposes on all project related materials and documents including, but not limited to, Notices, Change Orders, Submittals, Requests For Information, Requests For Quotes, Field Orders, minutes of meetings, correspondence, including emails, Schedule of Values and Certificate For Payment (Form VCUHECO-12), test reports, and related materials.


THEREFORE, in consideration of the Recitals set forth above, and good and valuable consideration as set forth below, the parties agree as follows:

1. STATEMENT OF WORK: The Contractor shall furnish all labor, equipment, and materials and perform all Work for the Project in strict accordance with the Contract Documents (as hereinafter defined).

2. CONTRACT DOCUMENTS: This Contract shall consist of the following (the “Contract Documents”) which, in the event of conflicts among them, shall take precedence in the following order:

- This Contract Between University and Contractor (HECO-9)
- The Bid Form Submitted by the Contractor; Dated ___________
- Post Bid Modification(s), if any, Dated ____________.
- HECO-7 (Revised 4-17) modifies the Commonwealth of Virginia’s General Conditions of the Construction Contract (DGS-30-054 Form CO-7, Dated 4-15, included), Referred to as the “General Conditions”);
- Supplemental General Conditions if any Date __________;
- The Special Conditions attached to the Owner’s Invitation for Bids;
- The Owner’s Project Plans and Specifications dated ___________

All of these documents are incorporated herein by reference.

3. TIME FOR COMPLETION: The Work shall be commenced on the date specified in the Notice to Proceed from the University and shall be Substantially Completed within ________ Calendar Days or not later than the Contract Completion Date which is _____________. The Work shall reach Final Completion within 30 Calendar Days after the date of Substantial Completion of the Work.

4. TERMINATION: Termination of this Contract shall be governed by §§41 and 42 of the General Conditions.

5. COMPENSATION TO BE PAID TO THE CONTRACTOR: The University agrees to pay and the Contractor agrees to accept as just and adequate compensation for the performance of the Work in accordance with the Contract Documents the sum of ___________________________ Dollars ($ ___________).

6. PAYMENTS: The Contractor shall be registered in eVA. Please refer to the eVA Vendor Registration Requirements in your contract documents. Registration can be completed at https://eva.virginia.gov/pages/eva-registration-buyer-vendor.htm. The procedures for establishing a Schedule of Values for the Work, for requesting monthly progress payments for Work in place, and for requesting payments for properly stored materials are stated in the General Conditions. Unless otherwise provided under the Contract Documents, any interest on payments due the Contractor shall accrue in accordance with §46 of the Rules.

7. CONTRACTUAL CLAIMS: Any contractual claims shall be submitted in accordance with the contractual dispute procedures set forth in §53 of the Rules and §47 of the General Conditions, and the supplemental instructions or procedures of the contracting State Agency, if any, attached to this Contract.
8. NON-DISCRIMINATION: §10 of the Rules applies to this Contract. See §4 of the General Conditions.

9. AUTHORIZATION TO TRANSACT BUSINESS: The Contractor certifies that, if it is organized as a stock or nonstock corporation, limited liability company, business trust, or limited partnership or registered as a registered limited liability partnership, it is authorized to transact business in the Commonwealth as a domestic or foreign business entity if so required by Title 13.1 or Title 50 of the Code of Virginia, or as otherwise required by law, and that it shall not allow its existence to lapse or its certificate of authority or registration to transact business in the Commonwealth, if so required under Title 13.1 or Title 50, to be revoked or cancelled at any time during the term of the Contract. The Contractor understands and agrees that the Owner may void this Contract if the Contractor fails to comply with these provisions.

10. DEBARMENT AND ENJOINMENT: By signing this contract, the undersigned certifies that this Contractor or any officer, director, partner or owner is not currently barred from bidding on contracts by any Agency of the Commonwealth of Virginia, or any public body or agency of another state, or any agency of the federal government, nor is this Contractor a subsidiary or affiliate of any firm/corporation that is currently barred from bidding on contracts by any of the same.

11. “ALL RISK” BUILDER’S RISK INSURANCE: As this project is a modification to an existing building, in accordance with Section 12(b) - Owner Controlled During Construction of the General Conditions, the requirements of Section 12(a) - Contractor Controlled During Construction of the General Conditions do not apply.

IN WITNESS WHEREOF, the parties hereto on the day and year written below have executed this agreement in two (2) counterparts, each of which shall, without proof or accountancy for the other counterparts, be deemed an original thereof.

For the CONTRACTOR:

______________________________

By: ____________________________
    (Signature in ink)             (Date)

For the OWNER:

Virginia Commonwealth University

______________________________

By: ____________________________
    (Signature in ink)             (Date)

Karol Kain Gray

Senior Vice President and CFO, VCU

Attest: ____________________________

Attest: ____________________________
    (Signature in ink)             (Date)

Attachments:

- Bid Form Submitted by the Contractor
- Addendum No(s).
- Post Bid Modification, if any
COMMONWEALTH OF VIRGINIA
WORKERS' COMPENSATION
Certificate of Coverage

Section §25, of the Governing Rules requires construction contractors and subcontractors to obtain and maintain workers' compensation insurance while performing work on behalf of the Commonwealth of Virginia, its departments, institutions, or agencies. This same requirement applies on behalf of local governments.

Evidence of coverage must be provided prior to commencement of Work.

This form must be completed and returned to the organization contracting the Work.

The undersigned organization stipulates that it:

A. has workers' compensation insurance and is in compliance with the Workers' Compensation statutes of the Commonwealth of Virginia. _____ Yes _____ No
   Insurance Company ____________________________________
   Policy expiration date ____________________________________

B. is self insured for workers' compensation. ______ Yes

Title of Construction Contract: ______________________________________________________

Contract Number: ________________________________________________________________

Signed by: _____________________________________
   Title: _____________________________________
   Firm Name: _____________________________________
   Address: _____________________________________
HECO-10

STANDARD PERFORMANCE BOND

KNOW ALL BY THESE PRESENTS: That _____ (“Contractor”) whose principal place of business is located at _____ and _____ (“Surety”) whose address for delivery of ‘Notices’ is located at _____ are held and firmly bound unto the Commonwealth of Virginia and Virginia Commonwealth University, the Owner (collectively, the “University”) in the amount of _____ Dollars ($_____ ) for the payment whereof Contractor and Surety bind themselves, their heirs, executors, administrators, successors, and assigns, jointly and severally, firmly by these presents.

WHEREAS,

Contractor has by written agreement dated _____ entered into a contract with University for _____ which contract (the "Contract") is by reference expressly made a part hereof;

NOW THEREFORE, THE CONDITION OF THIS OBLIGATION is such that, if the Contractor shall promptly and faithfully perform said Contract in strict conformity with the plans, specifications and conditions of the Contract, then this obligation shall be null and void; otherwise it shall remain in full force and effect.

Provided, that any alterations which may be made in the terms of the Contract, or in the Work to be done under it, or the giving by the University of any extension of time for the performance of the Contract, or any other alterations, extensions or forbearance on the part of either or both of the University or the Contractor to the other shall not in any way release the Contractor and the Surety, or either of them, their heirs, executors, administrators, successors, or assigns from their liability hereunder, notice to the Surety of any such alterations, extension, or forbearance being hereby waived.

No action shall be brought on this bond unless brought within one year after: (a) completion of the Contract and all Work thereunder, including expiration of all warranties and guarantees, or (b) discovery of the defect or breach of warranty or guarantee if the action be for such.

The Surety represents to the Contractor and to the University that it is legally authorized to do business in the Commonwealth of Virginia.
Signed and sealed this _____ day of _____

[Signature]

Contractor

[Seal]

By: _________________________________

Witness

Typed Name: ______

Title: ______

Surety

[Seal]

By: _________________________________

Attorney-in-Fact

Typed Name: ______

AFFIDAVIT AND ACKNOWLEDGEMENT OF ATTORNEY-IN-FACT

COMMONWEALTH OF VIRGINIA
(or alternatively, Commonwealth or State of ______)

CITY of ______

I, the undersigned notary public, do certify that ______, whose name is signed to the foregoing performance bond in the sum of ______ Dollars ($____) and dated _____ and which names Commonwealth of Virginia and Virginia Commonwealth University, as Obligee, personally appeared before me today in the above jurisdiction and made oath that he/she is the attorney-in-fact of ______, a ______ corporation which is the Surety in the foregoing bond, that he/she is duly authorized to execute on the above Surety’s behalf the foregoing bond pursuant to the Power of Attorney noted above and attached hereto, and on behalf of the surety, he/she acknowledged the foregoing bond before me as the above Surety’s act and deed.

She/he has further certified that her/his Power of Attorney has not been revoked.
(The Power of Attorney, or a copy or facsimile thereof, should be attached hereto.)

Given under my hand this _____ day of _____.

________________________________________

Notary Public

[Seal]

My name (printed) is: ______
My registration number is: ______
My commission expires: ______

APPROVED:

________________________________________

Attorney General/Designee

Date
Terms and Conditions of the Performance Bond

1. The Contractor and the Surety, jointly and severally, bind themselves, their heirs, executors, administrators, successors and assigns to the University for the prompt and faithful performance of the Construction Contract, which is incorporated herein by reference.

2. If the Contractor promptly and faithfully performs the Construction Contract in strict conformity with the plans, specifications and conditions of the Construction Contract, the Surety and the Contractor shall have no obligations under this Bond.

3. In the event of the Contractor's Default, and subsequent notification to the Surety pursuant to Section 41 of the General Conditions of the Construction Contract, the Surety shall, within fourteen (14) days of receipt of such notice, contact the University in writing, and arrange a meeting with the University to discuss methods of completing the Construction Contract. See paragraph 4, below, for the options to be discussed. If the Surety fails to arrange a meeting or fails to attend such meeting, the Surety shall be deemed to be in default on this Bond and the University may, at its sole discretion, take what measures it deems necessary to protect the University's interests, without further notice to the Surety, and the University shall be entitled to enforce any remedy available to the University under the Construction Contract or under Virginia law.

4. Within thirty (30) days after such meeting, during which time the Surety may investigate and otherwise analyze the project, and which period shall not toll any Construction Contract time periods nor operate as a waiver of any of the University's rights, the Surety shall, at its own expense, notify the University in writing that it is taking one of the following actions, which shall be acceptable to the University, at the University's sole discretion:

   4.1 By written takeover agreement with the University, the Surety itself shall undertake to perform and complete the Construction Contract, which it may do through its licensed agents or through licensed independent contractors. If the University, at its sole discretion, consents, the Contractor may serve as the Surety's independent contractor (however, due to conflicts with the Rules, the University may not directly contract with an otherwise qualified independent contractor produced by the Surety); or

   4.2 The Surety may, if acceptable to the University and at the University's sole discretion, waive its right to perform and complete the Construction Contract, and with reasonable promptness under the circumstances:

      4.2.1 Pay to the University all amounts for which it may be liable to the University as surety on this Performance Bond, including the damages described in paragraph 6 below; or

      4.2.2 Deny liability, in whole or in part, and provide written notice thereof to the University, citing reasons therefore.

5. If, after the meeting described in paragraph 4, above, the Surety does not proceed with reasonable promptness with one of the options provided in subparagraphs 4.1 or 4.2 (including its subparts), above, the University may send additional written notice to the Surety demanding that the Surety
perform its obligations under the Bond. If the Surety does not proceed to perform its obligations under the Bond within fifteen (15) days after receipt of said notice, the Surety shall be deemed to be in default on this Bond. Thereafter, the University shall be entitled to enforce any remedy available to the University under the Bond, the Construction Contract or Virginia law. If the Surety proceeds as provided in Subparagraph 4.2, and the Surety and the University are unable to agree as to the amount for which the Surety may be liable to the University, or if the Surety has denied liability, in whole or in part, the University, without further notice, shall be entitled to enforce any remedy available to the University under the Bond, the Construction Contract or Virginia law. In such event, the University may immediately proceed to complete the work in any manner authorized by law.

6. After the University has terminated the Contractor’s right to complete the Construction Contract, and if the Surety elects to act under Subparagraph 4.1 or 4.2.1, above, then the responsibilities of the Surety to the University shall not be greater or less than those of the Contractor under the Construction Contract, and the responsibilities of the University to the Surety shall not be greater than or less than those of the University under the Construction Contract. To the limit of the amount of this Bond, plus the increased cost of any change orders under the Construction Contract, provided the University commits the balance of the Construction Contract Price to the prompt and faithful completion of the Construction Contract, the Surety is obligated without duplication for:

6.1 The responsibilities of the Contractor for correction of defective work and completion of the Construction Contract;

6.2 Additional legal, design professional and delay costs resulting from the Contractor’s Default, and resulting from the actions or failure to act of the Surety under Paragraph 4; and

6.3 Liquidated damages, or if no liquidated damages are specified in the Construction Contract, actual damages caused by delayed performance or non-performance of the Contractor.

The University, at its sole discretion, may waive its claim to delay costs and/or liquidated damages.

7. The Surety shall not be liable to the University for obligations of the Contractor that are unrelated to the Construction Contract, and the Balance of the Contract Price shall not be reduced or set off on account of any such unrelated obligations. No right of action shall accrue on this Bond to any person or entity other than the University, its officers, agencies, administrators, successors or assigns.

8. The Surety hereby waives notice of any changes, including changes of time, to the Construction Contract or to related subcontracts, purchase orders and other obligations. The Surety understands and agrees that the penal amount of the bond shall be increased or decreased by any changes to time and amount incorporated into any Change Orders.

9. Any proceeding by the University, legal or equitable, under this Bond may be instituted in any Virginia state court of competent jurisdiction, as permitted under Section 8 of the General Conditions of the Construction Contract and §§ 29 and 32 of the Rules, or by the Contractor or Surety, as permitted under the Construction Contract or under Virginia law.
10. Notice to the Surety shall be mailed or delivered to the address shown on the Standard Performance Bond in the space for Surety address for delivery of Notices.

11. When this Bond has been furnished to comply with a statutory or other legal requirement in the location where the construction was to be performed, any provision in this Bond conflicting with said statutory or legal requirement shall be deemed deleted here from and provisions conforming to such statutory or other legal requirement shall be deemed incorporated herein. The intent is that this Bond shall be construed as a statutory bond and not as a common law bond when furnished to comply with statutory requirements.

12. DEFINITIONS

12.1 Balance of the Construction Contract Price: The total amount payable by the University to the Contractor under the Construction Contract after all proper adjustments have been made, reduced by all valid and proper payments made to or on behalf of the Contractor under the Construction Contract.

12.2 Construction Contract: The agreement between the University and the Contractor identified on first page of the Standard Performance Bond, HECO-10, including all Construction Contract Documents and duly executed modifications and change orders thereto.

12.3 Contractor Default: Failure of the Contractor, as defined under Section 41 of the General Conditions to the Construction Contract, which has neither been remedied, as permitted under Section 41 at the University's sole discretion, nor expressly waived by the University, to perform or otherwise to comply with the terms of the Construction Contract.


13. Nothing in these General Conditions shall prevent a surety from becoming involved in the Construction Contract prior to termination, upon notice from the University of the Contractor's failure to promptly and faithfully perform the Construction Contract in strict conformity with the plans, specifications and conditions of the Construction Contract.
HECO-10.1

STANDARD LABOR AND MATERIAL PAYMENT BOND

KNOW ALL BY THESE PRESENTS: That _____ ("Contractor") whose principal place of business is located at _____, and _____ ("Surety") whose address for delivery of ‘Notices’ is located at _____, are held and firmly bound unto the Commonwealth of Virginia and Virginia Commonwealth University, the Owner, (collectively, the “University”) in the amount of _____ Dollars ($_____) for the payment whereof Contractor and Surety bind themselves, their heirs, executors, administrators, successors and assigns, jointly and severally, firmly by these presents.

WHEREAS,

Contractor has by written agreement dated _____ entered into a contract with University for _____ which contract (the "Contract") is by reference expressly made a part hereof;

NOW THEREFORE, THE CONDITION OF THIS OBLIGATION is such that, if the Contractor shall promptly make payment to all claimants as hereinafter defined, for labor performed and material furnished in the prosecution of the Work provided for in the Contract, then this obligation shall be void; otherwise it shall remain in full force and effect, subject, however, to the following conditions.

The Contractor and Surety, jointly and severally, hereby agree with University as follows:

1. A claimant is defined as one having a direct contract with the Contractor or with a subcontractor of the Contractor for labor, material, or both for use in the performance of the Contract. A "subcontractor" of the Contractor, for the purposes of this bond only, includes not only those subcontractors having a direct contractual relationship with the Contractor, but also any other contractor who undertakes to participate in the Work which the Contractor is to perform under the aforesaid Contract, whether there are one or more intervening subcontractors contractually positioned between it and the Contractor (for example, a subcontractor). "Labor" and "material" shall include, but not be limited to, public utility services and reasonable rentals of equipment, but only for periods when the equipment rented is actually used at the work site.

2. Any claimant who has a direct contractual relationship with the Contractor and who has performed labor or furnished material in accordance with the Contract documents in the furtherance of the Work provided in the Contract, who has not been paid in full therefor before the expiration of ninety (90) days after the day on which such claimant performed the last of such labor or furnished the last of such materials for which he claims payment, may bring an action on this bond to recover any amount due him for such labor or material, and may prosecute such action to final judgment and have execution on the judgment. The
University need not be a party to such action and shall not be liable for the payment of any costs, fees or expenses of any such suit.

3. Any claimant who has a direct contractual relationship with any subcontractor of the Contractor but who has no contractual relationship, express or implied, with the Contractor, may bring an action on this bond only if he has given written notice to the Contractor within ninety (90) days from the day on which the claimant performed the last of the labor or furnished the last of the materials for which he claims payment, stating with substantial accuracy the amount claimed and the name of the person for whom the Work was performed or to whom the material was furnished. Notice to the Contractor shall be served by registered or certified mail, postage prepaid, in an envelope addressed to the Contractor at any place where his office is regularly maintained for the transaction of business. Claims for sums withheld as retainages with respect to labor performed or materials furnished shall not be subject to the time limitations stated in this paragraph 3.

4. No suit or action shall be commenced hereunder by any claimant.

   a. Unless brought within one year after the day on which the person bringing such action last performed labor or last furnished or supplied materials, it being understood, however, that if any limitation embodied in this bond is prohibited by any law controlling the construction hereof, the limitation embodied within this bond shall be deemed to be amended so as to be equal to the minimum period of limitation permitted by such law.

   b. Other than in a Virginia court of competent jurisdiction, with venue as provided by statute, or in the United States District Court for the district in which the project, or any part thereof is situated.

5. The amount of this bond shall be reduced by and to the extent of any payment or payments made in good faith hereunder.

Signed and sealed this _____ day of _____

[Contractor] (SEAL)

By: __________________________
Typed Name: _____
Title: _____

[Witness]
Typed Name: _____
Title: _____

[Surety] (SEAL)

By: __________________________
Typed Name: _____
Title: _____

[Attorney-in-Fact]
AFFIDAVIT AND ACKNOWLEDGEMENT OF ATTORNEY-IN-FACT

COMMONWEALTH OF VIRGINIA
(or alternatively, Commonwealth or State of _____)

CITY of _____

I, the undersigned notary public, do certify that _____, whose name is signed to the foregoing labor and material payment bond in the sum of _____ Dollars ($_____) and dated _____ and which names the Commonwealth of Virginia and Virginia Commonwealth University as Obligee, personally appeared before me today in the above jurisdiction and made oath that he/she is the attorney-in-fact of _____, a _____ corporation which is the Surety in the foregoing bond, that he/she is duly authorized to execute on the above Surety’s behalf the foregoing bond pursuant to the Power of Attorney noted above and attached hereto, and on behalf of the surety, he/she acknowledged the foregoing bond before me as the above Surety’s act and deed

She/he has further certified that her/his Power of Attorney has not been revoked.
(The Power of Attorney, or a copy or facsimile thereof, should be attached hereto.)

Given under my hand this _____ day of _____.

Notary Public (SEAL)

My name (printed) is: _____
My registration number is: _____
My commission expires: _____

APPROVED:

_____________________________
Attorney General/Designee Date
**CONTRACT SUMMARY:**

<table>
<thead>
<tr>
<th>Code Number</th>
<th>Description</th>
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Agency:  
Project:  
Sub-Project:  
Location of the Work:  
Contractor Name:  
Architect/Engineer:  
Agency has delegated authority?  
Date Contract Ratified:  

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<th>Cumulative Change Orders</th>
<th>Revised Contract Value</th>
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</table>
To:

Under your contract dated for work at

# the Contract Price, in accordance with the Contract Documents, the sum of
#NAME?

(Failure to include a change for time shall waive any change to the time allowed by the Contract for completion of the Work unless the parties mutually agree in writing to postpone a determination of the change to time resulting from the Change Order. Such determination may not be postponed more than 45 days from the approval of this Change Order by the agency.)

### CONTRACT COST SUMMARY

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
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<tbody>
<tr>
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### CONTRACT SCHEDULE SUMMARY

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<tr>
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### CHANGE AUTHORIZATION

<table>
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<tr>
<th>Issued By:</th>
<th>Authorized A/E Representative</th>
<th>Date</th>
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<table>
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<th>Accepted By:</th>
<th>Authorized Contractor Representative</th>
<th>Date</th>
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<thead>
<tr>
<th>Recommended By:</th>
<th>Authorized Agency Representative</th>
<th>Date</th>
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<table>
<thead>
<tr>
<th>Approved By:</th>
<th>Authorized Agency Representative</th>
<th>Date</th>
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</thead>
</table>

Prior approval by the Governor or his designee is required for each Change Order which causes an increase in the Contract Price if the resulting cumulative sum of all Change Orders exceeds 25% of the original Contract Amount or $50,000, whichever is greater.

#N/A
## Contract Change Order

**HECO-11**

**(Itemization of Work)**

<table>
<thead>
<tr>
<th>Project Code</th>
<th>Change Order Number</th>
<th>Change Order Date</th>
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</table>

### Change Order Total (sum of the details listed below) = $0 -

**#N/A**

If an asterisk appears adjacent to an "Amount" entry, this indicates the "Initiated By" or "Reason for Change" field(s) have not been filled-in properly. Please enter the appropriate values in both of these fields.

<table>
<thead>
<tr>
<th>Reference Number</th>
<th>Description / Comments</th>
<th>Initiated By</th>
<th>Reason Code</th>
<th>Amount</th>
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</table>
A/E's DESCRIPTION OF WORK INVOLVED

A/E's EXPLANATION OF WHY WORK IS REQUIRED

A/E's RECOMMENDATION

Select One

Architect / Engineer ____________________________ Date ____________________________
ADDITIONAL CONTINGENCY REQUIRED?

Construction Contingency Amount Shown on Last Approved CO-8:  
Cumulative Amount Of All Change Orders To-Date, Inclusive Of This Change Order: #N/A #N/A

Remarks: #N/A

COST SHARING FOR DESIGN ERRORS AND OMISSIONS

Is this change order required in whole, or in part, because of a design error or omission? Yes

If "Yes", outline the proposed cost sharing, if any, by the responsible design professional:

ADDITIONAL SUPPORT FOR CHANGES IN AGENCY REQUIREMENTS

1) When was the change in requirements (function, mission) known?

2) If known before construction bidding, why were the needed changes excluded from the bid package?

3) What quantitative impact would the lack of this change have on the mission or service provided by the agency?

4) Why can the work not be packaged and bid separately?

By: ____________________________

Agency Representative

Date ____________________________
### Reason Code Description

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<th>Amount</th>
<th>Reason Code Description</th>
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<td>1 - Unforeseen site conditions</td>
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<tr>
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<td>2 - Existing building or utility conditions not as shown</td>
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<tr>
<td>3</td>
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<td>3 - Change in agency's requirements</td>
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<tr>
<td>4</td>
<td>$</td>
<td>4 - Substitution or alternate method</td>
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<td>5</td>
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<td>5 - Item not as shown or specified</td>
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<td>6</td>
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<td>6 - Conflict or discrepancy in requirements</td>
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<tr>
<td>7</td>
<td>$</td>
<td>7 - Other.</td>
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**Total**: $
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<th>Description</th>
<th>Scope Description</th>
<th>Direct Labor</th>
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**GENERAL CONTRACTOR DIRECT COSTS**

**Subtotal from Estimate Continuation Sheets**

**Subtotal (S/T) Direct Costs:**

**Taxes/Insurance: (% As Appropriate)**

**Total Direct Costs**

**SUBCONTRACT COSTS**

**SUMMARY**

**Submitted By**

---

*Note: Mark-up is capped in conformance with the provisions of the General Conditions (CO-7).*

**Limited to a total of 10%, shared (cumulative total) if multiple tier subs, on subcontracted work. See the tab ‘Mark-up limitations’ for a more detailed description.**
### SUBCONTRACTOR DIRECT COSTS

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<th>Direct Labor Hours Per Unit</th>
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<th>Total Labor Cost</th>
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#### SUB-SUBCONTRACT COSTS

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**Note:** Mark-up is capped in conformance with the provisions of the General Conditions (CO-7).

*Limited to 15% on self-performed work.

**Limited to a total of 10%, shared (cumulative total) if multiple tier subs, on subcontracted work. Total mark-up on subcontracted work is calculated on the GC-1 form. See the tab "mark-up limitations" for a more detailed description.

*** The subcontractor cost carried forward to HECO-GC-1 form does not include mark-up on sub-subcontractor costs. This mark-up is calculated on the GC-1 form.

The GC and its subcontractors shall establish how the mark-up is to be distributed among the various subcontractors involved in the work.
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**Note:** Mark-up is capped in conformance with the provisions of the General Conditions (HECO-7). *Limited to 15% on self-performed work. See the tab "Mark-up limitations" for a more detailed description.
PART A
SUMMARY AND CERTIFICATION

PROJECT CODE: 0
AGENCY NAME: 0
PROJECT TITLE: 0

PERIOD BEGINNING DATE: 01/00/1900
PERIOD ENDING DATE: 01/00/1900

SUMMARY AND CERTIFICATION

THE UNDERSIGNED CONTRACTOR REQUESTS PAYMENT OF THAT PORTION OF THE CONTRACT PRICE SHOWN ON THE LAST LINE OF THE FOREGOING SCHEDULE OF VALUES, AND REPRESENTS AND WARRANTS TO THE OWNER THAT: (1) THE DATA SHOWN ON THE SCHEDULE OF VALUES IS ACCURATE AND CORRECT; (2) THE WORK COVERED BY THIS CERTIFICATE HAS BEEN COMPLETED IN ACCORDANCE WITH THE CONTRACT DOCUMENTS; (3) ALL PREVIOUS PROGRESS PAYMENTS RECEIVED FROM OWNER ON ACCOUNT OF WORK DONE UNDER THIS CONTRACT HAVE BEEN APPLIED TO DISCHARGE IN FULL (EXCEPT FOR ALLOWABLE RETAINAGE) ALL OBLIGATIONS OF CONTRACTOR INCURRED IN CONNECTION WITH WORK COVERED BY PRIOR CERTIFICATES FOR PAYMENT (NOT APPLICABLE FOR PAY REQUEST 1); (4) TITLE TO ALL MATERIALS AND EQUIPMENT FOR WHICH PAYMENT IS REQUESTED IN THIS CERTIFICATE, WHETHER OR NOT INCORPORATED IN SAID WORK, WILL PASS TO OWNER AT TIME OF PAYMENT FREE AND CLEAR OF ALL LIENS, CLAIMS, SECURITY INTERESTS AND ENCUMBRANCES (EXCEPT SUCH MATERIALS AND EQUIPMENT WHICH ARE COVERED BY A BOND PREVIOUSLY ACCEPTED BY OWNER).

FEIN #: *** ENTER FEIN IN STEP 2 ***
CONTRACTOR: *** ENTER CONTRACTOR NAME IN STEP 2 ***
DATE: January 0, 1900
BY: __________________________
    signature
    PRINTED NAME
    date

ARCHITECT/ENGINEER CERTIFICATION

ARCHITECT/ENGINEER:______________________________

ADJUSTED CONTRACT TOTAL

AUTHORIZED SIGNATURES

AGENCY ACTION

AMOUNT APPROVED FOR PAYMENT THIS CERTIFICATE IS: ____________________________

______________________________
signature

______________________________
signature

______________________________
signature

Dollars (____________________)
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DO NOT EDIT OR DELETE.
See 2nd note in red above.
VIRGINIA COMMONWEALTH UNIVERSITY
AFFIDAVIT OF PAYMENT OF CLAIMS

By: ________________________________
____________________________________
____________________________________

This day ________________________________ personally appeared before me, a Notary Public in and for the City (County) of , ________________________________, and, being by me first duly sworn, states that all subcontractors and suppliers of labor and materials have been paid all sums due them for work performed or materials furnished in the performance of the Contract between the Commonwealth of Virginia, Virginia Commonwealth University ________________________________, Owner, and ________________________________, Contractor, dated ________________________________, 20___, for the construction of (Project Name and No.) ________________________________

____________________________________

or arrangements have been made by the Contractor satisfactory to such subcontractors and suppliers with respect to payments of such sums as may be due them by the Contractor.

Type Contractor Name ________________________________

By: ________________________________

Signature ________________________________

Typed Name & Title of Person Signing ________________________________

Subscribed and sworn to before me this ______ day of ________________, 20____. My commission expires on the ______ day of ________________, 20____.

____________________________________   Notary Public
HECO-13.1
CERTIFICATE OF COMPLETION BY ARCHITECT/ENGINEER
Or PROJECT MANAGER

To: Construction Management
    Virginia Commonwealth University
    700 West Grace Street, Suite 1600, Box 843003
    Richmond, Virginia 23284-3003

Date: __________________________

PROJECT TITLE: ________________________________
PROJECT NO: ________________________________
INSTITUTION / AGENCY: 236-Virginia Commonwealth University
ADDRESS: ________________________________

In accordance with the requirements of the Contract between Virginia Commonwealth University and
(A/E / Project Manager Name), and based upon the knowledge gained in
the performance of the A/E required Services provided in said Contract, the undersigned hereby states that
the above named Project was fully completed in accordance with the requirements of the Contract
Documents (Including Submission of Record Documents, O & M Manuals and Warranties, etc.) to the
University on __________________________ (Date).

All applicable tests, certificates and regulatory inspections required by the _____ edition of the Virginia
Uniform Statewide Building Code (VUSBC), which was the basis of the design of the Project, have been
performed and the University has been provided with a copy of each report. A copy of the Final Report of
Structural & Special Inspections (HECO-13.1b) is attached to this certificate. All deficiencies noted during
the inspection have been corrected or resolved.

The handicapped standards required by the 2010 ADA Standards for Accessible Design, as revised, have
been met.

The University was provided with a copy of all properly approved and signed by all parties of
warranties and guarantees, including the starting date(s) of all warranties and guarantees, written
and unwritten, required by the Contract Documents on __________________________ (Date).
Substantial Completion for this project was achieved on _________________ (Date). By contract, Final Completion was required **30 Calendar Days** from this date. The circumstances of any extension of time to achieve Final Completion are noted below: (List and Describe) ________________________.

A/E Firm: ______________________________
(Typed)

By: _________________________________
(Signature) (Date)

Name: ________________________________
(Typed)

Title: _________________________________

Address: ______________________________

______________________________

Attachments:
The following document is attached to and made a part of this Certificate:
Final Report of Structural & Special Inspections (HECO-13.1b) (if applicable)
HECO-13.1a
CERTIFICATE OF PARTIAL OR SUBSTANTIAL COMPLETION BY A/E

To: Construction Management
   Virginia Commonwealth University
   700 West Grace Street, Suite 1600, Box 384003
   Richmond, Virginia 23284-3003

Date: ______________________

PROJECT TITLE: ________________________________
PROJECT NO: ________________________________
INSTITUTION / AGENCY: 236-Virginia Commonwealth University
ADDRESS: ________________________________

In accordance with the requirements of the Contract between Virginia Commonwealth University and
the Architect / Engineer, and based upon the knowledge gained in the performance of the A/E required
Services provided in said Contract and the reports of the University's Inspection and Testing entities, the
undersigned Architect / Engineer hereby states that the following portions of the above named Project are
Substantially Complete in accordance with the requirements of the Contract Documents, as modified by
any approved Change Order(s) on ______________________ (Date), and are recommended for occupancy.
Those portions now Substantially Complete are: ________________________________
(Indicate portions where are recommended for occupancy)

All applicable tests, certificates, and regulatory inspections required by the ____________ edition of the
Virginia Uniform Statewide Building Code (VUSBC), which was the basis of the design for this Project,
have been performed with respect to the Substantially Complete portions of the Project and the University
has been provided with a copy of each report, except for the following: ________________________________

The handicapped standards required by the 2010 ADA Standards for Accessible Design, as revised, have
been met. A copy of the Final Report of Structural & Special Inspections, HECO-13.1b, is attached to this
Certificate (if applicable).

A tentative list of unfinished Work and defective Work (Punch List) is attached hereto. This list may not
be all-inclusive, and the failure to include an item in it does not alter the responsibility of the Contractor to
complete all the Work in accordance with the Contract Documents. The items in the Punch List shall be
completed or corrected by the Contractor within 30 Calendar Days of the above date of Substantial
Completion.
A/E Firm: ______________________________
(Typed)

By: ______________________________
(Signature) (Date)

Name: ______________________________
(Typed)

Title: ______________________________

Address: ______________________________

Attachments:
The following attached documents are a part of this Certificate:
1) Final Report of Structural & Special Inspections, HECO-13.1b (if applicable)
2) Checklist for Beneficial Occupancy, CO-13.3b
3) Punch List containing Page 1 through _______
HECO-13.2
CERTIFICATE OF COMPLETION BY CONTRACTOR

To: Construction Management  
Virginia Commonwealth University  
700 West Grace Street, Suite 1600; Box 843003  
Richmond, Virginia 23284-3003

Date: ____________________________

PROJECT TITLE: ______________________
PROJECT NO: ________________________
INSTITUTION / AGENCY: 236-Virginia Commonwealth University
ADDRESS: ____________________________

In accordance with the requirements of the Contract between Virginia Commonwealth University and the Contractor, the undersigned Contractor hereby states that the above named project has been fully completed in accordance with the requirements of the Contract Documents as modified by any approved Change Order(s).

All applicable tests, certificates, and regulatory inspections required by the Virginia Uniform Statewide Building Code (VUSBC), and the Contract Documents have been performed with respect to the completed project and the Owner has been provided with a copy of each report.

As-built marked up prints of the completed project have been provided to the Architect/Engineer as required by the Contract Documents.

The University has been provided with a copy of all properly approved and signed by all parties of warranties and guarantees, including the starting date(s) of all warranties and guarantees, written and unwritten, required by the Contract Documents.

All training, operating instructions, and maintenance manuals required by the Contract Documents have been properly approved, signed and provided to the Architect / Engineer.
Contractor: ____________________________
(Typed)

By: ____________________________
(Signature) (Date)

Name: ____________________________
(Typed)

Title: ____________________________

Address: ____________________________


cc: Agency
A/E
CERTIFICATE OF PARTIAL OR SUBSTANTIAL COMPLETION BY CONTRACTOR

To: Construction Management
Virginia Commonwealth University
700 West Grace Street, Suite 1600; Box 843003
Richmond, Virginia 23284-3003

PROJECT TITLE: ________________________________
PROJECT NO: ________________________________
INSTITUTION / AGENCY: 236-Virginia Commonwealth University
ADDRESS: ________________________________

DATE: ________________________________

In accordance with the requirements of the Contract between Virginia Commonwealth University and the Contractor, the undersigned Contractor hereby states that portions of the above named project are Substantially Complete in accordance with the requirements of the Contract Documents, as modified by any approved Change Order(s). Those portions of the Project now Substantially Complete as of _________________ (Date) are: (list or describe) ________________________________.

All applicable tests, certificates, and regulatory inspections required by the Virginia Uniform Statewide Building Code (VUSBC), and the Contract Documents have been performed with respect to the Substantially Completed portions of the Project and the University has been provided with a copy of each report.

As-built marked up prints of the Substantially Complete portions of the Project have been provided to the Architect/Engineer as required by the Contract Documents.

The University has been provided with a copy of all properly approved and signed by all parties of warranties and guarantees, including the starting date(s) of all warranties and guarantees, written and unwritten, required by the Contract Documents with respect to the Substantially Complete portions of the Project, except as follows: ________________________________.
All training, operating instructions, and maintenance manuals, warranties and guarantees, including the starting date(s) of all warranties and guarantees, written and unwritten, required by the Contract Documents have been properly approved, signed and provided to the Architect / Engineer, except as follows: (List or describe)  

This certificate does not constitute an acceptance of Work that is not in accordance with the Contract Documents nor is it a release of Contractor’s obligation to complete the Work in accordance with the Contract Documents.

Contractor: ________________________________  
(Typed)

By: ______________________________________  
(Signature) (Date)

Name: ________________________________  
(Typed)

Title: ________________________________  

Address: ________________________________

______________________________________

______________________________________

______________________________________

cc:  Agency  
A/E

The following attached documents are to and made a part of this Certificate:

List of unfinished and defective Work, Pages 1 thru ______.
The safety and security of University environments is of the highest priority. All personnel onsite shall wear a photo identification badge predominantly displayed above the waistline clearly denoting the name of the responsible company and name of the individual.

VCU identification badges (ID) are issued by Virginia Commonwealth University, Construction Management, 700 West Grace Street, to only the general/prime contractor’s superintendent, project manager and their main subcontractor’s superintendent and project manager who will be working on the project at all times. The general/prime contractor and/or related subcontractors shall provide their employees with photo identification badges. **Every individual shall wear their Identification Badge at all times while on VCU Property.** Construction Management may, at its sole discretion, determine who is eligible for a VCU ID badge and who is not. General contractors shall submit their "Request for I.D. Badges" for their employees as well as for all subcontractors via email or letterform on company letterhead to your designated VCU Project Manager.

The I.D. badge request must include the name, title/role for each person being submitted. Birthdates and Social Security Numbers must not be emailed. Once the VCU Project Manager approves the submitted names, a VCU representative will call the general contractor’s project manager or point of contact to obtain birthdates and Social Security Numbers, and any other required information. There will be a $30 charge for each I.D. Badge issued by VCU. Instructions to physically obtain the I.D. badges will be provided when the general contractor receives VCU’s authorization.

All badges authorized to the general contractor shall be retrieved from every employee and subcontractor’s employee prior to them leaving your company’s employment and/or at the project’s completion, and must be immediately returned to the VCU Construction Management Office at 700 West Grace Street; Suite 1600, Richmond, VA. There will be a $50 charge for each badge not returned to VCU Construction Management prior to the approval of the final pay request. This charge will be deducted from the final pay request.
The Contractor is required to submit their daily inspection reports / job logs to the VCU Project Inspector on a weekly basis. The Contractor shall submit their reports to the VCU Project Manager no later than 5:00 p.m. each Monday for the preceding week’s work. All inspection work shall have inspection reports.

Daily inspection reports / job logs must be provided for each day where work is performed on site. Each report shall include the following information:

<table>
<thead>
<tr>
<th>Project Name</th>
<th>Number of Trades on Site</th>
</tr>
</thead>
<tbody>
<tr>
<td>Project Code Number</td>
<td>Number of Workers on Site</td>
</tr>
<tr>
<td>Date</td>
<td>Issues and /or Concerns</td>
</tr>
<tr>
<td>Weather</td>
<td>Project Inspector’s Name, Title</td>
</tr>
<tr>
<td>Work Performed</td>
<td>and signature w/Date</td>
</tr>
</tbody>
</table>

All reports must be signed and dated by the individual preparing the report by typing their name, title and date using DocuSign (or equivalent) or by scanning a handwritten and signed document. Failure to submit the required information will be considered as non-compliant with the contract, and may result in invoices being returned without payment.
If the Contractor is a registered vendor in eVA or RealSource, the Contractor is responsible for the security of its portal account, including restricting access to it, maintaining the confidentiality of login information, and taking any other actions necessary to protect the security of the Contractor’s account. Virginia Commonwealth University will not be responsible for a third party’s fraudulent collection of University payments due to the Contractor’s failure to update or protect its account information.
SEALS PAGE

ARCHITECT

Jason Mobraten, RA
Raymond Engineering-Georgia, Inc.
316 W. Millbrook Road, Suite 201
Raleigh, NC 27609
919-872-7866

Number: 0401019544

END OF SECTION
SECTION 01 11 00

SUMMARY OF WORK

PART 1 - GENERAL

1.1 Drawings and general provisions of the contract, including General and Supplementary Conditions, and other Division 1 specification sections apply to work of this section.

1.2 Work under this Contract consists of furnishing all labor, materials and equipment necessary to perform the work.

1.2.1 Perform Mock-ups and provide submittals as listed in the specifications.

1.3 Base Bid and Additive Bid List:

1.3.1 Base Bid:

1.3.1.1 Reroofing of Building A – Roof Areas A.1, A.2, A.3, and A.4.

1.3.1.2 Roof Replacement of Roof Area B.

1.3.1.3 Window Repairs of Building A.

1.3.2 Bid Additive 1: Masonry Repairs of Building A.

1.3.3 Bid Additive 2: Roof Replacement of Roof Areas C and D.

1.3.4 Bid Additive 3: Interior Removable Storm Windows of Building A.

1.3.5 Bid Additive 4: Window Glazing Replacement of Building A.

1.4 Refer to drawings and applicable specification sections for the requirements associated with the Base Bid and Bid Additives. The intent of this specification section is to provide a brief description of the work.

1.5 Base Bid Summary of Work:

1.5.1 Reroofing of Building A – Roof Areas A.1, A.2, A.3, and A.4:

1.5.1.1 Remove and palletize existing slate, intact and serviceable existing slate shall be salvaged are reused. New slate being incorporated into existing slate roofs shall match existing as closely as possible, new slate to be installed at the back of the building adjacent to Roof Area B, assume 25% new slate. Existing slate not suitable for reuse shall be palletized and removed from site.

1.5.1.2 Remove and dispose of existing underlayment and coated copper roofing.

1.5.1.3 Remove and dispose of existing sheet metal flashing and accessories.
1.5.1.4 Remove existing skylight and provide new decking and framing.

1.5.1.5 Repair or replace damaged or deteriorated deck.

1.5.1.6 Furnish and install new copper gutters, external downspouts, downspout basket strainers and custom fabricated clean-outs.

1.5.1.7 Furnish and install new downspout cleanouts to connect to existing underground piping.

1.5.1.8 Furnish and install new self-adhering, high temperature waterproof membrane.

1.5.1.9 Furnish and install new zinc copper roof and internal gutter assembly.

1.5.1.10 Reinstall existing salvaged slate. Furnish and install new slate assembly with mineral wool insulation.

1.5.1.11 Furnish and install new sheet metal flashings, step flashings, and accessories.

1.5.2 Roof Replacement of Roof Area B - Low-Slope Reroofing:

1.5.2.1 Remove and dispose of existing roofing assembly.

1.5.2.2 Remove all existing flashings, metal flashings, and miscellaneous items as specified herein, and discard.

1.5.2.3 Remove and dispose of existing mechanical shed and equipment.

1.5.2.4 Remove and dispose of existing abandoned mechanical ductwork.

1.5.2.5 Remove and dispose of existing skylights.

1.5.2.6 Remove and dispose of existing access doors and frames.

1.5.2.7 Remove and dispose of existing access ships ladder, and stairs.

1.5.2.8 Remove and dispose of existing fall protection railings.

1.5.2.9 Repair or replace damaged or deteriorated wood deck.

1.5.2.10 Install new wood blocking to achieve 8” minimum flashing heights at existing to remain equipment curbs.

1.5.2.11 Furnish and install new gypsum thermal barrier.

1.5.2.12 Furnish and install new adhered vapor barrier.

1.5.2.13 Furnish and install new fully adhered flat polyisocyanurate insulation
boards to provide an R-15 (minimum) insulating.

1.5.2.14 Furnish and install new fully adhered tapered polyisocyanurate insulation board.

1.5.2.15 Furnish and install new fully adhered coverboard.

1.5.2.16 Furnish and install new PVC membrane (adhered to the coverboard).

1.5.2.17 Furnish and install new membrane flashings and metal flashings, as specified herein.

1.5.2.18 Furnish and install new doors and frames.

1.5.2.19 Furnish and install new skylights.

1.5.2.20 Furnish and install new fall protection railings.

1.5.2.21 Furnish and install new access ladder and stairs.

1.5.2.22 Furnish and install new gutter liners, coatings, and downspouts.

1.5.2.23 Furnish and install miscellaneous items not specifically listed here.

1.5.3 Window Repairs of Building A:

1.5.3.1 Repair work shall be performed with windows in place.

1.5.3.2 It is the intent that all windows and doors are repaired to be weathertight and fully repainted and sealed, See paragraph 1.5.3.6 for additional sealant work.

1.5.3.3 Restore small areas of rotted wood with wood restoration epoxy.

1.5.3.4 Prime and paint all exterior and interior wood surfaces.

1.5.3.5 Remove and replace the perimeter sealant from each window and door.

1.5.3.6 Furnish and provide sealants to make windows non-operable except at fire escape locations.

1.5.4 Painting:

1.5.4.1 At all existing and new wood components.

1.5.4.2 At existing fire escape.

1.5.4.3 At existing window well railings.
1.5.5 Drainage:
   1.5.5.1 Furnish and install new roof drainage as indicated on drawings.
   1.5.5.2 Furnish and install new drain cleanouts at grade.
   1.5.5.3 Furnish and install new polycarbonate window well covers.
   1.5.5.4 Camera below grade drain lines and inspect for blockages and breaks.

1.5.6 All additional work not specifically listed above but included in the drawings and specifications.

1.6 Bid Additive 1 – Masonry Repairs of Building A:
   1.6.1 Repoint all brick and stone mortar joints.
   1.6.2 Remove parge coat at base of building and install new coating.
   1.6.3 Remove and replace broken and cracked brick units.
   1.6.4 Patch spalled stone units.
   1.6.5 Crack repairs at stone units.
   1.6.6 Clean entire façade.
   1.6.7 Provide non-penetrating sealer at all masonry surfaces.
   1.6.8 Remove all misc. abandoned conduits and equipment from the building and patch masonry.
   1.6.9 All active equipment and conduits shall be temporarily removed in order to perform restoration work. Coordinate with the University prior to any shutdowns.

1.7 Bid Additive 2 - Roof Replacement of Roof Areas C and D:
   1.7.1 Remove and dispose of existing roofing assembly.
   1.7.2 Remove all existing flashings, metal flashings, and miscellaneous items as specified herein, and discard.
   1.7.3 Repair or replace damaged or deteriorated wood deck.
   1.7.4 Install new wood blocking to achieve 8” minimum flashing heights at existing to remain equipment curbs.
   1.7.5 Furnish and install new gypsum thermal barrier – Area C.
   1.7.6 Furnish and install new adhered vapor barrier.
1.7.7 Furnish and install new fully adhered flat polyisocyanurate insulation boards to provide an R-15 (minimum) insulating value.

1.7.8 Furnish and install new fully adhered tapered polyisocyanurate insulation board.

1.7.9 Furnish and install new fully adhered coverboard.

1.7.10 Furnish and install new PVC membrane (adhered to the coverboard).

1.7.11 Furnish and install new membrane flashings and metal flashings, as specified herein.

1.7.12 Furnish and install new gutter liners, scuppers, coatings, and downspouts.

1.8 **Bid Additive 3 - Vented-Insulated Nail Base Assembly of Roof Area A1:**

1.8.1 Cooper roof assembly to include the following components:

1.8.1.1 Existing wood roof decking.

1.8.1.2 New fully adhered vapor barrier membrane.

1.8.1.3 New polyisocyanurate insulation

1.8.1.4 Vented airspace with wood spacers.

1.8.1.5 New plywood nail base.

1.8.1.6 New self-adhering, high temperature waterproof membrane.

1.8.1.7 New zinc copper roof and internal gutter assembly

1.9 **Bid Additive 4: Window Glazing Replacement of Building A**

1.9.1 Remove existing glazing and glazing compound.

1.9.2 Install new vacuum glazing with new glazing compound.

1.10 Furnish and install miscellaneous items not specifically listed here.

1.11 All work shall comply with the National Parks Service (NPS) Preservation Briefs:

1.11.1 Preservation Brief Number 1: Cleaning and Water-Repellent Treatments.

1.11.2 Preservation Brief Number 2: Repointing Mortar Joints in Historic Buildings.

1.11.3 Preservation Brief Number 3: Improving Energy Efficiency in Historic Buildings.

1.11.4 Preservation Brief Number 4: Roofing for Historic Buildings.

1.11.5 Preservation Brief Number 6: Dangers of Abrasive Cleaning.
1.11.6 Preservation Brief Number 9: The Repair of Historic Wooden Windows.

1.11.7 Preservation Brief Number 16: The Use of Substitute Materials on Historic Buildings Exterior.

1.11.8 Preservation Brief Number 29: The Repair, Replacement, and Maintenance of Historic Slate Roofs.

END OF SECTION
SECTION 01 20 00
PROJECT MEETINGS

PART 1 - GENERAL

1.1 Description - To provide for an orderly review during progress of the work and to provide for the systematic discussion of problems that may arise throughout the construction period.

1.2 Presentation - Each Contractor and major Subcontractor shall be represented at every meeting by a representative member of his organization. The Owner and/or his authorized representative shall also attend.

1.3 Submittals

1.3.1 The proceedings of these meetings shall be recorded by the Designer, if required. One copy of the proceedings shall be furnished to Owner and each representative.

1.3.2 Conducting the meeting, recording and distributing meeting minutes shall not be construed that the Designer is scheduling or coordinating Contractor's work.

1.4 Decision/Interpretations - All decisions and interpretations given by the Designer at project meetings shall be made on behalf of the Owner and shall be conclusive on each contractor affected.

PART 2 - PRODUCTS

Not Used.

PART 3 - EXECUTION

3.1 A pre-construction conference shall be scheduled with the Designer, Owner and/or his representative, Contractor’s project manager/superintendent, Contractor's project foreman, and manufacturer's representative prior to start of work.

3.2 Agenda

3.2.1 Contract Documents

3.2.2 Communication channels and procedures

3.2.3 Field change orders and decisions

3.2.4 Project meeting schedules

3.2.5 Construction schedule

3.2.6 Rules and regulations affecting the work

3.2.7 Safety requirements
3.2.8 Organization of Contractor, Subcontractors, and Suppliers

3.2.9 Shop drawings and submittals

3.2.10 Project record documents

3.2.11 Photographic Documentation

3.3 Progress Meetings

3.3.1 Progress meetings shall be scheduled monthly.

3.3.2 Agenda for progress meetings will include, but is not limited to:

  3.3.2.1 Construction schedule

  3.3.2.2 Change orders

  3.3.2.3 Quality Control

  3.3.2.4 Problems encountered and actions taken

3.4 Location - Meetings shall be held at the job site to the maximum extent possible.

END OF SECTION
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.

1.3 DEFINITIONS
A. Allowance is a quantity of work or dollar amount 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 the earliest practical date after award of the Contract, advise Architect of the date when final selection, or purchase and delivery, of each product or system described by an allowance must be completed by the Owner to avoid delaying the Work.

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

C. Purchase products and systems selected by Architect from the designated supplier.

1.5 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.

C. Coordinate and process submittals for allowance items in same manner as for other portions of the Work.
1.6 UNIT-COST ALLOWANCES

A. Allowance shall include cost to Contractor of specific products and materials ordered by Owner or selected by Architect under allowance and shall include taxes, freight, and delivery to Project site.

B. 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.

C. Unused Materials: Return unused materials purchased under an allowance to manufacturer or supplier for credit to Owner, after installation has been completed and accepted.

1. If requested by Architect, retain and prepare unused material for storage by Owner. Deliver unused material to Owner's storage space as directed.

1.7 QUANTITY ALLOWANCES

A. Allowance shall include cost to Contractor of specific products and materials ordered by Owner or selected by Architect under allowance and shall include taxes, freight, and delivery to Project site.

B. 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.

C. Unused Materials: Return unused materials purchased under an allowance to manufacturer or supplier for credit to Owner, after installation has been completed and accepted.

1. If requested by Architect, retain and prepare unused material for storage by Owner. Deliver unused material to Owner's storage space as directed.

1.8 ADJUSTMENT OF ALLOWANCES

A. Allowance Adjustment: To adjust allowance amounts, prepare a Change Order proposal based on the difference between purchase amount and the allowance, multiplied by final measurement of work-in-place where applicable. If applicable, include reasonable allowances for cutting losses, tolerances, mixing wastes, normal product imperfections, and similar margins.

1. Include installation costs in purchase amount only where indicated as part of the allowance.
2. If requested, prepare explanation and documentation to substantiate distribution of overhead costs and other markups.
3. Submit substantiation of a change in scope of Work, if any, claimed in Change Orders related to unit-cost allowances.
4. Owner reserves the right to establish the quantity of work-in-place by independent quantity survey, measure, or count.
B. Submit claims for increased costs because of a change in scope or nature of the allowance described in the Contract Documents, whether for the purchase order amount or Contractor's handling, labor, installation, overhead, and profit.

1. Do not include Contractor's or subcontractor's indirect expense in the Change Order cost amount unless it is clearly shown that the nature or extent of Work has changed from what could have been foreseen from information in the Contract Documents.
2. No change to Contractor's indirect expense is permitted for selection of higher- or lower-priced materials or systems of the same scope and nature as originally indicated.

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: coordinate quantity allowance adjustments with unit-price requirements in Section 01 22 00 “Unit Prices.” All allowances are in addition to the locations indicated on the drawings.

A. Allowance No. 1: Replace Deteriorated or Damaged Wood Roof Deck – 1000 SF.
B. Allowance No. 2: Mortar Joint Repointing – 600 LF.
C. Allowance No. 3: Wood Window Epoxy Patching – 40 LF.
D. Allowance No. 4: Wood Window Wood Component Replacement – 40 BF.
E. Allowance No. 5: Replace Deteriorated or Damaged Wood Trim and Paint – 200 BF.
F. Allowance No. 6: New slate shingles – 25% of slate roof area.

3.4 Allowances Notes:

1. Allowance No. 1: Assume that wood roof deck replacement will be at discovered locations spread throughout the roof areas.
2. Allowance No. 2: Allowance shall be included as part of the base bid, not as part of Bid Additive 1. Assume that repointing will occur at or near the top of the building and that each area will be approximately 100 LF.

3. Allowance No. 3: Epoxy patching shall be performed per manufacturers written instructions.

4. Allowance No. 4: Window wood components replacements shall be limited to Building A. Type of wood shall be pine.

5. Allowance No. 6: New slate to be installed beginning at the back of the roof adjacent to Roof Area B.

END OF SECTION
SECTION 01 22 00
UNIT PRICES

PART 1 - GENERAL

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

1.2 SUMMARY
A. Section includes administrative and procedural requirements for unit prices.
B. Related Requirements:
   1. Section 01 21 00 "Allowances" for procedures for using unit prices to adjust quantity allowances.

1.3 DEFINITIONS
A. Unit price is an amount incorporated into the Agreement, applicable during the duration of the Work as a price per unit of measurement for materials, equipment, or services, or a portion of the Work, added to or deducted from the Contract Sum by appropriate modification, if the scope of Work or estimated quantities of Work required by the Contract Documents are increased or decreased.

1.4 PROCEDURES
A. Unit prices include all necessary material, plus cost for delivery, installation, insurance, applicable taxes, overhead, and profit.
B. Measurement and Payment: See individual Specification Sections for work that requires establishment of unit prices. Methods of measurement and payment for unit prices are specified in those Sections.
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 acceptable to Contractor.
D. List of Unit Prices: A schedule of unit prices is included in Part 3. Specification Sections referenced in the schedule contain requirements for materials described under each unit price.
PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION

3.1 SCHEDULE OF UNIT PRICES

A. Unit Price No. 1: Replace Deteriorated or Damaged Wood Roof Deck - SF.
B. Unit Price No. 2: Mortar Joint Repointing – LF.
C. Unit Price No. 3: Wood Window Epoxy Patching – LF.
D. Unit Price No. 4: Wood Window Wood Component Replacement – BF.
E. Unit Price No. 5: Replace Deteriorated or Damaged Wood Trim and Paint – BF.
F. Unit Price No. 5: Replace Deteriorated or Damaged Slate Shingles – SF.

END OF SECTION
SECTION 01 23 00

BID ADDITIVES

PART 1  - GENERAL

1.1 Drawings and general provisions of the contract, including General and Supplementary Conditions, and other Division 1 specification sections apply to work of this section.

1.2 Work Included - All bid additives as listed on the Bid Form

1.3 Procedures

1.3.1 Modify and coordinate related activities as required to complete the work if, and when, acceptance is designated by the Owner.

1.3.2 In the event bid additives are exercised, applicable sections of this Specification shall govern. Other sections may be modified as required to address the bid additive.

1.3.3 Acceptance of bid additive does not change the contracted days of work if accepted prior to contractor execution.

PART 2  - PRODUCTS

2.1 See applicable specification sections.

PART 3  - EXECUTION

3.1 Bid Additive No. 1: Masonry Repairs of Building A.

3.2 Bid Additive No. 2: Roof Replacement of Roof Areas C and D.

3.3 Bid Additive No. 3: Interior Removable Storm Windows of Building A.  
    (Specification section 08 58 81)

3.4 Bid Additive No. 4: Window Glazing Replacement of Building A.  
    (Specification section 08 03 52)

END OF SECTION
SECTION 01 25 00
SUBSTITUTION PROCEDURES

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

1.2 SUMMARY
A. Section includes administrative and procedural requirements for substitutions.

1.3 DEFINITIONS
A. Substitutions: Changes in products, materials, equipment, and methods of construction from those required by the Contract Documents and proposed by Contractor.
   1. Substitutions for Convenience: Changes proposed by Contractor or Owner that are not required in order to meet other Project requirements but may offer advantage to Contractor or Owner.

1.4 ACTION SUBMITTALS
A. Substitution Requests: Submit three copies 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.
   2. Documentation: Show compliance with requirements for substitutions and the following, as applicable:
      a. Statement indicating why specified product or fabrication, or installation method cannot be provided, if applicable.
      b. Coordination of information, including a list of changes or revisions needed to other parts of the Work and to construction performed by Owner and separate contractors that will be necessary to accommodate proposed substitution.
      c. Detailed comparison of significant qualities of proposed substitutions with those of the Work specified. Include annotated copy of applicable Specification Section. Significant qualities may include attributes, such as performance, weight, size, durability, visual effect, sustainable design characteristics, warranties, and specific features and requirements indicated. Indicate deviations, if any, from the Work specified.
      d. Product Data, including drawings and descriptions of products and fabrication and installation procedures.
      e. Samples, where applicable or requested.
      f. Certificates and qualification data, where applicable or requested.
g. List of similar installations for completed projects, with project names and addresses as well as names and addresses of architects and owners.

h. Material test reports from a qualified testing agency, indicating and interpreting test results for compliance with requirements indicated.

i. Research reports evidencing compliance with building code in effect for Project.

j. Detailed comparison of Contractor's construction schedule using proposed substitutions with products specified for the Work, including effect on the overall Contract Time. If specified product or method of construction cannot be provided within the Contract Time, include letter from manufacturer, on manufacturer's letterhead, stating date of receipt of purchase order, lack of availability, or delays in delivery.

k. Cost information, including a proposal of change, if any, in the Contract Sum.

l. Contractor's certification that proposed substitution complies with requirements in the Contract Documents, except as indicated in substitution request, is compatible with related materials and is appropriate for applications indicated.

m. Contractor's waiver of rights to additional payment or time that may subsequently become necessary because of failure of proposed substitution to produce indicated results.

3. Architect's Action: If necessary, Architect will request additional information or documentation for evaluation within seven days of receipt of a request for substitution. Architect will notify Contractor through Construction Manager of acceptance or rejection of proposed substitution within 10 days of receipt of request, or 10 days of receipt of additional information or documentation, whichever is later.


b. Use product specified if Architect does not issue a decision on use of a proposed substitution within time allocated.

1.5 QUALITY ASSURANCE

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

1.6 PROCEDURES

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

1.7 SUBSTITUTIONS

A. Substitutions for Convenience: Architect will consider requests for substitution if received within 7 days after commencement of the Work. Requests received after that time may be considered or rejected at discretion of Architect.
1. Conditions: Architect will consider Contractor's request for substitution when the following conditions are satisfied. If the following conditions are not satisfied, Architect will return requests without action, except to record noncompliance with these requirements:

   a. Requested substitution 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.

   b. Requested substitution does not require extensive revisions to the Contract Documents.

   c. Requested substitution is consistent with the Contract Documents and will produce indicated results.

   d. Substitution request is fully documented and properly submitted.

   e. Requested substitution will not adversely affect Contractor's construction schedule.

   f. Requested substitution has received necessary approvals of authorities having jurisdiction.

   g. Requested substitution is compatible with other portions of the Work.

   h. Requested substitution has been coordinated with other portions of the Work.

   i. Requested substitution provides specified warranty.

   j. If requested substitution involves more than one contractor, requested substitution has been coordinated with other portions of the Work, is uniform and consistent, is compatible with other products, and is acceptable to all contractors involved.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION
SECTION 01 29 00
PAYMENT PROCEDURES

PART 1 - GENERAL

1.1 Procedures

1.1.1 Monthly pay estimates shall be submitted to Designer in quadruplicate on the current AIA Form G702. Form shall include the contract's Schedule of Values form, which shall be completed using AIA Form G703 unless otherwise specified.

1.1.2 The following documentation must be submitted with any pay request:

1.1.2.1 An original AIA G702 Request for Payment

1.1.2.2 An original AIA G703 updated schedule of values (Continuation sheet of AIA G702).

1.1.3 A payment or payments made to the Contractor for work performed shall not constitute acceptance or approval of the work and shall in no way relieve Contractor from the requirements of the Contract.

1.1.4 All sums received by the Contractor for any part or parts of the work furnished or performed by a Subcontractor shall be paid promptly to the latter by Contractor and while in the hands of the Contractor shall constitute trust funds held for the use and benefit of Owner. Contractor shall submit with payment requests lien releases from material suppliers which state that suppliers have been paid for materials supplied to the project. Payment requests may be delayed if not received in a timely manner.

1.1.5 Release of Liens

1.1.5.1 All sums received by the Contractor for any part or parts of the work furnished or performed by a Subcontractor shall be paid promptly to the latter by Contractor and while in the hands of the Contractor shall constitute trust funds held for the use and benefit of Owner. Contractor shall submit with payment requests an interim conditional lien releases from his subcontractors and material suppliers which states that his subcontractors and material suppliers are releasing the right to place liens upon the receipt of the amount associated with the lien release, which shall represent the value of their work or materials through the lien release date.

1.1.5.2 All dates on the lien releases provided with payment applications from the Contractor shall be common. Payment requests may be delayed if not received in a timely manner.

1.1.5.3 At final payment, the Contractor shall submit a final conditional release of liens contingent upon the receipt of the remainder of the contract amount, including any approved change order, unit price work, and retainage. At final payment, the Contractor shall submit a zero-dollar final release of liens from all subcontractors...
and materials suppliers through the date of final completion

1.1.6 If payments are to be made on account of materials or equipment not incorporated in the work, but delivered and suitably stored at the Site, or at such other location agreed upon in writing, such payments shall be conditioned upon submission by Contractor of bills of sale or other documents satisfactory to the Owner establishing Owner's title to such materials or equipment or otherwise protecting Owner's interest therein, including the prepayment of applicable insurance and transportation to the Site.

1.1.7 The Contractor shall submit with each application for payment a calendar showing work days and weather days for the monthly application for payment. Weather days shall be considered days that work cannot be performed due to inclement weather, as reported from the National Weather Service, or approved equal.

1.2 Quality Assurance

1.2.1 During progress of the Work, modify the schedule of values as approved by the Designer to reflect changes in the Contract Sum due to Change Orders or other modifications of the Contract.

1.2.2 Base requests for payment on the approved schedule of values.

PART 2 - PRODUCTS

2.1 Not Used.

PART 3 - EXECUTION

3.1 Not Used.

END OF SECTION
PART 1 - GENERAL

1.1 Description

1.1.1 Construction schedules shall be developed to assure adequate planning and execution of the work so as to complete the project within the time period allowed in the Contract and to assist the Designer in evaluating work progress.

1.1.2 "Day" used throughout the Contract shall mean "Consecutive Calendar Days" unless otherwise stated.

1.2 Schedule Adherence

1.2.1 Should any activity not be completed on or before the scheduled completion date, Owner shall have the right to order the Contractor to expedite completion of work by whatever means the Owner deems appropriate and necessary without additional expense. Refer to paragraph 3.4 for the Estimated Project Schedule.

1.2.2 Should any activity be 15 or more days behind schedule, the Owner shall have the right to complete the activity or to have the activity completed by whatever means the Owner deems appropriate and necessary.

1.2.3 Any costs incurred by the Owner in connection with expedition of the construction activity under this article shall be reimbursed to the Owner by the Contractor. This may take the form of deductions from payments due Contractor.

1.2.4 Failure by the Owner to exercise the option to either order the Contractor to expedite any activity or to expedite an activity by other means shall not be considered precedent setting for any other activity.

1.3 Schedule - Within 7 days after receipt of notice to proceed, the Contractor shall submit one reproducible and two prints of the construction schedule to the Designer.

1.4 Diagrams

1.4.1 Graphically show the sequence and interdependence of all activities necessary to complete the work and the order in which such activities are to be accomplished as planned by the Contractor and his project field supervisor in coordination with all subcontractors whose work is shown on the diagram. Activities shown on the diagram shall include, but are not limited to:

1.4.1.1 Submittals and approvals of shop drawings and samples.

1.4.1.2 Project mobilization.
1.4.1.3 Scaffolding erecting location(s).
1.4.1.4 Roof replacement and specific roof locations.
1.4.1.5 Masonry restoration and mortar joint repointing and specific elevation locations.
1.4.1.6 Window restoration and specific elevation locations and interior spaces impacted.
1.4.1.7 Scaffolding removal location.
1.4.1.8 Final Cleanup.
1.4.1.9 Final Inspection.
1.4.1.10 All activities by the Designer which affects progress, required completion dates, or both, for all and each part of the Work.

1.4.2 The detail of information shall be such that duration times of activities shall normally range for the full duration of the project. The selection and number of activities shall be subject to approval by the Engineer.

PART 2 – PRODUCTS - Not Used.

PART 3 - EXECUTION

3.1 Construction Schedule - Within 10 days after the effective date of Agreement, the Contractor shall complete the analysis described in Article 1.4 of this Section in preliminary form. Meet with the Designer to review the contents of the proposed schedule and make all revisions agreed upon. Submit in accordance with Paragraph 1.4.1 of this section.

3.2 Periodic Reports - Periodic reports shall show the following activities:

3.2.1.1 Activities completed during the reporting period.
3.2.1.2 Percentage of work actually completed and schedule as of the report date.
3.2.1.3 Progress along the critical path in terms of days ahead of or behind schedule dates.
3.2.1.4 If work is behind schedule, a brief report which shows, but is not limited to:

(a) A description of problem areas, both current and anticipated.
(b) Delaying factors and their impact.
(c) An explanation of corrective actions taken or proposed.
3.3 Revisions - Contractor shall make only those revisions to the construction schedule as are approved in advance by Designer.

END OF SECTION
SECTION 01 32 00
PROGRESS REPORTS

PART 1 - GENERAL

1.1 Description - Contractor shall keep a daily progress report to provide a continuous record of the progress of this Work. The format of the report shall be as directed by the Designer.

1.2 Quality Assurance

1.2.1 Reports shall be filled out on a daily basis by the Contractor's job site representative who shall be in a supervisory capacity.

1.2.2 Reports shall be completed by the same individual throughout the duration of the Project wherever possible.

PART 2 – PRODUCTS - Not Used.

PART 3 - EXECUTION

3.1 Contractor shall complete one form for each work day.

3.2 Forms shall be completed for work days shortened or cancelled due to weather, material shortages, labor conditions or holidays.

3.3 Forms shall be legible with all pertinent items.

3.4 Submit copies to the Engineer upon request.

3.5 Information required in the contractor’s daily report shall include the following:

3.5.1 Date

3.5.2 Company Name

3.5.3 Name of Superintendent/Foreman

3.5.4 Number of Workers

3.5.5 Location of Work Performed

3.5.6 Materials Installed

3.5.7 Description of Work Performed

3.5.8 Name of Visitors

3.5.9 Weather (temp, moisture, wind)

END OF SECTION
SECTION 01 33 00
SUBMITTALS

PART 1 - GENERAL

1.1 Drawings and general provisions of the contract, including General and Supplementary Conditions and other Division 1 specification sections apply to work of this section.

1.2 Procedures

1.2.1 Submit items with Bid and within 7 calendar days after receipt of signed Contract.

1.2.2 Each transmitted document shall identify the project name and Contractor. Material submittals shall also identify the type and trade name of materials, material manufacturer, intended use and specification number. The successful bidder shall request an electronic copy of the attached “Submittal Checklist” to complete and include with each submittal. See Paragraph 1.7. Deviations from Contract Documents shall be identified.

1.2.3 Submittals shall bear the Contractor's stamp and indicate approval and date.

1.2.4 After Designer’s review of materials, revise and resubmit, as required, identifying changes made since previous submittal.

1.2.5 Upon approval by Designer, submittals will be forwarded to the Owner.

1.3 Site Specific Safety Plan – Refer to Section 01 66 00.

1.4 Construction Schedules – Submit a construction schedule in a gantt or bar chart schedule showing critical path activities with dates for review. Update schedule weekly and at each pay request, submit for review upon each update.

1.5 Emergency phone number of principals, superintendent, foreman, project manager - Submit to Owner and Designer prior to the Pre-Construction Conference.

1.6 Pre-Construction Submittals

1.6.1 Prior to the start of the project the contractor shall fill out the attached Submittal checklist form, ensuring that all items listed in this section, referenced for submittal in the specification, and/or items to be used on this project are properly submitted. Items submitted must conform to the standards and expectations of that material, detail, and/or procedure expressed in this specification. If not, that item may be rejected for use by the Designer.

1.6.2 Submit all materials as outlined in Part 2 of the Specification sections. Group and label material submittals by Specification Section.

1.6.3 Provide SDS or MSDS safety data sheets for all submittals.

1.6.4 The Contractor shall provide a construction logistics plan for review and approval at the Pre-Construction conference. Review will be conducted by the Owner and adjustments
will be executed by the Contractor and his assigns per the recommendations or requirements of the Owner prior to commencing work on site. The plan shall document:

1.6.4.1 Date of proposed implementation (Proposed start date and likely duration).
1.6.4.2 Map of project work limits and proposed staging/lay-down areas.
1.6.4.3 Plan for safe management of pedestrian & vehicular traffic around construction activity.
1.6.4.4 Maintenance of ADA compliant accessible routes and accommodations.
1.6.4.5 Safety fencing, barricades, and temporary facilities or services.
1.6.4.6 Proposed temporary, MUTCD-compliant directional and informational signage.

1.7 Close-out Submittals - At the end of the project and prior to final payment, the following documents shall be submitted to the Designer (see also Specification 01 77 00 Project Closeout Procedures):

1.7.1.1 Copies of all punch lists prepared by the Designer and documentation of completion.
1.7.1.2 Contractor's Guarantee to Owner.
1.7.1.3 Contractor's Final Payment Application
1.7.1.4 Final Lien Waiver
1.7.1.5 Contractor’s Affidavit of Payment of Debts and Claims
1.7.1.6 Contractor’s Affidavit of Release of Liens

PART 2 – PRODUCTS - Not Used

PART 3 - EXECUTION

3.1 Timing

3.1.1 Make all submittals in accordance with schedules specified herein.
3.1.2 Designer will be allowed a minimum of 10 calendar days following receipt of submittals for review.
3.1.3 Delays caused by tardiness in receipt of submittals shall not be an acceptable basis for extension of the Contract completion date.

3.2 Review

3.2.1 The notations "No Exceptions Taken" or "Exceptions as Noted" shall authorize the Contractor to proceed with fabrication, purchase, or both subject to the revisions, if any,
required by the Designer's review comments.

3.2.2 The Contractor shall make all revisions, as required. If the Contractor considers any revisions to constitute a change, he shall notify the Designer under the provisions of the General Conditions.

3.2.3 Only those revisions directed or approved by the Designer shall be shown on the re-submittal.

3.2.4 After a submittal has been approved by the Designer, substitution of materials, equipment and/or procedures shall not be considered unless accompanied by an acceptable explanation for the substitution.
SECTION 01 35 91
HISTORIC TREATMENT PROCEDURES

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: General protection and treatment procedures for historic spaces, elements, and
      surfaces in the entire project including but not limited to:
      1. Historic removal, deconstruction, and dismantling operations.
      2. Repair and reproduction of historic elements.

1.3 REFERENCES - NATIONAL PARK SERVICE PRESERVATIONS BRIEFS:
   A. No. 1 – The Cleaning and Waterproof Coating of Historic Buildings, Robert C. Mack, U.S.
      Department of the Interior, National Park Services, Preservation Assistance Division, Technical
      Preservation Services.
   B. No. 2 – Repointing Mortar Joints in Historic Brick Buildings, Robert C. Mack, John P.
      Speweik, U.S. Department of the Interior, National Park Services, Preservation Assistance
      Division, Technical Preservation Services.
   C. No. 3 – Dangers of Abrasive Cleaning to Historic Buildings, Anne E. Grimmer, U.S.
      Department of the Interior, National Park Services, Preservation Assistance Division, Technical
      Preservation Services.

1.4 CONSTRUCTION ADMINISTRATIVE REQUIREMENTS
   A. Historic Treatment Preconstruction Conference: Conduct conference at Project site.
      1. Review material application, work sequencing, tolerances and required clearances.
      2. Review areas where existing construction is to remain and requires protection.
      3. Review all salvage requirements.
   B. Removal and Dismantling:
      1. Inspect historic elements in-place and discuss conditions of construction to be removed or
         dismantled.
      2. Review requirements of other work that relies on substrates exposed by removal and
         dismantling work.
3. Review all special temporary protection requirements concerning historic elements.
4. Review routes of travel and access for debris removal and for moving items to storage.

1.5 DEFINITIONS

A. Consolidate: To strengthen loose or deteriorated materials in place.

B. Dismantle: To disassemble or detach a historic item from a surface, or a non-historic item from a historic surface, using gentle methods and equipment to prevent damage to historic items and surfaces, disposing of items unless indicated to be salvaged or reinstalled.

C. Deconstruct: To dismantle items and assemblies generally in the reverse sequence of how they had been originally installed and assembled ensuring the least possible damage to the component parts.

D. Existing to Remain: Existing items that are not to be removed or dismantled.

E. Historic: Spaces, areas, buildings, rooms, surfaces, elements, materials, finishes and overall appearance which are important to the successful preservation, restoration, renovation, and reconstruction as determined by Architect and Owner. In general, this includes the entirety of the building in the project.

F. Match: To blend with adjacent construction and manifest no apparent difference in material type, species, cut, form, detail, color, grain, texture, or finish, as approved by Architect and Owner.

G. Reconstruct: To remove existing item, replicate damaged or missing components, and reinstall in original position. Deconstruct and re-assemble as necessary to match original design, appearance, and function.

H. Reinstall: To protect removed or dismantled items, repair and clean it as indicated for reuse, reinstall it in original position, or where indicated, and in working and fully functional order.

I. Remove: To take down or detach a non-historic item located within a historic space using methods and equipment to prevent damage to historic items and surfaces, disposing of items unless indicated to be salvaged or reinstalled.

J. Repair: To correct damage and defects, retaining existing materials, features, and finishes while employing as little new material as possible. Includes patching, piecing-in, splicing, consolidating, or otherwise reinforcing or upgrading materials.

K. Replace: To remove, duplicate, and reinstall entire item with new material. The original item is the pattern for creating duplicates unless otherwise indicated.

L. Replicate: To reproduce in exact detail, materials, and finish unless otherwise indicated.

M. Reproduce: To fabricate a new item, accurate in detail to the original, and in either the same or similar material as the original, unless otherwise indicated.
N. Restore: To consolidate, replicate, reproduce, repair and refinish as required to achieve the indicated results.

O. Retain: To keep existing items that are not to be removed or dismantled.

P. Reversible: New construction work, treatments, or processes that can be removed or undone in the future without damaging historic materials unless otherwise indicated.

Q. Salvage: Remove or dismantle using methods that cause the least possible damage to the item, clean free of dirt, debris, and unrelated parts, store and protect items and deliver them to Owner.

R. Stabilize: To evaluate and provide structural reinforcement of unsafe or deteriorated items using methods and materials determined by the contractor, while maintaining the essential form as it exists at present; also, to reestablish a weather-resistant enclosure.

1.6 MATERIAL OWNERSHIP

A. Historic items, relics, and similar objects identified on the Drawings or uncovered in the Work including, but not limited to, cornerstones and their contents, commemorative plaques and tablets, antiques, decorative woodwork, and other items of interest or value to the Owner that may be encountered during removal and dismantling work remain Owner’s property. Carefully dismantle and salvage each item or object.

B. Items indicated or later claimed for Salvage remain the Owner’s property.

C. Coordinate with Owner who may establish procedures for dismantling and salvage supplemental to those specified.

D. Contractor remains fully responsible for storing and protecting Owner’s property while in Contractor’s possession before and after removal and salvage.

1.7 QUALITY ASSURANCE

A. Regulatory Requirements: Comply with regulations of authorities having jurisdiction before beginning removal and dismantling work. Comply with hauling and disposal regulations of authorities having jurisdiction.

B. Standards: Comply with ANSI/ASSE A10.6.

C. Comply with recommendations contained in the Department of Interior Preservation Briefs that are not in conflict with specified requirements.

D. Mock-ups: Before installing portions of the Work, provide a mock-up of each stone treatment for review and approval of the Architect and Owner.

1.8 STORAGE AND PROTECTION OF HISTORIC MATERIALS

A. Salvaged Historic Materials:
1. Clean only loose debris from salvaged historic items unless more extensive cleaning is indicated.
2. Pack or crate items after cleaning, cushion against damage during handling. Label contents of containers.
3. Store items in a secure area until delivery to Owner.
4. Protect items from damage during transport and storage.

B. Historic Materials for Reinstallation:
1. Repair and clean historic items as indicated and to functional condition for reuse.
2. Pack or crate items after cleaning, cushion against damage during handling. Label contents of containers.
3. Protect items from damage during transport and storage.
4. Reinstall items in locations from which they were removed unless indicated to be installed in a new location.
   a. Comply with installation requirements for new materials and equipment unless otherwise indicated.
   b. Reinstall to match the original construction appearance relationships and conditions unless otherwise indicated.
   c. Provide connections, supports, and miscellaneous materials to make items functional for use indicated.

C. Existing Historic Materials to Remain: Protect construction indicated to remain against damage and soiling from construction work. Where permitted by Architect, items may be dismantled and taken to a suitable, protected storage location during construction work and reinstalled in their original locations after historic treatment and construction work in the vicinity is complete.

D. Storage and Protection: When taken from their existing locations, catalog and store historic items within a weathertight enclosure where they are protected from wetting by rain, snow, condensation, or ground water, and from freezing temperatures.
1. Identify each item with a nonpermanent mark to document its original location. Indicate original location on plans, elevations, sections, or photographs by annotating the identifying marks.
2. Secure stored materials to protect from theft.

1.9 PROJECT CONDITIONS

A. General Size Limitations in Historic Spaces: Materials, products, and equipment used for performing the Work and for transporting debris, materials, and products shall be of sizes that clear surfaces within historic spaces, areas, rooms and openings, including temporary protection, by 8” or more.

B. Conditions existing at time of inspection for bidding purpose will be maintained by Owner as far as practical.

C. Notify Architect of discrepancies between existing conditions and Drawings before proceeding with removal and dismantling work.
PART 2 - PRODUCTS – (Not Used)

PART 3 - EXECUTION

3.1 GENERAL
   A. Removal Equipment: Use only hand-held tools.
   B. Dismantling Equipment: Use manual, hand-held tools.

3.2 PROTECTION, GENERAL
   A. Ensure that supervisory personnel are on-site and on duty when historic treatment work begins and during its progress. Review applicable Preservation Briefs, drawings, details, and specifications with individuals who will perform historic removals/treatments before they begin the Work.
   B. Protect persons, motor vehicles, surrounding surfaces of building, building site, plants, and surrounding buildings from harm resulting from historic treatment procedures.
      1. Using only proven protection methods, appropriate to each area and surface being protected.
      2. Provide barricades, barriers, and temporary directional signage to exclude public from areas where historic treatment is being performed.
      3. Existing building exits to remain open and accessible at all times.
      4. Accessible entrances and exits to remain open at all times.
      5. Erect temporary protective covers over walkways and at points of pedestrian and vehicular entrances and exit that must remain in service during Work.
      6. Contain dust and debris generated by removal and dismantling work and prevent it from reaching the public or adjacent surfaces.
      7. Provide shoring, bracing, and supports as necessary. Do not overload structural elements.
      8. Protect floors and other surfaces along haul routes from damage, wear, and staining.
   C. Temporary Protection of Historic Materials:
      1. Protect existing historic materials with temporary protections and construction. Do no deface or remove existing materials.
      2. Do not attach temporary protection to historic surfaces except as indicated as part of the historic treatment program approve by Architect and Owner.
   D. Utility and Communication Services:
      1. Notify Owner, Architect, authorities having jurisdiction, and entities owning or controlling wires, conduits, pipes, and other services affected by the historic treatment work before commencing operations.
      2. Disconnect and cap pipes and services as required by authorities having jurisdiction, as required for the Work.
      3. Maintain existing services unless otherwise indicated; keep in service and protect against damage during operations. Provide temporary services during interruptions to existing utilities.
E. Existing Drainage: Prior to the start of work in an area adjacent to drains, gutters, and downspouts, test drainage system to ensure that it is functioning properly. Notify Architect and Owner immediately of inadequate drainage or blockage. Do not begin work in an area until the drainage system is in working order.
1. Prevent solids such as stone or mortar residue from entering the drainage system. Clean out drains and drain lines that become sluggish or blocked by sand or other materials resulting from Work.
2. Protect drains from pollutants. Block drains or filter our sediments, allowing only clean water to pass.

3.3 PROTECTION FROM FIRE

A. General: Following fire-prevention plan and the following.
1. Comply with NFPA 241 requirements unless otherwise indicated.
2. Remove and keep area free of combustibles including, rubbish, paper, waste, and chemicals, except to the degree necessary for the immediate work.
3. Prohibit smoking by all persons within the Project Work, Staging Areas, and Owner’s property.

B. Heat Generating Equipment and Combustible Materials: Comply with the following procedures while performing work with heat-generating equipment or highly combustible materials, including welding, torch-cutting, soldering, brazing, paint removal with heat, or other operations where open flames or implements utilizing high heat or combustible solvents and chemicals are anticipated:
1. Obtain approval for operations involving use of welding or other high-heat equipment. Use of open-flame equipment is not permitted in existing buildings.
2. Do no perform work with heat-generating equipment in or near roofs where flammable liquids or explosive vapors are present or thought to be present. Use a combustible gas indicator test to ensure that the area is safe.
3. Prevent the spread of sparks and particles of hot metal through open windows, doors, holes, and cracks in floors, walls, ceilings, roof, and other openings.

C. Fire Extinguishers, Fire Blankets, and Rag Buckets: Maintain fire extinguishers, fire blankets and rag buckets for disposal of rags with combustible liquids. Maintain each as suitable for the type of fire risk in each work area. Ensure that nearby personnel are trained in fire-extinguisher and blanket operation.

3.4 GENERAL HISTORIC TREATMENT

A. Halt the process of deterioration and stabilize conditions unless otherwise indicated. Perform work as indicated on Drawings. Follow the procedures in subparagraphs below and procedures approved.
1. Retain as much existing material as possible to be repaired and consolidated rather than replaced.
2. Keep a stock of removed materials not specifically designated for reinstallation or for salvage, to use in the repair and reconstruction of similar work to remain in other areas.
3. Use additional materials or structure to reinforce, strengthen, prop, tie, and support exiting material or structure.
4. Use reversible process wherever possible.
5. Use historically accurate repair and replacement materials and techniques unless otherwise indicated.

B. Notify Architect and Owner of visible changes in the integrity of material or components whether due to environmental causes including biological attack, UV degradations, freezing, or thawing; or due to structural defects including cracks, movement, or distortion.
1. Do not proceed with the work in question until directed by Architect.

C. Unless otherwise indicated on the Drawings, where historic elements show normal wear and weathering but such wear and weathering is not detrimental to safety of persons, does not contribute to further deterioration of the building including finishes, and is not detrimental to the proper installation of new work indicated, such elements shall not be replaced and shall not be subjected to any attempt to “restore to like-new condition” but shall remain as-is other than cleaning and any indicated sealing, painting, or work needed for proper its use and operation.

D. Where missing features are indicated or otherwise required to be repaired or replaced, provide features whose designs are based on accurate duplications rather than on conjectural designs, subject to approval of Architect. Use matching removed material stock whenever possible rather than reproduced stone.

E. Where Work requires existing features to be removed or dismantled and reinstalled, perform those operations without damage to the material itself, to adjacent materials, or to the substrate.

F. Identify new and replacement materials and features with permanent marks hidden in the completed work to distinguish the from original materials. Record a legend of identification marks and the locations of the items on record Drawings.

3.5 HISTORIC REMOVAL AND DISMANTLING

A. Perform Work according to historic treatment requirements.
1. Provide supports or reinforcement for existing construction that becomes temporarily weakened by the work, until the work is completed.
2. Perform cutting by hand or with small power tools wherever possible. Cut holes and slots neatly to size required, with minimum disturbance of adjacent work.
3. Do not operate air compressors inside building, unless approved by the Owner in each case.
4. Do not drill or cut columns, beams, joints, girders, structural slabs, or other structural elements, without having Contractors professional engineer’s written approval for each location before such work is begun.
5. Do not use explosives.

B. Unacceptable Equipment: Keep equipment that is not permitted for historic removal or dismantling work away from the vicinity where such work is being performed.

C. Removing and Dismantling Items on or near Historic Surfaces.
1. Use only dismantling tools and procedures within 12 inches of historic surfaces. Do not use pry bars, Protect historic surfaces from contact with or damage by tools.
2. Deconstruct: Unfasten items to be removed, in the opposite order from which they were installed.
3. Support each item as it becomes loosened to prevent stress and damage to the historic surface.
4. Dismantle anchorages.

D. Masonry Walls.
   1. Remove masonry carefully and erect temporary bracing and supports as needed to prevent collapse of materials being removed. Comply with applicable provisions of Divisions 02 and 04.
   2. Dismantle top edge and sides before removing wall. Stop removal work and immediately inform Architect and Owner if any structural elements above or adjacent to the work show signs of distress or dislocation during any phase of removal work.
   3. Remove wall in easily managed pieces.
   4. During removal, Contractor is responsible for the stability of the partially remaining wall. Notify Architect and Owner of the condition of temporary bracing for wall if work is temporarily stopped during the wall’s removal.

E. Anchorages:
   1. Remove anchorages associated with removed items. Remove additional anchorages associated with previously removed items wherever exposed or in conflict with other construction.
   2. Dismantle anchorages associated with dismantled items.
   3. Patch or repair holes created by anchorages removal or dismantling according to specifications. Comply with requirements to match original color, material, texture, and finish unless repair is concealed by other construction or opaque finishes.

**END OF SECTION**
SECTION 01 45 00
QUALITY CONTROL

PART 1 - GENERAL

1.1 Drawings and general provisions of the contract, including General and Supplementary Special Conditions and other Division 1 specification sections apply to work of this section.

1.2 Quality Control – General

1.2.1 Work found in violation of the Specifications, or not in conformance with acceptable practices/standards, shall be subject to rejection including removal and replacement with new materials at Contractor's expense.

1.2.2 Failure of Owner or Designer to discover or reject defective work, or work not in accordance with the Contract, shall not be deemed an acceptance thereof, nor a waiver of Owner's rights to Contractor's compliance with the Contract or performance of the work, or any part thereof. No partial or final payment, or partial or entire occupancy, by Owner shall be deemed to be an acceptance with the Contract, nor shall it be deemed a waiver by Owner or any of Owner's rights pursuant to this Contract or otherwise.

1.3 Quality Control - Contractor:

1.3.1 Maintain quality control over products, services, site conditions, and workmanship, to produce work of specified quality.

1.3.2 Promptly after the award, a preconstruction conference will be held at the job site. The contractor shall be represented, as a minimum, by the superintendent or project manager and foreman who will actually perform/supervise the work. Meetings with the designer and owner shall also be attended by the superintendent or project manager and foreman who actually perform/supervise the work. Failure of representation as stated may result in the rescheduling of these meetings. Meetings during the project may be held as often as the designer and owner deem necessary.

1.3.3 The contractor’s project foreman or superintendent who attended the pre-construction meeting shall be on site at all times that work is being performed.

1.3.4 Subcontractor foremen or supervisor shall be on site at all times that the work is being performed. The foremen shall be at the actual work site to observe workmanship and to be able to direct the work.

1.4 Quality Control - Owner:

1.4.1 The Owner reserves the right to retain the services of an independent construction monitoring representative to provide full-time monitoring of the work. If the Owner engages this service, the Contractor will be informed. Testing may be performed to determine any deficiencies.

1.4.2 The cost of such services as described in paragraph 1.5.1 above, will be borne by the Owner for the contract time. The cost of any monitoring and testing required after this
period of time due to the installation being incomplete as a result of Contractor-controlled nonperformance will be borne by the Contractor. Such costs will be deducted from the monies due to the Contractor at the time of final payment, recognizing any extensions of time granted by the Owner.

1.4.3 The Contractor shall be required to notify the Owner’s project manager prior to cancellation of any operations and subsequent restarts of the project. Any cost resulting from the failure to notify shall be borne by the Contractor.

1.4.4 Work found to be in violation of the specifications, or not in conformance with acceptable standards, shall be subject to rejection including removal and replacement with new material at the Contractor's expense.

1.4.5 The Owner's project inspector shall document quantities of those materials bid on a unit price basis listed in the Form of Proposal as well as other materials.

1.5 Inspection of the Work:

1.5.1 It is a condition of this contract that the work shall be subject to inspection during normal working hours by the designer, designated official representatives of the owner, and those persons required by state law to test special work for official approval. The contractor shall therefore provide safe access to the work at all times for such inspections.

1.5.2 All instructions to the contractor will be made only by or through the designer or his designated project representative. Observations made by official representatives of the owner shall be conveyed to the designer for review and coordination prior to issuance to the contractor.

1.5.3 Should any work be covered or concealed prior to inspection and approval by the designer, such work shall be uncovered or exposed for inspection, if so requested by the designer in writing. Inspection of the work will be made promptly upon notice from the contractor. All cost involved in uncovering, repairing, replacing, recovering and restoring to design condition, the work that has been covered or concealed will be paid by the contractor involved.

1.5.4 If any other portion of the work has been covered which the designer has not specifically requested to observe prior to being covered, the designer may request to see such work and it shall be uncovered by the contractor. If such work be found in accordance with the contract documents, the cost of uncovering and replacement shall, by appropriate change order, be charged to the owner. If such work be found not in accordance with the contract documents, the contractor shall pay such costs unless it be found that this condition was caused by the owner or a separate contractor, in which event the owner or the separate contractor shall be responsible for the payment of such costs.

1.5.5 The contractor shall notify the designer in writing that the project is complete and ready for inspection. The designer shall make an inspection to verify that the project is complete and shall prepare a list (punchlist) of any incomplete work. The contract shall complete all items shown on the punchlist and notify the designer the project is complete and ready for final inspection in writing.

1.5.6 Selected manufacturers shall be required to provide qualified personnel to observe field
conditions, including suitability of surfaces and material installation at start of field work and completion of field work. Manufacturer's representative shall submit written report(s) to the Designer listing observations and recommendations. The Contractor shall be responsible for ensuring site visits by manufacturer's representative.

1.5.7 Work found to be in violation of specifications or not in accordance with established workmanship practices and standards will be subject to complete removal and proper replacement with new materials at Contractor's expense.

1.5.8 Failure of Owner or Designer to discover or reject defective work, or work not in accordance with the Contract, shall not be deemed an acceptance thereof, nor a waiver of Owner's rights to Contractor's compliance with the Contract or performance of the work, or any part thereof. No partial or final payment, or partial or entire occupancy, by Owner shall be deemed to be an acceptance of work or of material which is not strictly in accordance with the Contract, nor shall it be deemed to be a waiver by Owner of any of Owner's rights pursuant to this Contract or otherwise.

PART 2 – NOT USED

PART 3 – NOT USED

END OF SECTION
SECTION 01 50 00
TEMPORARY FACILITIES AND CONTROLS

PART 1 - GENERAL

1.1 Drawings and general provisions of the contract, including General and Supplementary Special Conditions and other Division 1 specification sections apply to work of this section.

1.2 Description

1.2.1 Contractor shall provide for temporary facilities and controls required for the performance of the project except as otherwise noted. Such items include, but are not necessarily limited to, utilities such as heat, water, electricity and telephone; sanitary facilities; contractor's facilities; and enclosures such as tarpaulins, barricades, and canopies.

1.2.2 All equipment furnished by Contractor shall comply with all pertinent safety requirements.

1.2.3 Ladders, planks, hoists, and all similar items furnished by individual trades in the execution of their own portions of the work are not part of this Section.

1.2.4 All temporary facilities will be subject to the Owner's approval.

1.3 Product Handling

1.3.1 The Contractor shall exercise all means necessary to maintain temporary facilities and controls in proper and safe condition throughout the progress of the project.

1.3.2 All required connections to existing utility systems shall be made with minimum disruption. If disruption of existing service is required, notice shall be given to the Owner and connections shall not be made without Owner's approval. If necessary, Contractor shall provide for alternate temporary service.

1.3.3 If the required utility is not available from the Owner, the Contractor shall provide for alternate temporary service for the duration of the project.

1.4 Facility Access - Use of the interior is not permitted by the contractor except at areas of work. Access to and from the building shall be by use of exterior stairway scaffolding.

PART 2 – NOT USED

PART 3 – EXECUTION

3.1 Safety – Protection of people & property must be demonstrated at all times. Failure to do so will result in stoppage of work by the Owner or their designee until unsafe conditions are corrected.

3.2 Electricity

3.2.1 Owner will furnish 110v electricity during this project. Any additional electrical requirements required by the Contractor shall be provided by the Contractor at no
additional cost to the Owner.

3.2.2 All wiring needed to facilitate construction of the project shall be temporary in nature and shall be furnished and installed by the Contractor at no additional cost to the Owner.

3.2.3 Upon completion of the work, the Contractor shall remove all such temporary wiring and restore service to its original condition at no additional cost to the Owner.

3.3 Water - The Owner will furnish water required for construction through available hose bibs. Any additional water requirements by the Contractor shall be provided by the Contractor at no additional cost to the Owner. Contractor shall furnish hoses as needed to transport water to the point of use. Hoses shall not be placed in locations approved by the owner.

3.4 Telephone - The Project Manager, Superintendent and Foreman will be required to have a working mobile phone during the course of the work. The mobile phone shall be capable of taking and sending and receiving photographs, emails and text messages. Such costs shall be included in the Base Bid.

3.5 Planned Shut Downs – Any utility outage needed by the Contractor to perform or complete work of the project must be requested and approved two weeks (14 calendar days) in advance by written notice through the Owner’s project manager. Written approval by the Owner’s project manager must be received for any shut downs to occur. Shut down request must identify the length of time of the shut down, and must be a priority to restore.

3.6 Sanitary Facilities - Contractor shall provide toilet and washroom facilities at the project site at no additional cost to the Owner. The use of the facility’s toilet and/or washroom facilities is not approved.

3.7 Enclosures

3.7.1 Contractor shall furnish, install and maintain for the duration of the project, all scaffolds, ladders, tarpaulins, barricades, warning signs, platforms, bridges, canopies, steps, and other temporary construction required to properly facilitate completion of the project in compliance with all safety and other regulations.

3.7.2 Contractor shall provide all necessary safeguards to warn and prevent pedestrians and Owner's personnel from being exposed to dangers or hazards created by this project.

3.8 Signs - No signs or advertising of any kind shall be allowed on the project site unless approved in advance by Owner.

3.9 Construction Aids

3.9.1 A disposal chute shall be constructed by the Contractor to prevent damage to buildings and grounds. Disposal chute shall be an enclosed-type and shall be located such that demolition debris will be discharged from the roof at the designated staging area directly into disposal vehicles or containers.

3.9.2 Contractor shall provide for debris removal services and containers. Placement and servicing of containers shall be coordinated with the Owner.

3.9.3 Residue and debris from all operations shall not be allowed to accumulate on the project
Debris shall be removed and properly disposed of daily in accordance with all Federal, state and local regulations.

3.10 Parking - Contractor's construction vehicles shall enter the project site and park in areas as directed by the Owner. The Contractor shall be responsible for coordination of traffic by his subcontractors, suppliers, etc., so as not to disrupt ongoing operations of the Owner. One week (7 days) advanced notice must be provided to the Owner in writing when the Contractor anticipates closing or blocking owner thoroughfares, driveways, roadways, sidewalks, etc. The Owner reserves the right to reject any request.

3.11 The Contractor is responsible for all staging areas, parking lots, parking decks, parking equipment, roads, drives, and other vehicle or pedestrian traffic areas (directly or indirectly) related to the project and shall be restored to their original or better condition as observed at the time of project start. The contractor and Owner’s Project Manager shall walk the project at start and final completion and agree to existing damage and repairs required by the contractor.

3.12 Construction Traffic & Logistics – All Contractor provided temporary directional and safety signage pertaining to the control of vehicular and pedestrian traffic in and around the project shall comply with MUTCD standards as adopted by the Commonwealth of Virginia. These plans shall also show new ADA routes if existing ADA or sidewalk routes are blocked or detours are required by the contractor.

3.13 Field Office - The Contractor may provide his own Field Office. The field office shall be located within the contractor’s staging area.

3.14 Ventilation

3.14.1 Provide, as required, facilities to maintain specific storage conditions as described within this Specification and as recommended by the material's manufacturer for use in construction. Provide adequate ventilation of enclosed areas to prevent the accumulation of fumes, vapors, and gases.

3.14.2 Contractor shall take all necessary precautions, such as but not limited to, installing filters and scheduling work to prevent construction fumes from entering the building. Should it be reported to the contractor that fumes are entering the building the contractor shall immediately rectify the condition to restore clean air to the facility.

3.15 Protect the public from Hazardous and Universal Waste (H/U). All Hazardous and Universal Waste issues shall be presented to the Owner.

3.16 Connects and Disconnects

3.16.1 In the event it is necessary to disconnect any electrical wiring or connections, plumbing lines or other building services, notify the Owner. Contractor shall not disconnect or connect services unless authorized in writing by Owner.

3.16.2 Modification of existing service piping, wiring and duct work required in connection with the lifting, removal or relocation of roof-mounted equipment shall be accomplished by the Contractor as part of their Contract.

END OF SECTION
SECTION 01 60 00
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. 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; and comparable products.

B. Related Requirements:

1. Section 012100 "Allowances" for products selected under an allowance.
2. Section 012500 "Substitution Procedures" for requests for substitutions.

1.3 DEFINITIONS

A. Products: Items obtained 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. Products salvaged or recycled from other projects are not considered new products.
3. Comparable Product: Product that is demonstrated and approved by Architect through submittal process 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. Basis-of-Design Product Specification: A specification in which a single manufacturer's product is named and accompanied by the words "basis-of-design product," including make or model number or other designation. In addition to the basis-of-design product description, product attributes and characteristics may be listed to establish the significant qualities related to type, function, in-service performance and physical properties, weight, dimension, durability, visual characteristics, and other special features and requirements for purposes of evaluating comparable products of additional manufacturers named in the specification.
C. Subject to Compliance with Requirements: Where the phrase "Subject to compliance with requirements" introduces a product selection procedure in an individual Specification Section, provide products qualified under the specified product procedure. In the event that a named product or product by a named manufacturer does not meet the other requirements of the specifications, select another named product or product from another named manufacturer that does meet the requirements of the specifications. Submit a comparable product request, if applicable.

1.4 ACTION SUBMITTALS

A. Comparable Product Request Submittal: Submit request for consideration of each comparable product. Identify basis-of-design product or fabrication or installation method to be replaced. Include Specification Section number and title and Drawing numbers and titles.

1. Include data to indicate compliance with the requirements specified in "Comparable Products" Article.
2. Architect's Action: If necessary, Architect will request additional information or documentation for evaluation within 7 days of receipt of a comparable product request. Architect will notify Contractor through Construction Manager of approval or rejection of proposed comparable product request within 10 days of receipt of request, or 10 days of receipt of additional information or documentation, whichever is later.

   a. Form of Architect's Approval of Submittal: As specified in Section 01 33 00 "Submittal Procedures."
   b. Use product specified if Architect does not issue a decision on use of a comparable product request within time allocated.

B. Basis-of-Design Product Specification Submittal: Comply with requirements in Section 01 33 00 "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, select product 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.

B. Identification of Products: Except for required labels and operating data, do not attach or imprint manufacturer or product names or trademarks on exposed surfaces of products or equipment that will be exposed to view in occupied spaces or on the exterior.

1. Labels: Locate required product labels and stamps on a concealed surface, or, where required for observation following installation, on a visually accessible surface that is not conspicuous.
2. **Equipment Nameplates:** Provide a permanent nameplate on each item of service-connected or power-operated equipment. Locate on a visually accessible but inconspicuous surface. Include information essential for operation, including the following:
   
a. Name of product and manufacturer.
b. Model and serial number.
c. Capacity.
d. Speed.
e. Ratings.

### 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 and vandalism. 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 determine compliance with the Contract Documents and to determine that products are undamaged and properly protected.

C. **Storage:**
   
1. Store products to allow for inspection and measurement of quantity or counting of units.
2. Store materials in a manner that will not endanger Project structure.
3. Store products that are subject to damage by the elements, under cover in a weathertight enclosure above ground, with ventilation adequate to prevent condensation.
4. Protect foam plastic from exposure to sunlight, except to extent necessary for period of installation and concealment.
5. Comply with product manufacturer's written instructions for temperature, humidity, ventilation, and weather-protection requirements for storage.
6. Protect stored products from damage and liquids from freezing.
7. 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. Manufacturer's Warranty: Written warranty furnished by individual manufacturer for a particular product and specifically endorsed by manufacturer to Owner.
2. Special Warranty: Written warranty required by the Contract Documents to provide specific rights for Owner.

B. Special Warranties: Prepare a written document that contains appropriate terms and identification, ready for 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 indicated form properly executed.
3. See other Sections for specific content requirements and particular requirements for submitting special warranties.

C. Submittal Time: Comply with requirements in Section 017700 "Closeout Procedures."

PART 2 - PRODUCTS

2.1 PRODUCT SELECTION PROCEDURES

A. General Product Requirements: Provide products that comply with the Contract Documents, are undamaged and, unless otherwise indicated, 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 meeting requirements of the Contract Documents.
4. Where products are accompanied by the term "as selected," Architect will make selection.
6. Or Equal: For products specified by name and accompanied by the term "or equal," or "or approved equal," or "or approved," comply with requirements in "Comparable Products" Article to obtain approval for use of an unnamed product.
   a. Submit additional documentation required by Architect through Construction Manager in order to establish equivalency of proposed products. Evaluation of "or equal" product status is by the Architect, whose determination is final.

B. Product Selection Procedures:
1. Sole Product: Where Specifications name a single manufacturer and product, provide the named product that complies with requirements. Comparable products or substitutions for Contractor's convenience will not be considered.
   
a. Sole product may be indicated by the phrase: "Subject to compliance with requirements, provide the following: …”

2. Sole Manufacturer/Source: Where Specifications name a single manufacturer or source, provide a product by the named manufacturer or source that complies with requirements. Comparable products or substitutions for Contractor's convenience will not be considered.
   
a. Sole manufacturer/source may be indicated by the phrase: "Subject to compliance with requirements, provide products by the following: …”

3. Limited List of Products: Where Specifications include a list of names of both manufacturers and products, provide one of the products listed that complies with requirements. Comparable products or substitutions for Contractor's convenience will not be considered.
   
a. Limited list of products may be indicated by the phrase: "Subject to compliance with requirements, provide one of the following: …”

4. Non-Limited List of Products: Where Specifications include a list of names of both available manufacturers and products, provide one of the products listed, or an unnamed product, which complies with requirements.
   
a. Non-limited list of products is indicated by the phrase: "Subject to compliance with requirements, available products that may be incorporated in the Work include, but are not limited to, the following: …”

5. Limited List of Manufacturers: Where Specifications include a list of manufacturers' names, provide a product by one of the manufacturers listed that complies with requirements. Comparable products or substitutions for Contractor's convenience will not be considered.
   
a. Limited list of manufacturers is indicated by the phrase: "Subject to compliance with requirements, provide products by one of the following: …”

6. Non-Limited List of Manufacturers: Where Specifications include a list of available manufacturers, provide a product by one of the manufacturers listed, or a product by an unnamed manufacturer, which complies with requirements.
   
a. Non-limited list of manufacturers is indicated by the phrase: "Subject to compliance with requirements, available manufacturers whose products may be incorporated in the Work include, but are not limited to, the following: …”

7. Basis-of-Design Product: Where Specifications name a product, or refer to a product indicated on Drawings, and include a list of manufacturers, provide the specified or indicated 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 requirements in "Comparable Products" Article for consideration of an unnamed product by one of the other named manufacturers.

a. For approval of products by unnamed manufacturers, comply with requirements in Section 012500 "Substitution Procedures" for substitutions for convenience.

C. Visual Matching Specification: Where Specifications require "match Architect's sample," provide a product that complies with requirements and matches Architect's sample. Architect's decision will be final on whether a proposed product matches.

1. If no product available within specified category matches and complies with other specified requirements, comply with requirements in Section 012500 "Substitution Procedures" for proposal of product.

D. Visual Selection Specification: Where Specifications include the phrase "as selected by Architect from manufacturer's full range" or similar phrase, select a product that complies with requirements. Architect will select color, gloss, pattern, density, or texture from manufacturer's product line that includes both standard and premium items.

2.2 COMPARABLE PRODUCTS

A. Conditions for Consideration of Comparable Products: Architect will consider Contractor's request for comparable product when the following conditions are satisfied. If the following conditions are not satisfied, Architect may return requests without action, except to record noncompliance with these requirements:

1. Evidence that proposed product does not require revisions to the Contract Documents, is consistent with the Contract Documents, will produce the indicated results, and is compatible with other portions of the Work. Detailed comparison of significant qualities of proposed product with those named in the Specifications. Significant product qualities include attributes such as type, function, in-service performance and physical properties, weight, dimension, durability, visual characteristics, and other specific features and requirements.
2. Evidence that proposed product provides specified warranty.
3. List of similar installations for completed projects with project names and addresses and names and addresses of architects and owners, if requested.
4. Samples, if requested.

B. Submittal Requirements: Approval by the Architect of Contractor's request for use of comparable product is not intended to satisfy other submittal requirements. Comply with specified submittal requirements.
SECTION 01 66 00
STORAGE AND PROTECTION

PART 1 - GENERAL

1.1 Drawings and general provisions of the contract, including General and Supplementary Special Conditions and other Division 1 specification sections apply to work of this section.

1.2 General Protections

1.2.1 Limit size of work sections to safeguard adjacent materials, structures, etc., and to minimize dust and noise.

1.2.2 Protect existing facilities from damage during work. Do not overload existing paving, curbs, sidewalks, etc., with vehicle traffic. Do not overload new or existing construction with demolition debris, equipment, etc.

1.2.3 Protect all lighting fixtures during work.

1.2.4 Take appropriate steps at each construction site to protect the general public from hazards created by demolition and construction operations.

1.2.5 Separate demolition or construction site form public access by fences, barricades, or other appropriate security measures. Accident prevention signs and markers shall comply with N. C. OSHA regulations to warn of dangers (e.g., overhead electrical wires) and restrictions (e.g., restricted access areas, hard hat areas). Where necessary, provide protected detour routes for vehicles or pedestrian traffic.

1.2.6 Barricades and signs must be substantial enough to deter bypassing, vandalizing, or theft. Keep signs neat and legible at all times. Handmade signs are not acceptable.

1.2.7 All barricades, temporary walkways, and protection of work and materials shall accommodate access, provide adequate warning, and protection to all segments of the population including wheelchair users and those using walking aids and the hearing and visually impaired.

1.2.8 Contractor will note that building will remain occupied during work. He is responsible for taking all precautions necessary to protect building, contents, and personnel from damage or injury from his operations, and from water entry into the building during construction. Dirt and dust must be kept to a minimum.

1.2.9 Prior to starting work Contractor shall obtain approval of the Owner for locations of work operations at ground level, such as material storage, hoisting, dumping, etc. Coordination and constant communication with the General Contractor of the Interior Renovation project is required so that no disruption occurs to either project. Work will be restricted to approved locations.

1.2.10 Walls, windows, roof edges, etc., adjacent to hoists, and staging areas shall be protected using canvas tarpaulins. Plastic or felt will not be acceptable.

1.2.11 Plywood, minimum ¾" thick, or other suitable materials shall be used to protect roof...
areas from damage that may be caused by concentrated equipment loads and foot traffic.

1.2.12 The Contractor will note that the building will remain occupied during work. He is responsible for taking all precautions necessary to protect building, contents, and personnel from damage or injury from his operations. The Contractor will be held liable for any damages to the building, building contents, its occupancy, grounds, landscaping or vehicles (owners, employees or visitors) resulting from work under the Contract. In the event of damage, Contractor will restore property to a condition equivalent to that at the time the project started.

1.2.13 The contractor is responsible for determining structural loads for rehabilitation work related activities such as installation of scaffolding or storage of materials.

1.2.14 Exterior Protections

1.2.14.1 Provide construction trailer, if desired, and material staging at location provided by the Owner.

1.2.14.2 Maintain a clean construction area in fencing. Maintain a clean material staging area in fencing. No spills, splatter, or residue shall remain on tarmac, roads or grounds.

1.3 Safety Site Plans

1.3.1 The Contractor shall install and maintain temporary fall protection systems for this type of work in accordance with the following standards:

1.3.1.1 29 CFR 1910 - OSHA
1.3.1.2 29 CRF 1926 - OHSA
1.3.1.3 ANSI/IWCA I-14.1
1.3.1.4 ANSI/ASSE Z359.0-2007
1.3.1.5 ASME A120.01-2008

1.3.2 The Contractor shall submit a site specific safety plan that shall outline safety precautions that shall be in place to protect workers, buildings, persons, vehicles, structures, and any other items that may be affected or otherwise endangered during the work. This shall list techniques, materials, safety personnel, and precautions that shall be used to achieve a safe working environment. Include sketches, plans, and diagrams, as necessary, for assessment with the safety plan. This safety plan shall be submitted to the Owner for approval with the bid. Failure to submit a safety plan shall result in disqualification of the bid and the bid shall be labeled “non-responsive”. At a minimum, this safety plan shall include:

1.3.2.1 General Safety requirements.
1.3.2.2 Protocol for providing a safe working environment for Contractor
Employees, in accordance with Paragraph 1.1.3 above.

A. Temporary fall restraint systems and anchorages,

B. Warning lines and barricades,

C. Safety meetings and minutes.

1.3.2.3 Wind speed working conditions, and protections for temporary roofing in high speed events.

1.3.2.4 Protocol for night/pre-dawn work, including foot-candle lighting, safety monitor per number of workers, barricades encapsulating work areas, 100% tie-in outside of barricaded work area, etc.

1.3.2.5 Protocol for deviations from submitted safety plan on a temporary, as needed basis. This safety plan schedule outlines minimum requirements, and this plan is subject to expansion and approval by the Owner.

1.3.3 Protect existing facilities from fire as a result of construction operations. Contractor shall provide suitable and adequate fire extinguishers conveniently located on at staging areas, storage areas and at areas or equipment where an open flame is being used. Competent operators shall be in attendance at all times and shall be properly trained or instructed in fire protection.

1.4 Material Protection

1.4.1 Products shall be transported by methods which avoid damage. Damaged material shall be subject to rejection by the Designer.

1.4.2 Store materials off of the ground covered with tarps. Factory-applied wrappings are not acceptable.

1.4.3 Wet materials shall be removed from the project site.

1.5 Storage

1.5.1 Contractor shall be responsible for proper storage of equipment, materials and devices furnished by himself and/or his subcontractors and suppliers.

1.5.2 To the maximum extent possible, the Contractor shall not store combustible or flammable materials inside the facility.

1.5.3 All storage areas are subject to approval by the Owner or his authorized representative.

1.6 Security Measures:

1.6.1 The contractor shall keep his materials and equipment secure at all times.

1.6.2 The contractor and their subcontractors shall not smoke on University property.
1.6.3 The Owner will provide only those security measures which are deemed prudent for its own operations. The Contractor shall provide the necessary security means to protect the work, materials, tools and construction equipment from vandalism, theft, and fire unless more strict measures are noted elsewhere within the construction documents. The Contractor is responsible for replacement of his or her materials, machinery, equipment, tools, and supplies which are the subject of theft or mysterious disappearance. Clearly mark all tools and equipment with the Contractor’s identification. The Contractor shall clearly mark all tool boxes.

1.6.4 The Contractors shall provide the Owner with a list of day and night phone numbers to use in case of emergencies during the course of the project.

1.6.5 Hazard Communication Standards - All Contractors shall comply with the OSHA Hazard Communication Standard. The written Hazard Communications Program and Material Safety Data Sheets for each hazardous chemical shall be readily available and centrally located on site.

1.6.6 The contractor must secure all tools and materials stored on site within a locked 6 ft. tall fence (as a minimum) at the end of each day. This shall also include the portable toilet. Fence posts shall not penetrate the ground or parking lot. The fence shall be double locked with a contractor lock and one supplied by the Owner.

1.6.7 All tools stored on site must be secured in locked steel gang boxes at the end of each day.

1.6.8 All vehicles and motorized equipment shall be locked and secured at the end of each day.

PART 2 - NOT USED

PART 3 - NOT USED

END OF SECTION
SECTION 01 74 00
CLEANING

PART 1 - GENERAL

1.1 Drawings and general provisions of the contract, including General and Supplementary Special Conditions and other Division 1 specification sections apply to work of this section.

1.2 To maintain the buildings and site in a clean condition throughout the duration of the project. The Contractor shall comply with all requirements for cleanliness described in other sections of the project documents.

PART 2 - PRODUCTS

2.1 The Contractor shall provide all required manpower, material and equipment to maintain the specified standard of cleanliness.

2.2 Contractor shall use only those materials and equipment which are compatible with the surface being cleaned as recommended by the manufacturer or approved by the Designer.

PART 3 - EXECUTION

3.1 Progress Cleaning

3.1.1 Stored items shall be kept in an orderly arrangement allowing maximum access and shall not impede drainage or traffic.

3.1.2 Scrap, debris, waste material and other items shall not be allowed to accumulate and shall be removed from the site on a daily basis in accordance with all federal, state and local regulations.

3.1.3 Streets, parking lots, walks and grounds connecting to the project area shall be protected from deposits of mud, sand, stone, litter, or debris in any form, and this protection shall be the responsibility of the Contractors. All mud collected on vehicle wheels must be cleaned off before leaving the construction area. Should any mud or debris collect on the streets from the construction project, this shall be removed immediately before becoming a traffic hazard.

3.1.4 Contractor shall provide storage containers for all items awaiting removal from the site. Storage containers shall be approved by the Designer and Owner. Use of Owners trash receptacles for debris is not allowed. Outdoor burning of trash is not allowed.

3.1.5 The Contractor shall conduct daily inspections to insure that the requirements for cleanliness are met.

3.1.6 Dust, dirt and debris created by project construction shall be properly contained or controlled by the Contractor.

3.1.7 At locations where the Contractor accesses the site or designated changing areas, the Contractor shall maintain a clean site. The Contractor shall protect the Owners’ building from damage, staining, and soiling. This shall also include, at a minimum, the daily cleaning of these areas. "Clean" shall be interpreted as meaning the level of cleanliness
generally attainable by skilled cleaners using commercially available building maintenance equipment and materials.

3.1.8 Work may be stopped or delayed by the Owner should the Contractor fail to take appropriate measures to clean the site on a daily basis. Extensions to the project completion date for such delays will not be approved.

3.1.9 Contractor shall visually inspect all exterior surfaces and remove all traces of dirt, waste materials, smudges, splashed materials, and other foreign matter. The Designer may require that light sandblasting or other cleaning be performed at no cost to the Owner. If such cleaning is required, the Contractor shall take all necessary precautions to prevent damage to adjacent materials, property and vegetation.

3.1.10 The contractor shall make every effort to protect the vehicles on site from becoming unclean, from construction debris and from damage. The contractor is responsible to pay for vehicle cleaning and repairs necessary due to construction related activity.

3.2 The Contractor shall inspect all arrangements of materials stored on the project site on a weekly minimum basis and shall service all arrangements in accordance with the requirements of Paragraph 3.1.1 of this section.

3.3 Final Cleaning

3.3.1 Except as specifically provided otherwise, "clean" shall be interpreted as meaning the level of cleanliness generally attainable by skilled cleaners using commercially available building maintenance equipment and materials.

3.3.2 All tools, equipment, materials, scrap, debris and waste shall be removed from the project site and a final progress cleaning conducted in accordance with this Section.

3.3.3 Unless otherwise directed by the Designer, the Contractor shall clean all adjacent areas on the site and completely remove all resultant debris.

3.3.4 Restore grass or planted areas by filling ruts, raking, seeding, planting, sodding, and fertilizing. Sweep paved areas.

3.3.5 Contractor shall visibly inspect all exterior surfaces and remove all traces of dirt, waste materials, smudges, splashed materials and other foreign matter. The Designer may require that light sandblasting or other cleaning be performed at no cost to the Owner. If such cleaning is required, the Contractor shall take all necessary precautions to prevent damage to adjacent materials, property and vegetation.

END OF SECTION
SECTION 01 77 00
PROJECT CLOSEOUT PROCEDURES

PART 1 - GENERAL

1.1 General:

1.1.1 Drawings and general provisions of the contract, including General and Supplementary Special Conditions and other Division 1 specification sections apply to work of this section.

1.1.2 Description - To provide a specific format for substantial completion and final inspection.

1.2 Related Requirements Specified Elsewhere

1.2.1 Cleaning: Section 01 74 00

1.2.2 Project Record Documents: Section 01 78 39

1.2.3 Warranties: Section 01 78 36

1.3 Quality Assurance

1.3.1 All documents submitted to the Designer shall be signed by a person authorized to endorse Contracts on behalf of the Contractor

1.3.2 All formats for all documents shall be approved by the designer.

PART 2 – NOT USED

PART 3 - EXECUTION

3.1 Punchlist Inspection (pre-final inspection):

3.1.1 The Contractor shall submit written certification to the Owner, through the Designer, when the project or designated portion of the project is substantially complete. A list of major items to be completed or corrected shall be stated.

3.1.2 The Designer will make a punchlist inspection within fourteen (14) days after receipt of certification and issue a punchlist containing:

3.1.2.1 The Date of Designers punchlist inspection.

3.1.2.2 The Contractor's list of items to be completed or corrected and any amendments by the Owner or Designer (punchlist).

3.1.2.3 The time to be allowed for the Contractor to complete or correct listed items shall not exceed the contract time stated in the Supplementary General Conditions.

3.1.3 The Contractor shall then complete or correct those items so listed and inform the Designer in writing upon completion.
3.1.4 Should the Owner and Designer determine that the work is not ready for a Punchlist Inspection, the Designer shall immediately notify the Contractor in writing stating reasons. The Contractor shall then complete the work and send a second written notice to the Owner certifying that the project, or designated portion thereof, is substantially complete. The Designer will re-inspect the work after receipt of additional replacement certification from the Contractor.

3.2 Final Inspection

3.2.1 The Contractor shall submit written certification to the Owner, through the Designer, that:

3.2.1.1 The Contract Documents have been reviewed.

3.2.1.2 Work has been completed in accordance with the Contract Documents.

3.2.1.3 The project has been inspected for compliance with the Contract Documents.

3.2.1.4 The Punchlist is complete.

3.2.1.5 The project is ready for final inspection.

3.2.2 The Owner, Designer, and Contractor will make a final inspection within ten (10) days after receipt of certification.

3.2.3 Should the Owner and Designer determine that the work is finally complete in accordance with the requirements of the Contract Documents, the Designer will request that the Contractor submit the appropriate project closeout documentation.

3.2.4 Should the Owner and Designer determine that the work is not finally complete, the Designer will immediately notify the Contractor in writing stating reasons. The Contractor shall then take immediate measures to remedy the stated deficiencies and send an additional written notice to the Owner, through the Designer certifying that the work is complete. The Owner and Designer will re-inspect the work.

3.3 Re-Inspection Costs

3.3.1 Should the Owner be required to perform additional inspections due to noncompliance of work with the certifications of the Contractor, the Contractor shall compensate the Owner for such additional services. Such costs will be deducted from final payment to the Contractor.

3.4 Closeout Submittals

3.4.1 Project Record Documents: As required by Section 01 78 39

3.4.2 Warranties: As required by Section 01 78 36

3.4.3 Evidence of payment and release of liens: Waiver and Release Upon Payment – Final.
3.4.4 Contractor's Affidavit of Payment of Debts and Claims.

3.4.5 Contractor’s Affidavit of Release of Liens.

3.4.6 The Contractor shall be responsible for proper execution of all submittals required by this Section prior to delivery to the Owner through the Designer.

3.4.7 The Contractor shall submit a final statement of accounting to the Owner through the Designer. The statement shall reflect all adjustments including, but not limited to:

3.4.7.1 Original Contract sum.

3.4.7.2 Change Orders noting such items as:

i  Unit Prices.
ii  Cash Allowances.
iii  Deductions for Uncorrected Work.
iv  Deductions for Re-Inspection Payments.
v  Other Adjustments.

3.4.7.3 Total adjusted Contract sum.

3.4.7.4 Previous payments.

3.4.7.5 Remaining amount due.

3.4.8 The Owner will prepare a final Change Order reflecting approved adjustments not previously noted.

3.5 Final Application for Payment

3.5.1 The Contractor shall submit final application for payment in accordance with the specifications.

3.5.2 The Designer will issue a final certificate in accordance with the specifications.

END OF SECTION
PART 1 - GENERAL

1.1 Drawings and general provisions of the contract, including General and Supplementary Conditions and other Division 1 specification sections apply to work of this section.

1.2 Upon completion of the work and prior to the final payment, the Contractor shall submit the required contractor’s Guarantee and/or manufacturer’s guarantee, as required by this Section.

1.3 Submit all items required by this Section as part of project record documents, Section 01 78 39.

1.4 Starting dates of all Guarantees shall be the date of the final acceptance and Owner acceptance which the Owner, Designer, Contractor and Manufacturer agree that all work has been completed in substantial compliance with the plans and specifications of the project.

1.5 All Guarantees shall be governed by and construed in accordance with the laws of the Commonwealth of Virginia.

1.6 No Guarantee shall require dispute resolution to take place in any court other than those courts having jurisdiction over the site of the project.

1.7 All Guarantees shall be issued bearing a signature of an officer of the company and shall not require the signature of the Owner nor Designer.

1.8 Final payment will be made to the Contractor only after three (3) copies of the Guarantees and guarantees have been submitted and the membrane manufacturer acknowledges that all bills are paid. All such documents shall show the project name and location and the Owner's name.

1.9 Contractor’s Guarantee:

1.9.1 Comply with the General Conditions of the Contract concerning Guarantees and bonds. The Contractor shall agree that the work covered under this Contract shall remain free from any water penetration and physical defects caused by defective workmanship or materials for a period of five (5) years from the date of final acceptance by Owner. Guarantee shall be executed on Contractor's company letterhead and signed by an authorized officer of the company; see attached Guarantee form.

1.9.2 The Contractor and the Owner’s representative shall conduct an inspection approximately 30 days prior to the end of the Contractor’s guarantee to determine the present physical condition of all systems. The Owner representative shall then submit a written report as to the findings of this inspection and the Contractor, at his own expense, shall repair any defects covered under the scope of the contract.

1.10 Manufacturer’s Guarantees:

1.10.1 Single-Ply Membrane: Manufacturer agrees to repair or replace components of roofing system that fail in materials or workmanship within specified warranty period.

1.10.1.1 Warranty includes roof membrane, base flashings, roof insulation, cover board,
vapor barrier, fasteners, adhesives, membrane clad metal, and other components of roofing system.

1.10.1.2 Warranty Period: 20 years from date of Substantial Completion.

1.10.2 Fluid Applied Waterproofing Manufacturer’s Guarantee:

1.10.2.1 The Contractor shall include in the base bid the cost of the manufacturer’s 20-year no dollar limit material and workmanship total system guarantee. The guarantee must not require Owner’s signature to activate.

1.10.2.2 The manufacturer shall agree that the work covered under this contract shall remain free from water penetration and material defects caused by defective workmanship or materials for a period of twenty (20) years from the date of Final Acceptance by the Owner. The Contractor’s guarantee shall neither replace nor negate any agreement furnished by the manufacturer.

1.10.3 Skylight: Refer to specification section 08 63 00 Metal Framed Skylights.

1.10.4 Slate Shingles: A warranty shall be furnished against defects in materials and workmanship of slate roof assembly, including metal flashing for a period of 10 years from the date of Substantial Completion.

1.10.5 Zinc Coated Copper: Manufacturer agrees to repair or replace components that have defects in workmanship and materials.

1.10.5.1 Warranty Period: 25 years from date of Substantial Completion.

1.10.6 Sealant:

1.10.6.1 Warranty Period: 10 years from date of Substantial Completion.

1.10.6.2 In the event that the sealant manufacturer should supply materials that they do not manufacture, to include such items as primer, and/or cleaning products; these items shall be included in the warranty coverage.

1.10.7 Fall Protection: Refer to specification section 11 01 40 Fall Protection Railing Systems.

1.10.8 Metal Flashing and Sheet Metal:

1.10.8.1 Zinc Coated Copper: Manufacturer agrees to repair or replace components that have defects in workmanship and materials.

   i Warranty Period: 25 years from date of Substantial Completion.

1.10.8.2 Factory Finished Metal Flashings: 20 years finish warranty for factory applied finishes.

1.10.1 Polycarbonate Window Well Covers: The manufacturer shall agree that the work covered under this contract shall remain free from water penetration and material defects caused by defective workmanship or materials for a period of five (5) years from the date of
Substantial Completion. The Contractor’s guarantee shall neither replace nor negate any agreement furnished by the manufacturer.

1.10.2 Window Glazing: Manufacturer agrees to repair or replace components that have defects in workmanship and materials.

1.10.2.1 Warranty Period: 10 years from date of Substantial Completion.

1.10.3 Exterior Stairs and Ladders: Refer to specification section 05 51 33 Inclined Metal Ladders and Stairs.

1.10.4 Exterior Doors:

1.10.4.1 The manufacturer shall agree that the work covered under this contract shall remain free from water penetration and material defects caused by defective workmanship or materials for a period of five (5) years from the date of Final Acceptance by the Owner. The Contractor’s guarantee shall neither replace nor negate any agreement furnished by the manufacturer.

1.10.4.2 Finish Guarantee: Provide written guarantee signed by manufacturer agreeing to repair or replace work with finish defects. “Defects” is defined as peeling, chipping, chalking, fading, abnormal aging or deterioration, and failure to perform as required. Guarantee Period: 20 years from date of Final Completion.

1.10.5 Paint: Manufacturer’s standard warranty document executed by the authorized company official for a period of not less than (5) five years commencing on date of Substantial Completion.

1.11 Emergency Repairs:

1.11.1 Emergency repairs to defects and leaks shall be performed within 24 hours of receiving notice from Owner. As soon as weather permits, permanent repairs and restoration of affected areas shall be accomplished in a manner in conformance with the original Contract requirements. This work shall be done without additional cost to the Owner, except if it is determined that such leaks and defects were caused by abuse, lightning, hurricane, tornado, hail storm, or other unusual phenomena.

1.11.2 The warranties shall also state that the Owner has the right, at any time during the 5-year Contractor's warranty period and the Manufacturer's warranty period, to make emergency repairs to protect the contents of the building or the building itself from damage due to leaking. The cost of emergency repairs made during the first five years of the warranty period shall be borne by the Contractor and action by the Owner shall not invalidate the warranty.

PART 2 – NOT USED

PART 3 - NOT USED
SECTION 01 78 39
PROJECT RECORD DOCUMENTS

PART 1 - GENERAL

1.1 Drawings and general provisions of the contract, including General and Supplementary Special Conditions and other Division 1 specification sections apply to work of this section.

1.2 Description - The Contractor shall maintain an accurate record of the project throughout its duration. Items to be noted include, but are not necessarily limited to:

   1.2.1 Contract Documents (Plans, Specifications, Bid Documents and all other documents related to the Construction Contract).

   1.2.2 As Built Red Lined Drawings.

   1.2.3 Addenda.

   1.2.4 Minutes of prebid, preconstruction, and construction meetings.

   1.2.5 Change Orders.

   1.2.6 Field Orders and Instructions.

   1.2.7 Construction Schedule.

   1.2.8 Shop Drawings.

   1.2.9 Product Samples.

   1.2.10 Progress Reports.

1.3 Quality Assurance

   1.3.1 The Contractor shall delegate responsibility for maintenance of the record documents to one person on the Contractor's staff as approved by the Designer.

   1.3.2 All entries shall be made within 24 hours after receipt of information.

1.4 Submittals - The Contractor shall submit the final record documents to the Designer for approval prior to submitting a request for final payment. Submit two copies of "as-built" documents to Designer with letter of transmittal indicating date, project title, Contractor's name and address, list of documents, and signature of Contractor.

1.5 Product Handling - The Contractor shall take all necessary precautions to protect the record documents from deterioration loss and damage until completion of the work and transfer of the recorded data to the final record documents.

PART 2 – NOT USED
PART 3  - EXECUTION

3.1 Maintenance of Record Documents – The Contractor shall maintain the record documents at the project site and make all documents available to the Designer during all working hours.

3.2 Review and Approval – The Contractor shall submit the completed total set of record documents to the Designer as described

END OF SECTION
SECTION 02 41 13
SELECTIVE DEMOLITION AND PREPARATIONS

PART 1 - GENERAL

1.1 Drawings and general provisions of the contract, including General and Supplementary Conditions and other Division 1 specification sections apply to work of this section.

1.2 Work Included - Selective demolition and preparations for slate shingles, copper roofing, copper sheet metal flashings, sealants, concrete and masonry repairs, window repairs, repainting, as specified herein.

1.3 Related Work Specified Elsewhere

1.3.1 Temporary Facilities and Control - Section 01 50 00

1.3.2 Storage and Protection - Section 01 66 00

1.3.3 Miscellaneous Rough Carpentry - Section 06 10 53

PART 2 – PRODUCTS – NOT USED

PART 3 – EXECUTION

3.1 Refer to Section 01 11 00

3.2 General Demolition:

3.2.1 The Designer and Contractor shall document the actual quantities removed for materials bid on a unit price basis.

3.2.2 Remove only as much material as can be totally replaced in the same day.

3.2.3 Demolition shall be performed by personnel familiar with the replacement of materials being used.

3.2.4 Demolition adjacent to areas to remain shall be performed in a neat manner with straight lines to facilitate tie-ins of replacement materials. Contractor shall review tie-in methods with the Designer for approval. Designer has final approval of such methods.

3.2.5 Excessive demolition, as determined by the Owner's representative, shall be replaced with equal materials at the Contractor's expense in accordance with the General Conditions of the Contract.

3.2.6 No demolition shall be performed if the chance of precipitation is 40% or more as reported by the nearest office of the National Weather Service.

3.2.7 Gaps, holes, and damages caused a result of the scope of work in this project will need to be patched and finished to match adjacent materials and finishes.
3.3 Preparations

3.3.1 Prior to the installation of any new roofing, flashings, metal flashings, any other miscellaneous items, the Contractor shall clean surfaces of all dust, dirt, and other foreign materials.

3.3.2 Inspect the deck carefully. If, in Contractor's opinion, there are concrete deck areas that require repair and/or replacement, notify the Designer. Do not proceed with any repairs or replacement until directed by the Designer.

END OF SECTION
SECTION 02 42 96

HISTORIC REMOVAL AND DISMANTLING

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: Historic treatment procedures in the form of selective demolition work at stone surfaces.

1.3 REFERENCES - NATIONAL PARK SERVICE PRESERVATIONS BRIEFS:


1.4 DEFINITIONS

A. Dismantle: To disassemble or detach a historic item from a surface, or a non-historic item from a historic surface, using gentle methods and equipment to prevent damage to historic items and surfaces, disposing of items unless indicated to be salvaged or reinstalled.

B. Remove: To take down or detach a non-historic item located within a historic space using methods and equipment to prevent damage to historic items and surfaces, disposing of items unless indicated to be salvaged or reinstalled.

1.5 PRECONSTRUCTION MEETINGS

A. Preinstallation Conference: Conduct conference at Project site to review methods and procedures related to historic masonry removal, dismantling, and repairs including.
1. Review list of items indicated to be salvaged, removed, and or reinstalled.
2. Review methods and procedures related to removal and dismantling work.
3. Review fire prevention.
4. Review sidewalk and pedestrian safety procedures during removal and dismantling work.

1.6 INFORMATION SUBMITTALS

A. Qualification Data: For historic removal and dismantling specialists.

B. Preconstruction Documentation: Show pre-existing conditions of adjoining construction and site improvements, including finish surfaces, that might be misconstrued as damage cause by Contractor's removal and dismantling operations.

C. Historic Removal and Dismantling Specialist Qualifications: A qualified historic treatment specialist. General selective demolition experience is insufficient experience for historic removal and dismantling work.

D. Regulatory Requirements: Comply with notification regulations of authorities having jurisdiction before beginning removal and dismantling work. Comply with hauling and disposal regulations of authorities having jurisdiction.

1.7 FIELD CONDITIONS

A. Notify Architect of discrepancies between existing conditions and Drawings before proceeding with removal and dismantling work.

B. Hazardous Materials: It is not expected that hazardous materials will be encountered in the Work.

1. If materials suspected of containing hazardous materials are encountered, do not disturb; immediately notify Architect and Owner.

   a. In the case of asbestos, stop work in the area of potential hazard, shut off fans and other air handlers ventilating the area, and rope off area until the questionable material is identified.

2. Storage or sale of removed or dismantled items on-site is not permitted unless otherwise indicated.
PART 2 - PRODUCTS – (Not Used)

PART 3 - EXECUTION

3.1 EXAMINATION

A. Preparation for Removal and Dismantling: Examine construction to be removed or dismantled to determine best methods to safely and effectively perform removal and dismantling work.

B. Verify that affected utilities are disconnected and capped.

C. Survey of Existing Conditions: Record existing conditions by use of preconstruction photographs.

D. Perform surveys as the Work progresses to detect hazards resulting from historic removal and dismantling procedures.

3.2 HISTORIC REMOVAL AND DISMANTLING

A. General: Have removal and dismantling work performed by a qualified historic removal and dismantling specialist.

B. Perform work according to the historic treatment program.

C. Anchorages: Removal anchorages associated with removed items.
   1. Dismantle anchorages associated with dismantled items.
   2. Patch or repair holes created by anchorage removal or dismantling according to Section that is specific to the historic surfaces being patched.

END OF SECTION
SECTION 04 01 00
MAINTENANCE OF HISTORIC MASONRY
(BID ADDITIVE 1)

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. Repairing brick and stone units
   2. Repointing mortar joints
   3. Masonry cleaning

1.3 REFERENCES - NATIONAL PARK SERVICE PRESERVATIONS BRIEFS:


1.4 DEFINITIONS

A. Low-Pressure Spray: 100 to 150 psi.

B. Saturation Coefficient: Ratio of the weight of water absorbed during immersion in cold water to weight absorbed during immersion in boiling water; used as an indication of resistance of masonry units to freezing and thawing.

1.5 PREINSTALLATION MEETINGS

A. Preinstallation Conference: Conduct conference at Project site to review methods and procedures related to historic masonry repairs including, but not limited to, the following:
1. Verify repair specialist’s personnel, equipment, and facilities needed to make progress and avoid delays.
2. Materials, material application, sequencing, tolerances, and required clearances.
3. Quality-control program.
4. Coordination with building occupants.

1.6 SEQUENCING AND SCHEDULING

A. Order materials immediately after approval of Samples and mockups. Take delivery of and store at Project site enough quantity to complete Project.

B. Work Sequence: Perform masonry repair work in the following sequence, which includes work specified in this and other Sections:

1. Remove plant growth.
2. Inspect masonry for open mortar joints and point them before cleaning to prevent the intrusion of water and other cleaning materials into the wall.
3. Clean masonry.
4. Rake out mortar from joints surrounding masonry to be replaced and from joints adjacent to masonry repairs along joints.
5. Repair masonry, including replacing existing masonry with new masonry materials.
6. Rake out mortar from joints to be repointed.
7. Point mortar and sealant joints.
8. After repairs and repointing have been completed and cured, perform a final cleaning to remove residues from this work.

C. As scaffolding is removed, patch anchor holes used to attach scaffolding. Patch holes in masonry units according to “Masonry Unit Patching” Article.

1.7 ACTION SUBMITTALS

A. Product Data: For each type of product.

1. Include construction details, material descriptions, dimensions of individual components and profiles, and finishes.
2. Include recommendations for product application and use. Include test data substantiating that products comply with requirements.

B. Samples for Initial Selection: For the following:

1. Color-match repointing mortar samples to existing mortar, for brick, limestone, and granite.
2. Color-match limestone, granite, and brick, patch repair mortar to existing stone.
3. Color-match spatchel for limestone crack repairs.

C. Samples for Verification: For the following: Each type of brick unit to be used for replacing existing units. Include sets of Samples to show the full range of shape, color, and texture to be
expected. For each brick type, provide straps or panels containing at least four bricks. Include multiple straps for brick with a wide range.

1.8 INFORMATIONAL SUBMITTALS

A. Qualification Data: For masonry repair specialist, including field supervisors and workers.

B. Preconstruction Test Reports: For existing masonry units and mortar and replacement masonry units.

C. Quality-Control Program

1.9 SUBSTITUTIONS

A. If alternative methods and materials to those indicated are proposed for any phase of restoration work, provide written description, and program of testing to demonstrate effectiveness for use on this project. Provide documentation showing compliance with the requirements for substitutions and the following information: Coordination information, including a list of changes needed to other work that will be necessary to accommodate the substitution.

B. A comparison of the substitution with the specified products and methods, including performance, weight, size, durability, and visual effect.

C. Certification that the substitution conforms to the contract documents and is appropriate for the application indicated. Material substitution requests must be accompanied by independent laboratory test reports from a lab designated by the Designer to establish equivalent performance levels and specification compliance. The submitting party shall pay for testing.

1.10 QUALITY ASSURANCE

A. Masonry Repair Specialist Qualifications: Engage an experienced masonry repair firm to perform work of this Section. Firm shall have completed work similar in material, design, and extent to that indicated for this Project with a record of successful in-service performance. Experience in only installing masonry is insufficient experience for masonry repair work.

B. Field Supervision: Masonry repair specialist firm shall maintain experienced full-time supervisors on Project site during times that brick masonry repair work is in progress.

C. Quality-Control Program: Prepare a written quality-control program for this Project to systematically demonstrate the ability of personnel to properly follow methods and use materials and tools without damaging masonry. Include provisions for supervising performance and preventing damage.

D. Mockups: Prepare mockups of brick masonry repair to demonstrate aesthetic effects and to set quality standards for materials and execution and for fabrication and installation.

1. Masonry Repair: Prepare sample areas for each type of masonry repair work performed. If not otherwise indicated, size each mockup not smaller than two adjacent whole units or
approximately 48 inches (1200 mm) in least dimension. Construct sample areas in locations in existing walls where directed by Architect unless otherwise indicated. Demonstrate quality of materials, workmanship, and blending with existing work. Include the following as a minimum:

a. Brick Replacement: Four brick units replaced.
b. Brick Patching: Three small holes at least 1 inch (25 mm) in diameter for each type of brick indicated to be patched.
c. Stone Pointing: Rake out joints in two separate areas, each approximately 36 inches high by 48 inches wide, and repoint one of the areas.
d. Stone Patching: At least 4 inches by 4 inches.
e. Stone Crack Injection: Apply crack injection in two separate areas each approximately 12 inches long.

2. Masonry Cleaning:
   a. Prepare 3 separate spot cleaning samples for each type required to determine the extent of cleaning, cleaning methods, dwell time, and cleaning products. One test sample must consist of hot water wash at low psi using a flat 25-50 degree wide spray stainless steel tip. Record and note all dwell times, surface and air temperatures at the time of testing each possible solution. Designer to be present during mockup execution. Note cleaning detergent or chemical mix, psi, nozzle orifice distance from wall face, dwell times, and other specific cleaning procedures.
   b. Repeat, using different cleaning methods up to three locations, until acceptable without causing surface damage.
   c. Locate where directed by Designer.

3. Acceptable mockup illustrating results of restoration and cleaning will become standard for work of this section. Retain acceptable panels in undisturbed condition, suitably marked, during restoration as a standard for judging completed work.

4. Approval of mockups does not constitute approval of deviations from the Contract Documents contained in mockups unless Architect specifically approves such deviations in writing.

5. Subject to compliance with requirements, approved mockups may become part of the completed Work if undisturbed at time of Substantial Completion.

1.11 DELIVERY, STORAGE, AND HANDLING

A. Deliver masonry, stone, and all other materials neatly stacked and tied on pallets. Store clear of ground with adequate waterproof covering.

B. Store all mortar ingredients in manufacturer’s packaging, or when delivered loose, with adequate weatherproof covering.

C. Deliver materials to site in manufacturer’s original unopened containers and packaging, bearing labels as to type and names of products and manufactures.

D. Deliver and store restoration material in manufacturer’s original, unopened containers with the grade, batch and production data shown on the container or packaging.
E. Protect restoration materials during storage and construction from wetting by rain, snow or ground water, and from staining or intermixture with earth or other types of materials.

F. Protect mortar and other materials from deterioration by moisture and temperature. Store in a dry location or in waterproof containers. Keep containers tightly closed and away from open flames. Protect liquid components from freezing. Comply with manufacturer’s recommendations for minimum and maximum temperature requirements for storage.

G. Comply with the manufacturers written specifications and recommendations for mixing, application, and curing of reporting mortars and patching materials.

H. Deliver products in time to avoid construction delays.

I. Deliver and store products in manufacturer’s original packaging with identification labels intact.

J. Store products protected from weather and at temperature and humidity conditions recommended by manufacturer.

1.12 FIELD CONDITIONS

A. Weather Limitations: Proceed with installation only when existing and forecasted weather conditions permit brick masonry repair work to be performed according to product manufacturers' written instructions and specified requirements.

B. Temperature Limits, General: Repair masonry units only when air temperature is between 40 and 90 deg F (4 and 32 deg C) and is predicted to remain so for at least seven days after completion of the Work unless otherwise indicated.

C. Cold-Weather Requirements: Comply with the following procedures for masonry repair unless otherwise indicated:

   1. When air temperature is below 40 deg F (4 deg C), heat mortar ingredients, masonry repair materials, and existing masonry walls to produce temperatures between 40 and 120 deg F (4 and 49 deg C).

   2. When mean daily air temperature is below 40 deg F (4 deg C), provide enclosure and heat to maintain temperatures above 32 deg F (0 deg C) within the enclosure for seven days after repair.

D. Hot-Weather Requirements: Protect masonry repairs when temperature and humidity conditions produce excessive evaporation of water from mortar and repair materials. Provide artificial shade and wind breaks, and use cooled materials as required to minimize evaporation. Do not apply mortar to substrates with temperatures of 90 deg F (32 deg C) and above unless otherwise indicated.

E. For manufactured repair materials, perform work within the environmental limits set by each manufacturer.

F. Prevent repointing and repair materials from staining the face of masonry or other surfaces to be left exposed. Immediately remove all repointing mortar that comes in contact with such surfaces.
G. Cover partially completed work when work is not in progress.

H. Protect sills, ledges, and projections from droppings.

I. Damage occurring to the building as a result of work of this section of Contractor’s failure to protect against such damage shall be the Contractor’s responsibility. The contractor shall restore damaged areas to the complete satisfaction of the Owner and Designer at no expense to the Owner.

PART 2 - PRODUCTS

2.1 REPOINTING MORTAR MATERIALS

A. Repointing mortar shall be prepared and placed in accordance with the Department of the Interior National Park Service Cultural Resources Preservation Briefs 2, “Repointing Mortar Joints in Historic Masonry Buildings”, Revised edition October 1998, and in compliance with the guidelines set forth by the Secretary of the Interior’s Standards for Rehabilitation.

B. The repointing mortar shall match the original color, grain size, and texture. The compressive strength of the repointing mortar shall be equal or less than the compressive strength of the original mortar and surrounding brick or stone. The replacement mortar shall contain approximately the same ingredient proportions of the original mortar.

C. All replacement mortar ingredients and mortar formulations shall be established from test data gathered from the original materials sampled from site.

D. The testing laboratory shall supply a ready mixed mortar sample sufficient in size for a mock up sample at the site.

E. Mixing of individual mortar ingredients at the construction site will not be permitted.

F. Repointing mortars shall be pre-blended in single containers in a factory-controlled environment. All ingredients will be converted from volume measurements to weight measurements to ensure quality production of the mortar.

G. All containers shall be marked including manufacturing date and batch number. Manufacture is required to maintain production-sampling procedures for each batch for quality control purposes. Manufacturer to provide samples of proposed materials for mock up panels at the site. All pre-blended products are to meet applicable ASTM standards and project specification requirements.

2.2 MASONRY CLEANING

A. Masonry Cleaners shall be in accordance with the Department of the Interior National Park Service Cultural Resources Preservation Brief 1, “The Cleaning and Waterproof Coating of Masonry Buildings”, and Preservation Brief 6 “Dangers of Abrasive Cleaning to Historic Buildings”, and in compliance with the guidelines set forth by the Secretary of the Interior’s Standards for Rehabilitation.
B. Cleaning Baseline Procedure: Hot water wash at low psi. If hot water wash proves to be insufficient, see item “J” for acceptable manufacturers of cleaning products. Pressure to be measured at the gun or as closely to it as possible. 200-300 psi is acceptable and must be readable. A bristle brush may be used to supplement the water wash as long as it does not remove or damage the limestone or brick surfaces. Nozzle size and configuration: Stainless steel flat tip with 25-50 degree wide spray. Distance from nozzle orifice and the surface being cleaned shall be evaluated and tested during the mock-up phase.

C. Sample Cleaning Area: An initial test cleaning sample with hot water at low psi is requested to evaluate this methods effectiveness and establish a baseline for cleaning techniques. Work with Designer to determine locations of cleaning test panels (12”x12”).

D. All cleaning techniques should use the gentlest means possible to avoid etching, staining, bleaching, or masonry damage.

E. The goal of the masonry cleaning is not to remove 100% surface soiling but to generally enhance the stone by removing sufficient particulate caused by pollution. Designer will establish parameters on-site for acceptable levels of cleaning.

F. Dwell Times: For all cleaning methods, testing and implementation, dwell times shall be closely watched and adhered to in an effort to avoid damaging the masonry.

G. Properly protect all adjacent wall surfaces, roofs, windows, doors, glass, plant materials, etc., from overspray.

H. Cleaning Materials:
   1. D/2 by Biological Solutions, Inc. PO Box 3746, Westport, MA 02790
   2. One Restore by EaCO Chem, Inc. 765 Commerce Ave., New Castle, PA 16101.
   3. Steinreinger-N by KEIM Mineral Coatings of America Inc. 10615 Texland Blvd. #600, Charlotte, NC, 28273.

2.3 MASONRY PATCHING REPAIR MORTARS

A. Granite Repair Mortar: Repair granite as shown on the drawings and as required in order to provide a continuous substrate for new mortar joints.
   1. Manufacturers
      a. GB15 Granite & Bluestone Repair Mortar by US Heritage Group, 2900 North Kearsage Ave., Chicago, IL, 60641.
      b. Restauro-Top by KEIM Mineral Coatings of America Inc. 10615 Texland Blvd. #600, Charlotte, NC, 28273.
      c. JAHN M160 by Cathedral Stone Products, Inc. 7266 Park Circle Drive, Hanover, MD, 21076.
   2. Repair materials shall be custom color matched.

B. Brick Repair Mortar: Repair brick as shown on the drawings and as required in order to provide a continuous substrate for new mortar joints.
   1. Manufacturers
      a. TB15 Terra Cotta Brick Repair Mortar by US Heritage Group, 2900 North Kearsage Ave., Chicago, IL, 60641.
b. Restaurro-Top by KEIM Mineral Coatings of America Inc. 10615 Texland Blvd. #600, Charlotte, NC, 28273.
c. JAHN M100 by Cathedral Stone Products, Inc. 7266 Park Circle Drive, Hanover, MD, 21076.

2. Repair materials shall be custom color matched.

2.4 MASONRY CRACK REPAIRS

A. Granite Crack Repair Injection Mortar: JAHN M40 and M30 by Cathedral Stone Products Inc., 7266 Park Circle Drive, Hanover, Maryland 21076.

B. IG10 Injection Grout by US Heritage Group, 2900 North Kearsage Ave., Chicago, IL, 60641.

C. Rosendale 11G by Edison Coatings, 3 Northwest Drive, Plainville, CT, 06062.

D. Repair materials shall be custom color matched.

2.5 MASONRY COATING

A. Description: One-component, elastomeric, silicone, high-solids, UV resistant, coating.

B. Properties, As Supplied:
1. Density (lb/gal), WPSTM P 14: 8.17 pounds per gallon (.97 g/ml)
2. Solids Content, By Volume, WPSTM C 19: 73 percent.
3. Solids Content, By Weight, WPSTM C 19: 70 percent.
4. Tack-Free Time, WPSTM E 86: 1 to 2 hours.
5. Skin-Over Time: <30 minutes.
6. Viscosity, WPSTM C 560: 5,000 centipoise
7. Volatile Organic Content (VOC), EPA Method 24: 24 g/L.

C. Properties, As Cured:
2. Elongation, ASTM D 412: 200 percent.
3. Vapor Permeance (10 Mils DFT) ASTM E 96 Wet Cup: 18 perms.

D. Color: Translucent

E. Primer: If necessary, based on adhesion testing. Compatible with surfaces and coating. Approved by manufacture.

F. Provide two 4’x4’ mockups for Owner and Designer for review and approval.

2.6 ACCESSORY MATERIALS

A. Lead T Stone Joint Caps:
1. Type: A (the flat cap) and B (Vertical and Horizontal).
2. Size: Joint sizes vary, verify sizes in the field.
3. Embedment Sealant: Non-staining silicone sealant, for sensitive porous stone.

B. Masking Tape: Nonstaining, nonabsorbent material; compatible with mortar, joint primers, sealants, and surfaces adjacent to joints; and that easily comes off entirely, including adhesive.

C. 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. Minimal 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 leave residue on surfaces.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Verify surfaces to be cleaned and restored are ready for work of this section.

B. Examine conditions, with installer present, for compliance with requirements for installation tolerances and other specific conditions, and other conditions affecting performance of unit masonry.

C. Do not proceed until satisfactory conditions have been corrected.

D. Verify that the substrates are acceptable for product installation; do not begin until substrates meet manufacturers requirements.

E. Do not begin until test panels have been approved by both the Designer and Owner.

F. Replacement of masonry units to be confirmed by Designer prior to execution.

3.2 PREPARATION

A. Protect elements surrounding work of this section from damage or disfiguration.

B. Immediately remove stains, efflorescence, or other excess resulting from work of this section.

C. Protect roof membrane and flashings from damage.

D. Carefully remove and store fixtures, fittings, finishing hardware, accessories.

E. Close off, seal, mask, and/or board up areas, materials, and surfaces not receiving work of this section to protect from damage.

F. Construct dust proof and weatherproof partitions to close off occupied areas.
3.3 CLEANING MASONRY

A. Clean all exposed surfaces of masonry (limestone, brick, granite) using materials specified, so that resulting surfaces have a uniform appearance.

B. Use cleaner and cleaning methods selected to minimize damage to surfaces and deterioration of appearances.

C. Mockup testing will determine the most appropriate cleaning solution, treatment, dwell time, psi, and nozzle orifice distance from wall surface.

D. Install and clean up per manufacturer’s recommendations and standards.

E. Capture, store, and dispose of all cleaning products, overspray, wash, and after wash as per EPA and local government Standards.

3.4 REPOINTING

A. Leave one intact and serviceable example of original mortar on the building; location and size to be determined by the Designer.

B. All joints shall be raked back to sound, solid, back up material. All raking out should leave a clean, square face at the back of the joint to provide for maximum contact of pointing mortar with the masonry backup mortar. Shallow or feather edging shall not be permitted.

C. Existing mortar joints shall be raked out a minimum depth of 2.5 times the height of the existing mortar joints, however, so as not to compromise the structural stability of the wall, the joint should not be raked out more than half the width of the masonry unit.

D. Utilize hand tools and power tools only after test cuts to determine no damage to masonry units results. Vertical joints (head joints) shall not be raked out using rotary power saws. All vertical head joints must be removed by hand in stonework unless a demonstration can be made that rotary use can be implemented without over cutting the joints. Vertical joints exceeding 6” in height may be approved for cutting with rotary power saws pending a successful demonstration to the Designer.

E. Do not damage masonry units.

F. Existing horizontal mortar joints (bed joints) that are filled with a hard Portland mortar may be raked out using a diamond blade that is narrower than the joint width. The middle one-third of the mortar joint may be cut using a rotary power saw. The remaining mortar shall be removed from the masonry joints by hand using masonry chisels or pneumatic carving tools powered by air.

G. Existing historic mortar shall be removed using only small-headed chisels that are no wider than half the width of the existing masonry joints. Pneumatic air carving chisels are permitted.

H. Contractor shall not widen the existing masonry joints. The surrounding masonry edges shall not be spalled or chipped in the process of mortar removal. Damage to surrounding stone resulting from rotary blade over running shall not be permitted. Contractor shall replace all
brick or stone damaged during mortar removal with replacement units that match the original exactly.

I. Brush, vacuum, blow out, or flush joints with water to remove dirt and loose debris, working from top to bottom of wall.

J. Exposed surface of masonry adjacent to joint shall be wet prior to repointing. Maintain a water sprayer on site at all times during the repointing process.

K. Walls should be pre-soaked with water 10 minutes prior to pointing.

L. Rinse masonry joint with water to remove dust and mortar particles. Time the rinsing application so that at the time of pointing excess water has evaporated or run off. Joint surfaces should be damp but free from standing water.

M. Mortar shall be mixed according to manufacturer recommendations. The mortar material shall resemble the consistency of brown sugar during installation. This drier consistency enables the material to be tightly packed into the joint and allows for cleaner work and prevents shrinkage cracks as mortar cures.

N. Joints should be pointed in layers or “lifts” where the joints are deeper than one and one-quarter inch. Apply in layers not greater than ½ the depth but not more than 1-1/4 inch or until a uniform depth is formed. Compact each layer thoroughly and allow it to become thumbprint hard before applying the next layer.

O. When mortar is thumbprint hard the joints shall be finished to match the original historic profile:
   1. Limestone: raked joint
   2. Face brick: raked joint
   3. Granite: Extruded

P. Keep mortar from drying out to quickly. Protection from direct sun, high winds for the first 72 hours after installation. Thoroughly soak the wall after the mortar has set and finish joint profile is complete. Water soaking the wall is to be carried out nine (9) separate times allowing the wall to dry out between applications. Protect freshly pointed areas with plastic sheeting for the first 24 hours after installation.

Q. Nine (9) wet-and-dry cycles are required and can usually be completed immediately after installation by water soaking the repointing work three times per day for three days. Nine (9) wet-and-dry cycles may take two days or one week depending on the conditions of the wall and the environment.

R. Acceptable curing methods include covering the repointed wall with plastic sheeting, periodic hand misting, and periodic mist spraying.

S. Adjust curing methods to ensure that the pointing mortar is damp without eroding the surface of the mortar.
3.5 MASONRY PATCHING

A. Mix per manufacturers written instructions.

B. Mix only with cold water, approximately 5lt per 30kg. After a ripening period of 5 minutes the mortar should be of moist earth consistency.

C. Apply to pre-wetted surfaced in one or more layers from 10mm to 30mm maximum.

D. Apply proud of the surface using a trowel, allow to harden and then dress back in a manner to suit the surrounding masonry. Texture shall match that of the approved mock-up for each masonry type.

E. If size of patch exceeds 4 inches in any direction or is overhead, install 3/8” stainless steel threaded rods per Designers instructions.

F. Install material only when ambient and substrate temperatures are above 42 degrees Fahrenheit and below 86 degrees Fahrenheit. Do not apply in direct sunlight or onto sun-heated surfaces, nor if it is raining or there is an immediate likelihood of rain.

G. Install per manufacturers written instructions.

3.6 MASONRY CRACK INJECTION

A. Mix per manufacturers written instructions.

B. Pre-wet masonry with distilled water.

C. Place material by means of a packer or injection tool, dilute material with water up to 5% by weight in order to penetrate smaller cracks and voids, or per manufacturers written instructions.

D. Install material only when ambient and substrate temperatures are above 42 degrees Fahrenheit and exceed 86 degrees Fahrenheit.

E. Finish repair with the use of spatchel. Use on the surface of the crack and install by means of spatula or finger. Install material only when ambient and substrate temperatures are above 42 degrees Fahrenheit and exceed 86 degrees Fahrenheit.

F. Spatchel texture shall match that of the approved mock-up.

G. Install materials per manufacturers written instructions.

3.7 MASONRY COATING

A. Provide required mock-ups for review and approval.

B. Install per manufacturers written instructions.

C. Protect all adjacent materials and landscaping.
3.8 LEAD T STONE JOINT CAPS

A. Install Type A caps in top, side, and cross joints of copings and balustrades. Extend from outer face, across top coping and down parapet side.

B. Install Type B caps in the joints of coping and balustrades where such stones units join walls, coping stone steps at approximately right angles.

C. Rake and clean joints to a depth to accommodate anchor shaft length plus 1/4”. The raked joint and adjacent stone work shall be clean, dry and free of all mortar, dust and old sealant.

D. Mark off width of cap on stone with 1” masking tape.

E. Cut and miter sections of the cap per manufacturer’s instructions.

F. Seat backer rod to proper compressed depth.

G. Fill joint approximately 1/8” above face of stone with specified sealant.

H. Set cap in place, pressing firmly into the sealant for sealing and shaping. Turn down at all angles and edges.

I. Caps shall be laid in full lengths. At all joining sections of caps, it shall be neatly mitered, coped, or butted to produce a close fitting, weather resisting cap.

J. Remove excess sealant, leaving finished joint neat and clean. Remove masking tape.

3.9 FINAL CLEANING

A. After mortar has fully hardened, thoroughly clean exposed masonry surfaces of excess mortar and foreign matter; use wood scrapers, stiff-nylon or -fiber brushes, and clean water applied by low-pressure spray.

   1. Do not use metal scrapers or brushes.
   2. Do not use acidic or alkaline cleaners.

B. Clean adjacent nonmasonry surfaces. Use detergent and soft brushes or cloths.

C. Clean mortar and debris from roof; remove debris from gutters and downspouts. Rinse off roof and flush gutters and downspouts.

D. Remove masking materials, leaving no residues that could trap dirt.

3.10 FIELD QUALITY CONTROL

A. Testing Agency: Owner reserves the right to engage a qualified testing agency to perform tests and inspections. Allow inspectors use of lift devices and scaffolding, as needed, to perform inspections.
B. Designers Project Representatives: Designer may assign Project representatives to help carry out Designers responsibilities at the site, including observing progress and quality of portion of the Work completed. Allow Designer’s Project representatives use of lift devices and scaffolding, as needed, to observe progress and quality of portion of the Work completed.

C. Notify Designer and Project representatives in advance of times when lift devices and scaffolding will be relocated. Do not relocate lift devices and scaffolding until Designer’s and Owner’s representatives have had reasonable opportunity to make inspections and observations of work areas at lift device or scaffold location.

3.11 MASONRY WASTE DISPOSAL

A. Salvageable Materials: Unless otherwise indicated, excess masonry materials are Contractor's property.

B. Masonry Waste: Remove masonry waste and legally dispose of off Owner's property.

END OF SECTION
PART 1 - GENERAL

1.1 Drawings and general provisions of the contract, including General Conditions of the Contract, Supplementary General Conditions, and other Division 1 specification sections apply to work of this section.

1.2 Work Included – Installation of new rooftop aluminum ladders and stairs.

1.3 References:

1.3.1 AA- Aluminum Association

1.3.2 ASTM B 209 – Standard Specification for Aluminum and Aluminum-Alloy Sheet and Plate

1.3.3 ASTM B 221 – Standard Specification for Aluminum and Aluminum-Alloy Extruded Bars, Rods, Wires, and Tubes

1.3.4 OSHA 1910 Subpart D – Walking-Working Surfaces

1.4 System Description: Provide access to roof areas without damage to the building envelope or roof system to its entirety. The system shall consist of ladders and stairs constructed of aluminum and will permanently be secured to the building structure using appropriate mounting brackets.

1.5 Submittals:

1.5.1 In accordance with Section 01 33 00 of this Specification.

1.5.2 Product Data: Submit for all products proposed for use, describing physical characteristics and method of installation.

1.5.3 Shop Drawings: Show installation layout, sizes, units, and details of installation. Plan and section of ladders and stairs. Shop drawings, including attachments to the roof deck, shall be signed and sealed by an engineer registered in the Commonwealth of Virginia.

1.6 Quality Assurance: Manufacturer Qualifications - Company specializing in manufacturing ships ladders systems, with a minimum of five years of documented experience.

1.7 Delivery, Storage, and Handling

1.7.1 Deliver all materials to project site in manufacturer's original packaging, marked with manufacturer's name, product model names and catalog numbers, identification numbers, and other related information.

1.7.2 Store materials under cover until needed for installation.

1.8 Guarantee: Provide manufacturer’s standard guarantee for installed ships ladder and stairs for a period of not less than 10 years.
PART 2 - PRODUCTS

2.1 Approved Manufacturers:

2.1.1 Okeefe’s, Inc. 325 Newhall Street, San Francisco, CA, (888-653-3333).

2.1.2 Cotterman Co., Croswell, MI, (800-552-3337).

2.1.3 Precision Ladders LLC, Morristown, TN, (423-586-2265).

2.1.4 Requests for substitutions will be considered in accordance with provisions of Section 01 60 00.

2.2 Aluminum Ships Stair and Ladders:

2.2.1 Aluminum Ships Stair

2.2.1.1 Capacity: Unit shall support a 1000 lb total load without failure.

2.2.2 Components:

2.2.2.1 Crossover ships stair, mounting brackets and handrails on both sides.

2.2.2.2 Stringer: 5 inch by 2 inch by 3/16 inch extruded 6005-T5 aluminum channel.

2.2.2.3 Treads: 5-3/16 inch by 1-1/8 inch by 1/8 inch extruded 6005-T5 aluminum with slip resistance surface standard. 1-1/4 inch and bolted to stringer with ¼” stainless steel bolts.

2.2.2.4 Handrails: 1-1/4 inches, Schedule 40, 6005-T5 aluminum pipe provide with internal aluminum fittings.

2.2.2.5 Platform:

(a) Surface: Shall have a bar grating surface.

(b) Toe Boards: 4 inch by ¼” 6005 T-5 aluminum.

(c) Handrails: 1-1/4 inch schedule 40, 6005-T5 aluminum pipe provided with internal aluminum fittings.

2.2.2.6 Finishes: Powder Coated – Color as Selected by Owner.

2.3 Fabrication:

2.3.1 Completely fabricate crossover stair and platform ready for installation before shipment to the site.

2.3.2 Completely fabricate handrail components ready for field assembly to crossover ladder and platform before shipment to site.

2.4 Welding process shall be quality controlled, and all welds shall be capable of withstanding a minimum of 2800 pounds in shear.

PART 3 -- EXECUTION

3.1 Examination:
3.1.1 Do not begin installation until supporting structure and inserts have been properly prepared.

3.1.2 Coordinate anchorages. Furnish setting drawings, templates, and anchorage structural loads for fastener resistance.

3.2 Preparation: Clean surfaces of concrete and metal decking where mounting brackets are to be installed.

3.3 Installation:

3.3.1 Install in accordance with manufacturer’s instructions and in proper relationship with adjacent construction.

3.3.2 Install fasteners in accordance with manufacturer’s printed instructions.

3.3.3 Inspect ladder to verify proper and secure installation.

3.4 Protections:

3.4.1 Protect installed products until completion of project.

3.4.2 Touch-up, repair, or replace damaged products as instructed by the Designer before Final Acceptance.

END OF SECTION
SECTION 06 10 53
MISCELLANEOUS ROUGH CARPENTRY

PART 1 - GENERAL

1.1 Drawings and general provisions of the contract, including General and Supplementary Conditions and other Division 1 specification sections apply to work of this section.

1.2 Work Included - Installation of replacement wood deck, ridge boards and hip boards as specified herein.

1.3 Submittals - In accordance with Section 01 33 00 of this Specification.

1.4 Environmental Conditions - Material installation shall proceed only when weather conditions are in compliance with the applicable manufacturer's recommendations for installation and no precipitation is imminent. Materials installed during adverse weather conditions shall be subject to removal and replacement with new materials at no additional cost to Owner.

1.5 Guarantee - In accordance with Section 01 78 36 of this Specification.

PART 2 - PRODUCTS

2.1 Non-structural wood blocking: Nominal 1" x 6" and 2" x 6", unless otherwise noted, pine, shop pressure-treated for above ground contact. Do not use oil-based preservatives.

2.2 Plywood: APA Rated Sheathing (CDX) with waterproof glue for exterior applications, 1” thick. Shall comply with the requirements of U. S. Product Standard PS1-83 and each sheet shall clearly bear the APA trademark of the American Plywood Association.

2.3 Screws: #12 stainless steel self-tapping wood screws that shall be able to resist any galvanic action that may be able to develop between the nail and the pressure treatment. The use of a lesser quality screw will not be approved. Screws shall be of sufficient length to penetrate a minimum of 1-1/2 inches into the substrate.

2.4 Nails: For securing new lumber to new lumber or new plywood/OSB to new lumber, stainless steel ring shank nails to penetrate a minimum of 1-1/2 inches into the substrate but not smaller than 8d nails. Use 16d nails where material being secured is 1½ to 2 inches thick.

2.5 Masonry Fastener (stainless steel):

- 2.5.1 Tapcon ¼” x minimum 1-1/4” in the substrate, as manufactured by Buildex.
- 2.5.2 Tapper ¼” x minimum 1-1/4” in the substrate, as manufactured by Powers Fasteners.
- 2.5.3 Zamac Hammer-Screw, minimum 1-1/4 inch into substrate, as manufactured by Powers Fasteners.
- 2.5.4 Approved equal prior to bid.
PART 3 - EXECUTION

3.1 Wood Blocking Installation

3.1.1 Furnish and install hip and ridge boards to replace any deteriorated or missing hip or ridge boards. Secure to substrate with appropriate fasteners at spacings not to exceed 12 inches on center.

3.1.2 Furnish and install plywood to replace any deteriorated wood deck. Secure wood to the existing with appropriate nails at spacings not to exceed 12 inches.

3.1.3 Furnish and install blocking as indicated on the drawings. Install blocking to replace any deteriorated wood blocking.

END OF SECTION
SECTION 07 14 14
LIQUID APPLIED WATERPROOFING

PART 1 - GENERAL

1.1 Work Included – Work to be performed under this specification shall include but is not limited to the provisions of all labor, materials, tools and equipment necessary to install the following in accordance with this specification:

1.1.1 Fluid applied membrane and flashings at gutters.

1.2 Submittals

1.2.1 Submittals shall be in accordance with Section 01 33 00 of this Specifications.

1.2.2 Provide a roof plan showing progression of the reroofing and the locations for discharge of tear off materials to show that all new membranes will not be subjected to construction traffic.

1.2.3 Letter from the proposed primary roofing manufacturer(s) confirming that the bidder is an acceptable Contractor authorized to install the proposed system.

1.3 Quality Assurance:

1.3.1 Standards – comply with standards specified in this section and as listed in the General and Supplementary General Conditions.

1.3.2 Qualifications of Manufacturer – Products used in the work included in this section shall be produced by manufacturers regularly engaged in the manufacturing of similar items and with a history of successful production acceptable to the Owner.

1.3.3 Qualifications of Installers – Use adequate numbers of skilled workmen who are thoroughly trained and experienced in the necessary crafts and who are completely familiar with the specified requirements and the methods needed for proper performance of the work in this section. As a minimum, the roofing foreman and the membrane applicator shall be certified and trained by the membrane manufacturer and shall be experienced in the application of the specified membrane system and shall be on site at all times. Written certifications must be provided.

1.3.4 Manufacturer Requirements: The membrane/flashing system manufacture or shall provide trained company personnel to attend the necessary job meetings, perform periodic inspections as necessary, and conduct a final inspection upon successful completion of the project.

1.4 Environmental Conditions - Material installation shall proceed only when weather conditions are in compliance with the applicable manufacturer’s recommendations for installation and no precipitation is imminent. Materials installed during adverse weather conditions shall be subject to removal and replacement with new materials at no additional cost to Owner.

1.5 Warranty - In accordance with Section 01 78 36 of this Specification.
PART 2 – PRODUCTS

2.1 Waterproofing: Fluid applied membrane system shall be one of the membrane systems as listed below.

2.1.1 Kemperol 2K-PUR as manufactured by Kemper Systems, Inc., 1182 Teaneck Road, Teaneck, NJ, 07666, (800) 541-5455.

2.1.2 Sikalastic RoofPro 20 as manufactured by Sika Corporation, 201 Polito Avenue, Lyndhurst, NJ 07071, (800) 933-7452.

2.1.3 ALSAN as manufactured by Soprema, 310 Quadral Drive, Wadsworth, Ohio, 44281.

2.2 Accessory Materials

2.2.1 Primer – as required by the manufacturer.

2.2.2 Fleece – as required by the manufacturer.

2.2.3 Fluid Applied Flashings: Same components as manufacturer’s base coat, fleece, and surface coat unless directed otherwise by the manufacturer.

PART 3 – EXECUTION

3.1 Odor Control: Prior to the application of any products, measures must be taken to ensure air quality for the building and its occupants. Any products that are not low-VOC or low odor will require additional measures to ensure that fumes or odors do not become an air quality issue for the building occupants.

3.1.1 A charcoal filter system is required at all air intakes, louvers and vents for all liquid-applied systems that are not low-VOC/odor. Sealing of air intakes shall be with activated carbon filters. Install filters in accordance with requirements and recommendations of the filter manufacturer. Seal filters at joints and against building exterior walls to prevent leakage of unfiltered air where required due to size of intake opening. Provide track system to secure filters.

3.1.2 Thickness/density of the filters shall be determined by the filter manufacturer in accordance with the solvents/fumes and properties of the liquid-applied membrane.

3.2 Waterproofing:

3.2.1 Preparation of the Substrate:

3.2.1.1 Ensure that substrates are free from gross irregularities, loose, unsound or foreign material such as dirt, ice, snow, water, grease, oil, release agents, latent products, paint, loose particles/friable matter, rust or any other material that would be detrimental to adhesion of the rubberized asphalt or SBS modified cap sheet to the substrate.
3.2.1.2 Remove and reserve cameras, conduits, electrical, lighting, tel/data, as required to fully install new waterproofing. Only one security camera shall be off-line at a time.

3.2.1.3 Moisture Evaluation: Evaluate the level of moisture in the substrate to determine that moisture levels are acceptable for application of specified roofing system. Concrete substrates to receive an application of the specified roofing system shall have a maximum moisture content of 6% and be prepared as required to provide acceptable adhesion of the base ply sheet.

3.2.1.4 Preparation of Existing Concrete Substrate at Plaza Deck and Perimeter Planter: Scrape the surface of the concrete deck to remove loose portions of the asphalt vapor retarder.

3.2.1.5 Inspect the deck for height and drainage problems and notify Designer if found. All height problems that could affect drainage paver installation and to be corrected before installation of the waterproofing system.

3.2.1.6 Apply primer as recommended by the fluid applied membrane manufacturer.

3.2.2 Fluid Applied Membrane Application:

3.2.2.1 Cold Applied Systems: Comply with manufacturer’s written instructions.

i Apply primer in strict accordance with written instructions of the Fluid applied Membrane Manufacturer. Ensure that the primer has fully cured prior to the application of the liquid-applied membrane system.

ii Preparation/Mixing/Catalyzing of Fluid Applied Products: Pour the desired quantity of resin into a clean container and using a spiral mixer or mixing paddle, stir the liquid for the time period specified by the resin manufacturer. Calculate the amount of catalyst powder needed using the manufacturer’s guidelines and add the pre-measured catalyst to the primer. Mix again for the time period specified by the resin manufacturer, ensuring that the product is free from swirls and bubbles. Ensure that air is not entrained into the product during the mixing process. To avoid aeration, do not use a spiral mixer unless the spiral section of the mixer can be fully contained in the liquid during the mixing process. Mix only enough product to ensure that it can be applied before expiration of resin pot life.

iii Base Flashing Application:

a. Using masking tape, mask the perimeter of the area to receive the flashing system. Apply resin primer to substrates requiring additional preparation and allow primer to set.

b. Pre-cut fleece to ensure a proper fit at transitions and corners prior to membrane application.
c. Apply an even, generous base coat of flashing resin using a roller at the rate recommended by the manufacturer. Work the fleece into the wet, catalyzed resin using a brush or roller to fully embed the fleece in the resin and remove trapped air. Lap fleece layers a minimum of 2 inch and apply an additional coat of catalyzed resin between layers of overlapping fleece. Again using a roller, apply an even top coat of catalyzed resin at the rate recommended by the manufacturer immediately following embedment of the fleece, ensuring full saturation of the fleece. Ensure that the flashing resin is applied to extend a 0.25 inch beyond the fleece. Remove the tape before the catalyzed resin sets. Make allowances for saturation of roller covers and application equipment.

d. Should work be interrupted for more than 12 hours or the surface of the catalyzed resin becomes dirty or contaminated by the elements, wipe the surface to be lapped with new flashing resin using the specified cleaner/solvent. Allow the surface to dry for a minimum 20 minutes and a maximum 60 minutes before continuing work.

iv Field Membrane Application: Apply an even, generous base coat of field membrane resin using a roller at the rate recommended by the manufacturer. Work the fleece into the wet, catalyzed resin using a roller to fully embed the fleece in the resin and remove trapped air. Lap fleece layers a minimum of 2 inches and apply an additional coat of catalyzed resin between layers of overlapping fleece. Again using a roller, apply an even top coat of catalyzed resin at the rate recommended by the manufacturer immediately following embedment of the fleece, ensuring full saturation of the fleece. Make allowances for saturation of roller covers and application equipment. Allow 2 hours cure time prior to exposing the membrane to foot traffic.

v Apply traffic bearing aggregate surfacing and color coatings to all exposed membranes.

3.2.3 Field Quality Control and Inspections:

3.2.3.1 Electronic Field Vector Mapping (EFVM) will be completed by the Designer after the membrane receives a final inspection. All located deficiencies are to be repaired by the contractor at no expense to the Owner. The Designer will perform additional testing at their discretion, based on the amount of deficiencies found during the initial testing and subsequent activity on the roof that could lead to deficiencies. Schedule any tests with the Designer a minimum of 7 days in advance.
3.2.3.2 Site Condition: Leave all areas around the job site free of debris, roofing materials, equipment and related items after job completions.

3.2.3.3 Final Inspections: Punch lists of items compiled by the Owner and the Manufacturer’s Representative shall be completed prior to acceptance of the roof system by the Owner.

3.2.3.4 Cleaning and Protection:

   i  Provide final protection and maintain conditions in a manner acceptable to installer, which ensures paver work being without damage or deterioration at time of Final Completion.

   ii Joints and drains should be kept clean to prevent water back up.

   iii Contractor is responsible for any damages to pavers due to work related to this contract.

END OF SECTION
SECTION 07 14 15
FLUID APPLIED WATERPROOFING

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. Below grade waterproofing.

1.3 ACTION SUBMITTALS
A. Product Data: For each type of product.

1.4 FIELD CONDITIONS
A. Weather Limitations: Proceed with application only when existing and forecasted weather conditions permit dampproofing to be performed according to manufacturers' written instructions.
B. Ventilation: Provide adequate ventilation during application of dampproofing in enclosed spaces. Maintain ventilation until dampproofing has cured.

PART 2 - PRODUCTS

2.1 MANUFACTURERS
A. Source Limitations: Obtain primary dampproofing materials and primers from single source from single manufacturer. Provide drainage panels and auxiliary materials recommended in writing by manufacturer of primary materials.

2.2 PERFORMANCE REQUIREMENTS
A. VOC Content: Products shall comply with VOC content limits of authorities having jurisdiction unless otherwise indicated.
2.3 COLD-APPLIED, EMULSIFIED-ASPHALT DAMPPROOFING

A. Manufacturers: Subject to compliance with requirements, provide products by one of the following, or approved equal:

1. Euclid Chemical Company; an RPM Company
3. Henry Company

B. Trowel Coats: ASTM D 1227, Type II, Class 1.

C. Fibered Brush and Spray Coats: ASTM D 1227, Type II, Class 1.

D. Brush and Spray Coats: ASTM D 1227, Type III, Class 1.

2.4 AUXILIARY MATERIALS

A. Furnish auxiliary materials recommended in writing by dampproofing manufacturer for intended use and compatible with bituminous dampproofing.

B. Emulsified-Asphalt Primer: ASTM D 1227, Type III, Class 1, except diluted with water as recommended in writing by manufacturer.

C. Asphalt-Coated Glass Fabric: ASTM D 1668/D 1668M, Type I.

D. Patching Compound: Asbestos-free fibered mastic of type recommended in writing by dampproofing manufacturer.

E. Protection Course: As required by manufacturer. ASTM D 6506, semirigid sheets of fiberglass or mineral-reinforced-asphaltic core, pressure laminated between two asphalt-saturated fibrous liners.

1. Thickness: Nominal 1/8 inch (3 mm).
2. Adhesive: Rubber-based solvent type recommended in writing by waterproofing manufacturer for protection course type.

2.5 MOLDED-SHEET DRAINAGE PANELS

A. Nonwoven-Geotextile-Faced, Molded-Sheet Drainage Panel: Composite subsurface drainage panel acceptable to dampproofing manufacturer and consisting of a studded, nonbiodegradable, molded-plastic-sheet drainage core; with a nonwoven, needle-punched geotextile facing with an apparent opening size not exceeding No. 70 (0.21-mm) sieve laminated to one side of the core, with or without a polymeric film bonded to the other side; and with a vertical flow rate through the core of 9 to 21 gpm per ft. (112 to 261 L/min. per m).

1. As approved by dampproofing manufacturer.
PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine substrates, areas, and conditions, with Applicator present, for compliance with requirements for surface smoothness, maximum surface moisture content, and other conditions affecting performance of the Work. Test for surface moisture per ASTM D 4263.

B. Proceed with application only after substrate construction and penetrating work have been completed and unsatisfactory conditions have been corrected.

3.2 PREPARATION

A. Clean, prepare, and treat substrates according to manufacturer's written instructions. Provide clean, dust-free, and dry substrates for dampproofing application.

B. Mask or otherwise protect adjoining exposed surfaces from being stained, spotted, or coated with dampproofing. Prevent dampproofing materials from entering and clogging weep holes and drains.

C. Clean substrates of projections and substances detrimental to dampproofing work; fill voids, seal joints, and remove bond breakers if any.

D. Apply patching compound to patch and fill tie holes, honeycombs, reveals, and other imperfections.

3.3 APPLICATION, GENERAL

A. Comply with manufacturer's written instructions for dampproofing application, cure time between coats, and drying time before backfilling unless otherwise indicated.

1. Apply dampproofing to provide continuous plane of protection.

2. Apply additional coats if recommended in writing by manufacturer or to achieve a smooth surface and uninterrupted coverage.

B. Where dampproofing footings and foundation walls, apply from finished-grade line to top of footing; extend over top of footing and down a minimum of 6 inches (150 mm) over outside face of footing.

1. Extend dampproofing 12 inches (300 mm) onto intersecting walls and footings, but do not extend onto surfaces exposed to view when Project is completed.

2. Install flashings and corner protection stripping at internal and external corners, changes in plane, construction joints, cracks, and where indicated as "reinforced," by embedding an 8-inch- (200-mm-) wide strip of asphalt-coated glass fabric in a heavy coat of dampproofing. Dampproofing coat for embedding fabric is in addition to other coats required.
3.4 COLD-APPLIED, EMULSIFIED-ASPHALT DAMPPROOFING

A. Unparged Masonry Foundation Walls: Apply primer and one fibered brush or spray coat at not less than 3 gal./100 sq. ft. (1.2 L/sq. m).

B. Concrete Foundations: Apply one trowel coat at not less than 4 gal/100 sq. ft.

3.5 DRAINAGE PANEL INSTALLATION

A. Molded-Sheet Drainage Panels: Install panels, with geotextile facing away from wall substrate, according to manufacturer's written instructions. Use adhesive or another method that does not penetrate dampproofing. Lap edges and ends of geotextile to maintain continuity. Protect installed molded-sheet drainage panels during subsequent construction.

3.6 PROTECTION

A. Correct dampproofing that does not comply with requirements; repair substrates, and reapply dampproofing.

END OF SECTION
SECTION 07 21 00
THERMAL INSULATION

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:

1.3 ACTION SUBMITTALS

A. Product Data: For each type of product.

1.4 INFORMATIONAL SUBMITTALS

A. Product Test Reports: For each product, for tests performed by a qualified testing agency.

B. Evaluation Reports: For foam-plastic insulation, from ICC-ES.

1.5 DELIVERY, STORAGE, AND HANDLING

A. Protect insulation materials from physical damage and from deterioration due to moisture,
   soiling, and other sources. Store inside and in a dry location. Comply with manufacturer's
   written instructions for handling, storing, and protecting during installation.

B. Protect foam-plastic board insulation as follows:
   1. Do not expose to sunlight except to necessary extent for period of installation and
      concealment.
   2. Protect against ignition at all times. Do not deliver foam-plastic board materials to Project
      site until just before installation time.
   3. Quickly complete installation and concealment of foam-plastic board insulation in each
      area of construction.
PART 2 - PRODUCTS

2.1 MINERAL-WOOL BLANKETS

A. Mineral-Wool Blanket, Unfaced: ASTM C 665, Type I (blankets without membrane facing); consisting of fibers; with maximum flame-spread and smoke-developed indexes of 25 and 50, respectively, per ASTM E 84; passing ASTM E 136 for combustion characteristics.

   1. Fasteners: as recommended by manufacturer for attic ceilings and walls.

2.2 ACCESSORIES

A. Insulation for Miscellaneous Voids:

   1. Glass-Fiber Insulation: ASTM C 764, Type II, loose fill; with maximum flame-spread and smoke-developed indexes of 5, per ASTM E 84.
   2. Spray Polyurethane Foam Insulation: ASTM C 1029, Type II, closed cell, with maximum flame-spread and smoke-developed indexes of 75 and 450, respectively, per ASTM E 84.

B. Asphalt Coating for Cellular-Glass Block Insulation: Cutback asphalt or asphalt emulsion of type recommended by manufacturer of cellular-glass block insulation.

C. Eave Ventilation Troughs: Preformed, rigid fiberboard or plastic sheets designed and sized to fit between roof framing members and to provide ventilation between insulated attic spaces and vented eaves.

PART 3 - EXECUTION

3.1 PREPARATION

A. Clean substrates of substances that are harmful to insulation, including removing projections capable of puncturing insulation or vapor retarders, or that interfere with insulation attachment.

3.2 INSTALLATION, GENERAL

A. Comply with insulation manufacturer's written instructions applicable to products and applications.

B. Install insulation that is undamaged, dry, and unsoiled and that has not been left exposed to ice, rain, or snow at any time.

C. Extend insulation to envelop entire area to be insulated. Fit tightly around obstructions and fill voids with insulation. Remove projections that interfere with placement.
D. Provide sizes to fit applications and selected from manufacturer's standard thicknesses, widths, and lengths. Apply single layer of insulation units unless multiple layers are otherwise shown or required to make up total thickness or to achieve R-value.

3.3 INSTALLATION OF INSULATION IN FRAMED CONSTRUCTION

A. Blanket Insulation: Install in cavities formed by framing members according to the following requirements:

1. Use insulation widths and lengths that fill the cavities formed by framing members. If more than one length is required to fill the cavities, provide lengths that will produce a snug fit between ends.
2. Place insulation in cavities formed by framing members to produce a friction fit between edges of insulation and adjoining framing members.
3. Maintain 3-inch (76-mm) clearance of insulation around recessed lighting fixtures not rated for or protected from contact with insulation.
5. For metal-framed wall cavities where cavity heights exceed 96 inches (2438 mm), support unfaced blankets mechanically and support faced blankets by taping flanges of insulation to flanges of metal studs.
6. For wood-framed construction, install blankets according to ASTM C 1320 and as follows:
   a. With faced blankets having stapling flanges, lap blanket flange over flange of adjacent blanket to maintain continuity of vapor retarder once finish material is installed over it.

B. Miscellaneous Voids: Install insulation in miscellaneous voids and cavity spaces where required to prevent gaps in insulation using the following materials:

1. Glass-Fiber Insulation: Compact to approximately 40 percent of normal maximum volume equaling a density of approximately 2.5 lb/cu. ft. (40 kg/cu. m).
2. Spray Polyurethane Insulation: Apply according to manufacturer's written instructions.

3.4 PROTECTION

A. Protect installed insulation from damage due to harmful weather exposures, physical abuse, and other causes. Provide temporary coverings or enclosures where insulation is subject to abuse and cannot be concealed and protected by permanent construction immediately after installation.

END OF SECTION
SECTION 07 22 16
ROOF BOARD INSULATION

PART 1 - GENERAL

1.1 Drawings and general provisions of the contract, including General and Supplementary Conditions, and other Division 1 specification sections apply to work of this section.

1.2 Work Included: Installation of new low slope roof thermal barrier, vapor barrier, roof insulation, as specified herein.

1.3 Related Work

1.3.1 Rough Carpentry - Section 06 10 53.

1.3.2 Polyvinyl Chloride Roofing – Section 07 54 23.

1.4 Submittals

1.4.1 Refer to Section 01 33 00 of this Specification.

1.4.2 Provide a roof plan showing the insulation layout and fastener spacing for each roof. Also, note the progression of the reroofing and the locations for discharge of tear off materials to show that the new membrane and adjacent existing roofs will not be subjected to construction traffic.

1.4.3 Provide shop drawings showing the method of securement.

a. Provide a copy of the membrane manufacturer’s FM Global testing showing compliance with the specified uplift requirements and a minimum of FM I-90 requirements. Test data shall show fastener type and spacing for the membrane and insulation. Test data shall show minimum fastener pull out load requirements for the specified uplift requirements.

1.5 Environmental Conditions: Materials installation shall proceed only when weather conditions are in compliance with the applicable manufacturer's recommendations for installation and no precipitation is imminent. Materials installed during adverse weather conditions shall be subject to removal and replacement with new materials at no additional cost to Owner.

1.6 Warranty: Refer to Section 01 78 36 of this Specification.

PART 2 - PRODUCTS

2.1 Polyisocyanurate Roof Insulation: Flat and tapered, as specified, ASTM C1289, Type II, Class I. Board size shall not exceed 4’ x 8’ for mechanically attached insulation. Board size of tapered insulation shall not exceed 4’ x 4’. The Long-Term Thermal Resistance shall be a minimum of 5.7 per inch. Insulation compressive strength shall be minimum 20 psi. Insulation density shall be 2 pcf minimum.

2.2 Thermal Barrier: Type X gypsum board or a gypsum core roof panel with additives to enhance fire resistance of the core (to a 1-hour rating minimum) and surfaced with fiberglass mat facers. Minimum thickness of 5/8”.

2.3 Vapor Barrier: 106 mil (2.7mm) thick self-adhesive SBS polymer modified bitumen with a non-woven polyester mat reinforcement and fine mineral backside, vapor barrier that is also approved by manufacturer as a temporary roof protection and can be exposed for a minimum of 7 months. ASTM D6164, Type I, Grade S.
2.4  Wood Fiber Tapered Edge Strips: ASTM C208, Type II, Grade 1 (Built-Up Roofs), C209. Approved for use by approved roofing system manufacturer.

2.5  Cover Board: Gypsum Fiber Board, Nominal 1/2” thick, ASTM C 1177, 0 Flame Spread and 0 Smoke Developed when tested in accordance with ASTM E 84, nominal 900 psi minimum compressive strength, Class A, non-combustible, 4’ x 8’ board size.

2.6  Insulation Fastening

2.6.1  #12 Insulation Fastener: Minimum 0.235” thread diameter. Steel screw roof insulation fastener for steel decking: As approved by the roofing materials manufacturer and FM I-90 requirements. Fasteners must pass a minimum of 15 cycles in the Kesternich SFW 2.0s DIN 50018 test with less than 15% red rust.

2.6.2  Insulation Fastener Plate: 3” ribbed, Galvalume coated steel plate. As approved by the roofing materials manufacturer and FM I-90 requirements.

2.7  Insulation Fastening - Low-Rise Adhesive: double or single-component low-rise polyurethane adhesive as approved by the roofing system manufacturer and meeting the requirements of FM I-90 or Florida Building Code approval R-53. Contractor shall verify through pull tests that the selected adhesive and bead spacing meet the membrane manufacturer’s requirements.

PART 3 - EXECUTION

3.1  Coordination and Inspection

3.1.1  The substrate shall be clean, smooth, dry, and free of debris and all foreign matter prior to receiving insulation and cover board. Application of new materials shall constitute approval of the substrate by the Contractor.

3.1.2  The contractor bears the responsibility to locate any conduits that are in the decking flutes prior to the start of the work. The contractor shall to be full extent possible, not engage these conduits with screws, fasteners, etc. Should power be loss due to penetrate a conduit, the Contractor bears the responsibility to locate and repair the conduit and/or enclosed wiring to the original condition so as to restore power to the Owner. Cost associated with these repairs shall be borne by the Contractor at no additional cost to the Owner.

a. Repairs to conduit, writing, electrical equipment, and accessories under this paragraph shall be performed by an electrical contractor licensed to perform such work in the state of North Carolina with a minimum of 5 years experience in this type of work.

3.1.3  Verify existing structure is in place and sloped toward scupper at ¼”/ft.

3.2  Thermal Barrier and Polyisocyanurate Installation – Wood Deck:

3.2.1  Thermal Barrier – Mechanically attach one layer of 5/8” thick thermal barrier board over the existing metal deck.

a. Install no more boards than can be completely dried-in with membrane in the same day.

b. Apply boards with end joints staggered approximately one-half the length of the units.

c. Offset board joints from the preceding layer a minimum of six (6) inches.
d. Fit units snugly to each other and to all vertical surfaces.

e. Board-to-board height variations greater than 1/16 inch at top surface shall be shaved to provide a smooth transition between board surfaces.

3.2.2 Install temporary roof / vapor barrier:

a. Install continuously per manufacturer’s written instructions.

b. Provide sump pumps as needed to remove temporary ponding water until crickets, insulation, and membrane assembly is fully installed. Monitor sump pumps at a minimum daily to ensure that they are properly working.

3.2.3 Flat Polyisocyanurate – Apply one layer of polyisocyanurate roof insulation to the new thermal barrier and vapor barrier using low-rise foam adhesive.

3.2.4 Flat Polyisocyanurate – Apply one additional layer of polyisocyanurate insulation over the insulation described in the preceding paragraph 3.2.3 using low-rise foam adhesive.

3.2.5 Tapered Polyisocyanurate – Apply layers as required to achieve slope. Secure to the flat insulation using low-rise foam adhesive.

3.3 Polyisocyanurate Installation – Concrete Deck:

3.3.1 Install temporary roof / vapor barrier:

a. Install continuously per manufacturer’s written instructions.

b. Provide sump pumps as needed to remove temporary ponding water until crickets, insulation, and membrane assembly is fully installed. Monitor sump pumps at a minimum daily to ensure that they are properly working.

3.3.2 Make vapor barrier dry and clean and prepared per adhesive manufacturer.

3.3.3 Polyisocyanurate - Apply one layer of polyisocyanurate roof insulation to the existing concrete deck using low-rise foam adhesive.

a. Apply insulation with end joints staggered approximately one-half the length of the units.

b. Fit insulation units snugly to each other and to all vertical surfaces.

c. Secure each board to the substrate:

i. Using low-rise adhesive beads as required by the Membrane Manufacturer to meet the requirements of Factory Mutual 1-90 or Florida Building Code approval R-53 (105mdp) or as detailed on the drawings whichever is more stringent. At the perimeters and corners, decrease bead spacings as required. In no case shall bead spacings be in excess of 12”. Ensure insulation contact with adhesive by weighting units. Prior to applying adhesive bead, apply one continuous bead of adhesive around the perimeter of the insulation board not further that 4 inches from the edge. Contractor shall submit insulation attachment patterns to the Designer for approval prior to the start of insulation installation activities.

3.3.4 Polyisocyanurate - Apply one additional layer of polyisocyanurate insulation over the insulation described in the preceding paragraph.
3.4 Sumps – At drains, apply ½” per foot tapered polyisocyanurate insulation and polyisocyanurate fill units that extend 2 feet from the center of the drain bowl. Fill units shall not exceed 1 inch in thickness. The thin edge of the tapered insulation shall be located adjacent to the drain bowl. Secure each board to the substrate using low-rise adhesive beads at spacings not to exceed 4 inches on center in accordance with manufacturer’s written instructions. The insulation thickness adjacent to the drain shall be nominal 1/2 inch. Increase the thickness of the tapered insulation until it matches the thickness of the base layer of polyisocyanurate insulation. Ensure insulation contact with adhesive by weighting units. Remove and replace damaged units with new insulation or repair to provide a smooth surface and uniform insulation thickness. Remove any foam at joints prior to installing cover board. Utilize tapered wood fiber edge strips that transition from 0” to 1/2” as the first layer of tapered insulation to provide a smooth transition. Set wood fiber in two continuous bands of low-rise foam adhesive. Refer to the Drawings.

3.5 Cricket/Valley Polyisocyanurate – Install tapered insulation to move water from walls, form valleys/crickets, as shown on roof plans, and upslope from any roof mounted unit larger than 24 inches on the upslope side, on top of the flat insulation using factory-tapered polyisocyanurate insulation units and polyisocyanurate insulation fill units. Refer to the Drawings.

3.5.1 Start cricket construction by striking chalk lines for outer edges of tapered units. Install the first row along the chalk lines, mitering and fitting at the points where lines break.

3.5.2 Complete the cricket assembly using tapered polyisocyanurate and polyisocyanurate fill units. Secure the tapered insulation in accordance with paragraph 3.3.4.6.

3.5.3 Crickets shall provide a minimum finished slope of 1/4 inch per foot, unless otherwise noted.

3.5.4 Remove and replace damaged units with new insulation or repair to provide a smooth surface and uniform insulation thickness.

3.5.5 Utilize tapered wood fiber edge strips that transition from 0” to 1/2” as the first layer of tapered insulation to provide a smooth transition. Set wood fiber on top of the polyisocyanurate insulation in one continuous band of low-rise foam adhesive.

3.6 Cover Board – Furnish and install one layer of nominal 1/2 inch thick cover board over all polyisocyanurate insulation and secure to the polyisocyanurate insulation using low-rise foam adhesive.

3.6.1 Install no more coverboard than can be completely dried-in with membrane in the same day.

3.6.2 Remove any foam at joints prior to installing cover board. Apply coverboard with end joints staggered approximately one-half the length of the units.

3.6.3 Stagger coverboard joints from the preceding layer a minimum of six (6) inches.

3.6.4 Fit coverboard units snugly to each other and to all vertical surfaces.

3.6.5 Secure each board in accordance with paragraph 3.3.4.6.

3.7 Curbs and Parapets – Secure parapet (where required by membrane manufacturer) and curb Barrier Board with fasteners appropriate for the substrate (do not use nails) at a rate of 1 fastener per 1 sq.ft. or 4 rows 11” apart with fasteners in each row spaced at 12” o.c.

END OF SECTION
SECTION 07 22 20
VENTILATED NAILBASE INSULATION PANELS
(BID ADDITIVE 3)

PART 1 - GENERAL

1.1 Drawings and general provisions of the contract, including General and Supplementary Conditions, and other Division 1 specification sections apply to work of this section.

1.2 Work Included - Installation of new ventilated nailbase insulation panel system at copper pyramids.

1.3 Related Work

1.3.1 Miscellaneous Rough Carpentry - Section 06 10 53.

1.3.2 Copper Roofing – Section 07 61 00

1.4 Submittals - Refer to Section 01 33 00 of this Specification.

1.5 Environmental Conditions - Materials installation shall proceed only when weather conditions are in compliance with the applicable manufacturer’s recommendations for installation and no precipitation is imminent. Materials installed during adverse weather conditions shall be subject to removal and replacement with new materials at no additional cost to Owner.

1.6 Warranty - Refer to Section 01 78 36 of this Specification.

PART 2 - PRODUCTS

2.1 Ventilated nailbase insulation panels shall be 4’x8’ and consist of a top layer of Plywood, a middle layer of vented air space consisting of 2-inch-thick wood spacers, and a bottom layer of black fiber reinforced faced polyisocyanurate foam insulation.

2.1.1 Polyisocyanurate foam insulation shall conform to ASTM C 1269, Type II.

2.1.1.1 Thickness: 3-1/2”

2.1.1.2 Compressive Strength: 25 pounds per square inch Grade 3.

2.1.2 Multiple top layer substrate shall conform to PS2 and shall be CDX Plywood as follows:

2.1.2.1 Type:

i Standard sheathing grade.

ii Fire-treated.

iii Thickness of 5/8”. Five Plies.

2.1.3 Wood spacers shall be solid wood. Spacers shall not be more than 12 inches apart in both the horizontal and vertical direction.

2.2 Vented airspace shall be 2 inches in depth and provide not less than 92 percent overall free air movement through the panel. It shall have a 55 percent or greater lateral free air movement. Panels shall be manufactured to provide cross directional ventilation without material being incorporating into the construction.
2.3 Nailable surface as specified shall be factory rabbeted 1/8 inch on all sides to provide for expansion of substrate.

2.4 Fasteners shall be FM Approved panel fasteners for plywood deck applications. Fasteners have a 3/16 inch shank, and are corrosion resistant with oversized heads. Length of fasteners shall be as recommended by the panel manufacturer. Fasteners shall penetrate existing plywood substrate.

2.1 Vapor Barrier / Temporary Roof: Cold applied, self-adhering membrane composed of a high density, cross laminated polyethylene film coated on one side with a layer of butyl rubber or high temperature asphalt adhesive. Provide primer when recommended by water barrier manufacturer.

2.1.1 Minimum thickness: 30 mil.
2.1.2 Tensile Strength: ASTM D 412; 250 psi.
2.1.3 Membrane Elongation: ASTM D412; 250%
2.1.4 Permeance: ASTM E96; 0.05 Perms.
2.1.5 Acceptable Products:
   2.1.5.1 Blueskin PE 200 HT, Henry.
   2.1.5.2 Ultra, W.R. Grace Company.
   2.1.5.3 CCW MiraDRI WIP 300 High Temperature, Carlisle Coatings and Waterproofing
   2.1.5.4 Or approved equal.

PART 3 - EXECUTION

3.1 Examination

3.1.1 Do not begin installation until deck has been properly prepared.

3.1.2 Verify deck, adjacent materials, and backing materials are dry and ready to receive insulation.

3.1.3 Verify deck surface is flat, free of fins or protrusions and irregularities.

3.2 Preparation

3.2.1 Apply vapor barrier / temporary membrane over existing wood deck prior to panel installation. Vapor barrier shall be installed continuously to provide a water and vapor tight assembly.

3.2.2 Apply proper soffit and hip vents to create an effective venting system.

3.3 Installation

3.3.1 Install panels with Plywood side face up. Place panels in the manufacturer’s recommended pattern. Only factory assembled panels will be accepted. Fasten panels through the top nailable surface and also through the wood block panel spacers using the manufacturer’s approved threaded fasteners

3.3.2 The minimum number of fasteners shall be 24 per 4 foot by 8-foot panel. Secure to provide FM 1-90 wind uplift resistance.
3.4 Protection

3.4.1 Protect products until completion of the project.

3.4.2 Cover the top and edges of unfinished roof panel work to protect it from the weather and to prevent entry of water in the cores of the panels.

3.4.3 Do not leave panels exposed to moisture. Wet panels shall be removed or allowed to completely dry prior to application of waterproof membrane and copper panels.

3.4.4 Apply only enough insulation panels per day that can be covered the same day by a completed roof covering material.

END OF SECTION
SECTION 07 31 26
SLATE SHINGLES

PART 1 - GENERAL

1.1 Drawings and general provisions of the contract, including General and Supplementary Conditions, and other Division 1 specification sections apply to work of this section.

1.2 Work Included

1.2.1 Slate application
1.2.2 Incorporation of sheet metal flashing and roofing accessories

1.3 Related Work

1.1.1 Misc. Rough Carpentry – Section 06 10 53
1.1.2 Copper Roofing – Section 07 61 00
1.1.3 Sheet Metal Flashing and Trim – Section 07 62 00
1.1.4 Joint Sealants – Section 07 92 00

1.4 Standards:

1.4.1 American Society for Testing and Materials (ASTM), Philadelphia, PA
1.4.3 Sheet Metal and Air Conditioning Contractors National Association (SMACNA), 5811 Amaya Drive #100, Le Mesa, CA 91942.
1.4.4 “Copper & Common Sense.” Revere Copper Products, Inc., P.O. Box 300, Rome, NY 13440.
1.4.5 “Copper in Architecture”, Copper Development Association, Inc. (CDA), 260 Madison Ave. NY 10016.

1.5 Submittals –

1.5.1 Submittals shall be in accordance with the General Conditions and Section 1300 of the Technical Specifications.
1.5.2 Submit the following items within 10 days after receipt of the notice to proceed:
1.5.2.1 Descriptive list of all materials proposed for use.

1.5.2.2 Manufacturer’s product data sheets for all materials.

1.5.2.3 Submit layout of the graduated slate system.

1.6 Environmental Conditions – Material installation shall proceed only when weather conditions are in compliance with manufacturers recommendations for installation, and no precipitation is eminent. Materials installed during adverse weather conditions shall be subject to rejection including removal and replacement.

1.7 Quality Assurance:

1.7.1 The contractor shall have a minimum of five years’ experience in successfully installing slate roofing.

1.7.2 Contractor shall provide enough qualified workmen and supervisors who shall be present at all times during execution of this portion of the work, and who shall be familiar with the type of construction involved and the materials and techniques specified.

1.7.3 The Owner shall make no allowances for lack of skill of the workmen.

1.8 Guarantee - Refer to Section 01 78 36 of this Specification.

PART 2 - PRODUCTS

2.1 Intact and serviceable existing slate materials shall be salvaged and reused. New slate being incorporated into existing slate roofs shall match existing as closely as possible.

2.2 Slate – Shall be Standard Specification for Roofing Slate and shall be quarried from hard, dense, sound rock conforming to the requirements of ASTM C-406-89 Grade S1. All exposed corners shall be full and unbroken. Slate shall be machine punched for two nails each, except where hand punching of holes in fitting hips, etc. is necessary. Corners shall be square cut. Special shapes shall be manufacturers as required to fit ridge, hip, eave, and other conditions. Sizes and quantities of slate pieces to be incorporated into the roof shall be as follows:

2.2.1 Width and thickness: to match existing, varies.

2.2.2 Shape: to match existing, varies.

2.2.3 Color Blend: to match existing, varies.

2.3 A certificate shall be furnished by the quarrier certifying that the roofing slate furnished is in accordance with these specifications.

2.4 Slate Fasteners – shall be large-head, ring shank, 10-gauge, stainless steel nails. Fastener length will vary depending on the slate thickness and shall be sufficient length to embed into the existing deck a minimum of 1-1/4”.

2.5 Flashing Cement – shall be waterproof elastic slaters cement colored as closely as possible to
match slate color.

2.6 High Temperature Grade Water Barrier Underlayment: Cold applied, self-adhering membrane composed of a high density, cross laminated polyethylene film coated on one side with a layer of butyl rubber or high temperature asphalt adhesive. Provide primer when recommended by water barrier manufacturer.

2.6.1 Minimum thickness: 30 mil.

2.6.2 Tensile Strength: ASTM D 412; 250 psi.

2.6.3 Membrane Elongation: ASTM D412; 250%

2.6.4 Permeance: ASTM E96; 0.05 Perms.

2.6.5 Acceptable Products:

2.6.5.1 Blueskin PE 200 HT, Henry.

2.6.5.2 Ultra, W.R. Grace Company.

2.6.5.3 CCW MiraDRI WIP 300 High Temperature, Carlisle Coatings and Waterproofing.

PART 3 - EXECUTION

3.1 Preparation:

3.1.1 Remove all slate, sheet metal and existing underlayment.

3.1.2 Inspect underlayment to ensure that there are no breaches.

3.1.3 Thoroughly sweep off the deck to remove all loose nails and debris.

3.1.4 Verify that the existing deck is sound, smooth, properly secured, free of depressions and voids, properly sloped and dry.

3.1.5 Verify compliance with minimal traffic or apparatus on the slate surfaces.

3.2 Installation:

3.2.1 General – Slate installation work shall be in accordance with the specification and:

3.2.1.1 The National Roofing Contractors Association (NRCA) Steep Roofing Manual.

3.2.1.2 “The Slate Book, How to Design, Specify Install, and Repair a Slate Roof”.

3.2.1.3 “Slate Roofs” – Vermont Structural Slate Co., Inc.

3.3 High Temperature Grade Water Barrier Underlayment:
3.3.1 Clean substrate to receive copper roofing. Substrate to be smooth and free of defects. Drive all projecting nails or other fasteners flush with substrate.

3.3.2 Water Barrier Underlayment:

3.3.2.1 Install high temperature grade water barrier on clean, dry roof substrate.

3.3.2.2 Remove dust, dirt, and loose fasteners.

3.3.2.3 Remove protrusions from the deck area.

3.3.2.4 Verify substrate has no voids, damaged, or unsupported areas.

3.3.2.5 Repair voids or unacceptable areas before installing membrane.

3.3.2.6 Prime substrates with manufacturer’s approved primer if required for proper installation of membrane over substrate.

3.3.2.7 Install membrane in strict accordance with manufacturer’s printed application procedures, precautions, and limitations.

3.3.2.8 Start application at low points and lap membrane shingle fashion to prevent water penetration.

3.3.2.9 Membrane Underlayment. Apply horizontally, lapping preceding layers not less than 4 inches. End lap membranes not less than 6 inches.

   i Maximize adhesion to substrate by brooming or rolling membrane in place after placement.

   ii Center membrane at hips and ridges.

3.4 Slate:

3.4.1 After installation of new underlayment system install slate. The slate shall project 1 inch at eaves and rakes and be laid in courses with 3-inch headlap for slopes greater than 8 on 12 and with a 4-inch headlap for slopes less than 8 on 12. Vertical joints between adjacent slate shall be offset from the vertical joints in the course below by half the width of the slate.

3.4.2 Slate shall be installed in a random pattern of width and color per approved blend and mockup.

3.4.3 Slate at eaves shall be doubled and canted as detailed to permit slates to lie flat.

3.4.4 Slate shall be secured to the deck with two nails per piece. Nails shall not be driven in so far as to exert strain on the slate nor shall the nail be undriven resulting in bridging of the overlying slate; the nail head shall just touch the slate with sufficient clearance to allow the slate to hang on the nail.
3.4.5 Nails shall not be positioned directly on top of deck joints.

3.4.6 Exposed nail heads are not allowed.

3.4.6.1

3.4.7 Hip shall be constructed using a mitered method as detailed.

3.4.7.1 Install intermediate self-adhering membrane at each course of the mitered slate.

3.4.7.2 Hip slates shall be set over the unexposed surface of underlaying courses of membrane and nailed securely.

3.4.7.3 Install copper hip cap flashing and lap a min of 4 inches.

3.4.8 Slate shall be neatly fit around pipe projections.

3.4.9 Slates which overlap sheet metal work shall have nails positioned so as to avoid puncturing the sheet metal. Use copper wire, as needed, to aid in securement of slate.

3.4.10 Where slate abuts vertical surfaces, separate pieces of copper step flashing shall be woven in each course. Each piece of flashing shall extend out onto the roof a minimum of 4 inches and up on the vertical wall a minimum of 4 inches.

3.4.11 Nail holes that must be field punches shall be punched from the back of the slate so as to provide proper countersinking of the fastener head.

3.4.12 All slate cut on site shall be cut from the back side so as to produce the proper orientation of the beveled edge.

3.4.13 Install sheet metal step flashing and counterflashing in conjunction with slate roofing.

3.4.14 Install wood lath and/or wood nailers at hips and ridges as necessary to properly support slate shingles.

3.4.15 Repair – On completion all slate must be sound, whole, clean, and the roof left in every respect watertight:

3.4.15.1 Slate replacement shall be performed using the “bib” method. The “bib” shall hook over the top of the replaced slate and shall be 6” wide and extend below the nail used to secure the replaced slate by at least 2”.

3.4.15.2 No slate with a broken corner large than 1 inch by 1 inch shall remain in the finished roof.

3.5 Protection – Provide final protection in a manner acceptable to installer that ensures that roofing is without at a time of Final Acceptance.

END OF SECTION
SECTION 07 54 19
POLYVINYL CHLORIDE ROOFING

PART 1 - GENERAL

1.1 Drawings and general provisions of the contract, including General and Supplementary Conditions, and other Division 1 specification sections apply to work of this section.

1.2 Work Included:

1.2.1 Installation of a PVC roof membrane, as specified herein.

1.3 Related Work

1.3.1 Selective Demolitions and Preparations – Section 02 41 13.

1.3.2 Roof Board Insulation - Section 07 22 16.

1.3.3 Flashing and Sheet Metal – Section 07 60 00.

1.4 Submittals

1.4.1 In accordance with Section 01 33 00 of this Specification.

1.4.2 Provide a roof plan showing the membrane sheet layout for each roof. Also, note the progression of the reroofing and the locations for discharge of tear off materials to show that the new membrane and adjacent existing roofs will not be subjected to construction traffic.

1.5 Environmental Conditions

1.5.1 Material installation shall proceed only when weather conditions are in compliance with the applicable manufacturer's recommendations for installation and no precipitation is imminent.

Materials installed during adverse weather conditions shall be subject to removal and replacement with new materials at no additional cost to Owner.

1.6 Warranty

1.6.1 In accordance with Section 01 78 36 of this Specification.

PART 2 - PRODUCTS

2.1 Approved PVC Membrane Manufacturers are manufacturers by which the Contractor may solely furnish materials to perform the work. PVC Membrane Manufacturer must, at a minimum, produce or warrant/guarantee materials as specified in Sections 07 22 16 and 07 26 00 of this specification. Materials furnished by the roofing system manufacturer are subject to the standards listed below. Any deviations from standards listed below shall only be considered if the approved system manufacturer does not produce a material to that stated standard, and must be submitted in writing by the approved roofing system manufacturer. Any substitutions shall not alter the Warranty periods as described in this specification.
2.2 Membrane manufacturer shall be one of the following:

2.2.1 Sika Sarnafil
2.2.2 Carlisle,
2.2.3 Soprema.

2.3 PVC Roofing Materials

2.3.1 Polyvinyl Chloride Roofing Membrane: Polyester reinforced fleece-back membrane meeting ASTM D4434 or ASTM D 6754. Thickness shall be as required for specific no dollar limit warranty but shall not be less than 60 mils.

2.3.2 Membrane shall be membrane manufacturer’s premium grade.

2.3.3 PVC Unsupported Flashing: Minimum 55 mil thickness as provided by the approved roofing system manufacturer.

2.3.4 PVC Universal Pipe Boot Flashings: As manufactured by the approved roofing system manufacturer. Pre-fabricated flashing boot shall include a draw band for securing the top of the flashing boot to the pipe.

2.3.5 PVC Inside and Outside Corners: As manufactured by the approved roofing system manufacturer. For use at inside and outside corners of curbs, parapets, and other similar junctures. The use of field-fabricated corner pieces is not acceptable.

2.3.6 PVC Membrane Cleaner: As manufactured by the approved roofing system manufacturer. For use in removing foreign debris from the membrane prior to welding.

2.3.7 PVC Membrane Adhesive: As manufactured by the approved roofing system manufacturer. For use to adhere PVC membrane to the substrate.

2.3.8 PVC Coated Clad Metal: As manufactured by the approved roofing system manufacturer, minimum 24 ga. galvanized steel.

2.3.9 Termination Bar: As manufactured or approved by the approved roofing system manufacturer.

2.3.10 Polyurethane Caulk: As manufactured and/or approved by the roofing system manufacturer. To be applied at those locations identified by the manufacturer.

2.3.11 Water Cut Off Mastic: Butyl sealant as manufactured and/or approved by the roofing system manufacturer.

2.3.12 Liquid Applied Flashing: Shall be supplied by the membrane manufacturer.

2.3.13 PMMA: Shall be supplied by the membrane manufacturer and shall be compatible with the membrane.

2.3.14 Membrane Welding Machines: As approved by the roofing system manufacturer. Contractor shall provide written documentation that operators have received the roofing system manufacturer’s required training to operate equipment. Welders shall be maintained in good working order and
shall be operated and maintained in accordance with the welding machine manufacturer’s written instructions.

2.3.15 Roofing Nails: See specification section 06 10 53 Miscellaneous Rough Carpentry.

2.3.16 Barrier board (Parapets and curbs): Shall be high density, water resistant, and moisture resistant treated board with inorganic fibrous glass mat facer on both sides. All pieces shall have a maximum size of 4’x8’. Shall be ½” thick, a nominal weight of 1,100 lbs. per 1000 s.f., and shall be UL Classified (UL 790 Class A and UL 1256).

2.3.17 Curb barrier – Shall be one of the following:

2.3.17.1 Sheet metal: Shall be 26 gage galvanized sheet metal properly cleaned of oils, etc. as required by the membrane manufacturer and fastened to the substrate with fasteners at 12” o.c. staggered.

2.3.17.2 Fleece: Shall be 9oz/ yd² polyester fleece as required by the membrane manufacturer and adhered to the substrate with adhesive as required by the membrane manufacturer.

2.3.18 Fire Resistance: System components shall be tested, manufactured and installed to result in a roofing system that is UL Class A rated.

PART 3 - PROCEDURES

3.1 Inspection

3.1.1 One ply of modified asphalt membrane shall be installed prior to beginning application of PVC membrane.

3.1.2 The substrate shall be clean, smooth, dry, free of debris and all foreign matter prior to installation of the roof membrane, and in a condition to receive the manufacturer’s product in accordance with manufacturer’s instructions. Application of new materials shall constitute approval of the substrate by the Roofing Contractor.

3.1.3 The accumulation of debris beneath or above new membrane is not acceptable and shall be grounds for rejection.

3.1.4 Verify proper installation of all roof penetrations, projections, and nailers including but not necessarily limited to dimensions, heights, and locations of curbs, prior to installation of new roof material.

3.2 Barrier Board Installation: Install barrier board as required by the membrane manufacturer. Secure parapet barrier board with fasteners appropriate for the substrate (do not use nails) at a rate of 1 row every 16” maximum and spacing of 12” o.c.

3.3 All adhered flashings that exceed 30 inches in height shall receive additional securement per manufacturer’s warranty requirements and as shown on the drawings.

3.4 Roof Membrane Installation

3.4.1 Roll out membrane and allow the membrane to “relax” in accordance with manufacturer written instructions. Back roll the membrane prior to application.
3.4.2 Roll or brush a smooth, even coat of adhesive over the substrate, ensuring 100% coverage of the substrate with no voids, skips, globs, puddles or similar irregularities.

3.4.3 Allow the adhesive to become sticky but still wet to the touch. Do not allow a film to develop on the adhesive or allow the adhesive to dry out.

3.4.4 Roll/maneuver the membrane onto the glued substrate, avoiding any wrinkles or air pockets.

3.4.5 Broom the adhered portion of the membrane to ensure full contact and complete the bonding process by firmly pressing the bonded membrane into place with a weighted, foam-covered, lawn roller.

3.4.6 Repeat the process for the remaining unbonded portion of the membrane, lapping subsequent, adjacent rolls of membrane a minimum of 3”; aligning the top leading edge of membrane to the top finished edge of the bottom section of membrane, ensuring proper shingling of the membrane to shed water along the laps.

3.4.7 No adhesive shall be applied to the lap seam areas of the membrane. Contaminated areas will inhibit proper welding of the seams requiring a membrane patch.

3.4.8 Water based adhesives can be directly affected by moisture. Water based adhesives should not to be installed over/on substrates that are moist or wet or on systems or substrates that have residual moisture.

3.4.9 At roof edges, extend membrane over the wood blocking and down past the exterior outside face of the blocking a minimum of 1 inch.

3.4.10 Turn membrane up vertical surfaces and using the roofing system manufacturer’s fasteners and termination bar in accordance with the roofing system manufacturer’s approved written instructions. Apply water cut-off mastic behind the membrane prior to fastening, and apply sealant at the top of the membrane after securing. Fasteners shall penetrate the substrate at spacings and depths approved by the roofing system manufacturer, however, depth shall be a minimum of 1 inch and spacings shall be exceed 8 inches on center.

3.4.11 At drains, extend the membrane over the drain. Cut an opening in the membrane at the center of the drain bowl so that the membrane extends past the edge of the drain bowl a minimum of 1 inch. Apply water block between the membrane and the drain bowl prior to applying the drain clamping ring. If a field membrane seam lies within 18 inches of the center of the drain bowl, furnish and install a new minimum 36 inch by 36 inch target patch. Fully adhere the target patch to the field membrane using the membrane manufacturer bonding adhesive. Fully weld target patch splices to the field membrane a minimum of 2 inches on all sides. Weld in accordance with this section of the specification. Refer to the Drawings.

3.4.12 Hot air weld all membrane seams using either a machine or hand-held hot air welder approved by the roofing system manufacturer. A copy of the operating instructions shall be provided to the Engineer prior to the start of the project.

3.4.13 Monitor the temperature of the hot air welder so as to minimize the amount of smoke that should develop and to ensure that the material from the bottom of the sheet begins to soften and flow from the seam. Hand held welders shall ensure that membrane welding is immediately followed by a hand roller to press the heated membrane surfaces together with slow, even movements.
3.4.14 All seams shall be manually probed using a blunt rounded instrument daily. Any fishmouths or other seam defects where the seam is not fully adhered shall be repaired in accordance with the roofing system manufacturer’s instructions.

3.4.15 After seams have set for approximately 8 hours, the Contractor shall make a minimum of 3, 4” x 12” test cuts across the seam for every day of welding. Test cuts shall be repaired by the Contractor daily and shall be done at no additional cost to the Owner. In lieu of test cuts, the contractor may perform pull test. Pull test shall be performed with two 4” x 12” pieces of membrane that shall be welded together 1-1/2 inch for the machine welder and 2 inches for hand welders. The membrane shall be pulled apart across the seam. Test shall be dated, and one test shall be performed every time a welding device is turned on. An archive of tests shall be available for Engineer inspection.

3.4.16 Seams shall be tested in accordance with the roofing system manufacturer’s instructions and evaluated for seam integrity. Seams that fail this test shall be subject to additional test cuts, as directed by the Engineer and/or roofing system manufacturer, in order to further quantify the extend of the deficient condition. Repairs to deficient seams and/or test cut locations shall be performed by the Contractor at no additional cost to the Owner.

3.4.17 Furnish and install the roofing system manufacturer’s patches at all required locations such as intersection field seams. Apply the manufacturer’s approved seam caulk, as required, at locations specified by the roofing system manufacturer.

3.4.18 Install membrane manufacturer’s walkway pads to 4 sides of roof hatch, mechanical units and skylights.

3.5 Where membrane terminates on metal, the metal shall be PVC clad metal and the membrane shall be hot air welded to the metal.

3.6 Base Flashings Installation

3.6.1 Apply the roofing system manufacturer’s approved flashing adhesive to the inside face of vertical surfaces, such as parapets, curbs, wall and/or wood blocking, at the rate specified by the roofing system manufacturer for the substrate using the manufacturer’s approved applicator. At locations where membrane flashing will be applied directly to smooth residual asphaltic materials, the Contractor shall secure curb barrier material with fasteners (for sheet metal) or adhesive (for fleece).

3.6.2 Roll out the membrane to be used for base flashings and allow to relax in accordance with the roofing system manufacturer’s written instructions.

3.6.3 Cut flashing pieces so as to extend onto the roof a minimum of 8 inches and up the vertical surface a minimum of 8 inches.

3.6.4 Apply the roofing system manufacturer’s approved flashing adhesive to the back of the base flashing material and substrate at the rate specified by the roofing system manufacturer for the substrate. At side laps and the edge of the base flashing extending onto the roof, do not apply adhesive at these locations so as to allow hot-air welding. Allow adhesive to dry sufficiently so as to produce strings when touched with a dry, clean finger.

3.6.5 Roll the base flashing material onto the previously coated substrate without voids using a hand roller to insure positive contact of the substrate and base flashing material. Overlap all adjacent
flashing sheets a minimum of 3 inches. Base flashing shall be smooth to the substrate, and wrinkles in base flashing shall be grounds for rejection.

3.6.6 Hot air weld all side laps and the edge of the base flashings that extend onto the roof in accordance with hot-air welding instructions listed in this section and/or the instructions provided with the welding machine. Fully weld all laps, even those extending beneath flashings and units.

3.6.7 All seams shall be probed daily using a blunt, rounded instrument. All defects shall be corrected in accordance with the roofing system manufacturer’s written instructions.

3.6.8 Seal the edges of the base flashings where the reinforcing fabric is cut with the roofing system manufacturer’s approved seam sealant, as required by the membrane manufacturer. Such work shall be done on a daily basis.

3.6.9 At those locations where the top of the base flashings will not be secured with counter flashings, or as shown on drawings, furnish and install a nominal 1” x ¼” flat bar or the roofing system manufacturer’s termination bar along the top edge of the base flashings. Secure with appropriate fasteners at spacings not to exceed 8 inches on center. Apply a bead of the roofing system manufacturer’s water cut-off mastic behind the top edge of the base flashing. Apply a bead of the roofing system manufacturer’s approved caulk along the top edge of the base flashings.

3.6.10 In the event that base flashings terminate at a corner and edges would be exposed, furnish and install new 4 inch wide PVC-coated metal closures with an exterior edge caulking cove. The closure shall be set in water cut-off mastic and fastened to the substrate using appropriate fasteners at spacings not to exceed 12 inches on center. Completely hot air weld the base flashings to the PVC-coated metal. Apply a non-shrinking sealant, such as NP-1 or approved equal, to the caulking cove at the exterior edge of the closure. Completely remove all residual asphalt from the substrate prior to installing any sealant or caulking.

3.6.11 At inside and outside corners of curbs, Contractor shall use the roofing system manufacturer’s pre-fabricated corner pieces. The use of field-fabricated pieces is not acceptable. Pre-fabricated pieces shall be installed in accordance with the roofing system manufacturer’s written instructions.

3.6.12 Use the roofing system manufacturer’s termination bar at base flashing edges at changes in base flashing height. Fastener spacings not to exceed 12 inches on center. Set flashing in water cut-off mastic, set the bar over the edge of the base flashing, and apply caulk at the top of the flashing.

3.6.13 At a minimum, extend base flashings up and over the top horizontal surface of curbs and inside the curb a minimum of 1 inch, unless otherwise stated in specification or shown on drawings.

END OF SECTION
SECTION 07 60 00
FLASHING AND SHEET METAL

PART 1 - GENERAL

1.1 Work Included - Includes the fabrication and installation of sheet metal gutters, downspouts, cornice, valley flashings, step flashings, flat-seam copper roofing, pan flashings, transition flashings at the ends of valleys and parapets, chimney flashings, plumbing pipe flashings, counterflashings, etc., as specified herein.

1.2 Submittals - In accordance with Section 01 33 00 of this Specification

1.3 Environmental Conditions - Material installation shall proceed only when weather conditions are in compliance with the applicable manufacturer's recommendations for installation and no precipitation is imminent. Materials installed during adverse weather conditions shall be subject to removal and replacement with new materials at no additional cost to Owner.

1.4 Quality Assurance:

1.4.1 Qualifications of the Manufacturer - Products used in the work of this section shall be produced by manufacturers regularly engaged in the manufacture of similar items and with a history of successful production acceptable to the Owner and Designer.

1.4.2 Qualifications of the Installer - Use adequate numbers of skilled workmen who are thoroughly trained and experienced in the fabrication and installation of sheet metal. Workmen shall be experienced in the necessary crafts and shall be completely familiar with the specified requirements and the methods needed for the proper performance of the work in this section.

1.4.3 Completed sheet metal work shall be aesthetically pleasing and professional in every aspect. Perform all necessary work to prepare the substrate to provide straight lines and true planes. All non-conforming work (oil-canning, dents, and stains) are unacceptable and shall be replaced at no cost to the Owner.
1.4.4 In acceptance or rejection of the work of this section, the Owner will make no allowance for lack of skill on the part of the workmen.

1.4.5 Concealed or unforeseen conditions shall be brought to the attention of the Designer prior to fabrication and installation.

1.5 Shop Drawings:

1.5.1 Submit shop drawings in accordance with the General Conditions. Drawings should clearly indicate any proposed deviations from the detail drawings.

1.5.2 Indicate material profile, jointing pattern, jointing details, fastening methods, type and gauge of metal and installation details.

1.6 Submittals:

1.6.1 Submittals shall be in accordance with the General Conditions and Section 01300 of the Technical specifications.

1.6.2 Submit to Owner a 12-inch length of each sheet metal configuration prior to fabrication. The Contractor shall verify existing field conditions. Minor dimensional detail changes may be required to fit existing conditions.

1.7 Storage and Handling:

1.7.1 Store materials dry. Stack material to prevent twisting, bending, or abrasion.

1.7.2 During storage prevent material contact with any substance that would discolor or stain, including soil and water.

1.8 Scheduling:

1.8.1 All new sheet metal work shall be closely coordinated with the installation of the new roof systems.

1.8.2 New sheet metal shall be installed simultaneously with the roofing work such that roofing terminations will not be left unprotected and closures are properly installed at the locations noted.

1.9 Guarantee - In accordance with Section 01 78 36 of this Specification.
PART 2 - PRODUCTS

2.1 Copper Sheet Metal:

2.1.1 For gutters, downspouts, cornice, valley flashings, step flashings, flat-seam copper roofing, pan flashings, transition flashings at the ends of valleys and parapets, chimney flashings, plumbing pipe flashings, counterflashings, etc.

2.1.2 Cold rolled, weighing not less than 16 or 20 ounces per square foot, as indicated on the drawings. Copper coated both sides with tin-zinc alloy. Base copper sheet or coil shall comply with B370. Finish and appearance shall be that of Revere Freedom Grey.

2.2 Solder: Solder plain/bare copper or Freedom grey in accordance with instructions published by Revere Copper Products Inc.

2.3 Nails: For concealed fastening into wood, use copper or hardware bronze, ring shank nails 1-3/4 inches by 11 gauge.

2.4 Masonry Anchors: Shall be a drive anchor with a removable screw with a Phillips type head. Body shall be 1/4 inch diameter made from corrosion resistant alloy. Drive screw shall be a stainless steel. The working end of the body shall be formed with two longitudinal slots which allow the body to expand as the preassembled drive screw is driven into the body. Length shall be such that the body is embedded in the masonry at least 1”.

2.5 Rivets: Shall be a minimum 1/8 inch to 3/16 inch diameter with solid copper mandrels and washers for copper.

2.6 Screws: For concealed clips, use #12 bugle head stainless steel screws to allow for countersinking.

2.7 Cleats: Shall be 20 oz. cold rolled copper, 2 inches wide.

2.8 Butyl Sealant Tape: Pressure-sensitive, 100 percent solids, gray polyisobutylene compound sealant tape with release-paper backing. Shall be a minimum 3/16” thick X 1” wide. Shall be permanently elastic, non-sag, nontoxic, and non-staining.

PART 3 - EXECUTION

3.1 General Requirements

3.1.1 Inspect all surfaces to which metal is to be applied. Do not install metal unless surfaces are even, sound, clean, dry and free from defects which might affect the application.

3.1.2 Follow recommendations of the Sheet Metal and Air Conditioning Contractors National Association Architectural Sheet Metal Manual (7th Edition) for fabricating in-shop and on-site, and for installation, unless otherwise specified herein.

3.1.3 Follow published instructions of the product manufacturer for installation of extruded or
proprietary metal products, unless otherwise specified herein.

3.1.4 Use nails, screws, bolts, cleats or other fasteners of the same material or of material chemically compatible with the contacted metal.

3.1.5 Fabricate cleats to be the same gauge as flashings.

3.1.6 Do not place dissimilar metals in direct contact or in positions where water sheds across both metals.

3.1.7 Use fasteners of sizes that will penetrate substrates not less than recommended by fastener manufacturer to achieve maximum pull-out resistance.

3.2 Installation

3.2.1 Install sheet metal flashing and trim true to line and levels indicates. Provide uniform, neat seams with minimum exposure of solder, welds, and tape.

3.2.2 Install sheet metal flashing and trim to fit substrates and to result in watertight performance. Verify shapes and dimensions of surfaces to be covered before fabricating sheet metal.

3.2.3 Install window plan flashings with end and back dams as indicated on the drawings. Slope to exterior.

3.2.4 Space cleats not more than 12 inches apart. Anchor each cleat with two fasteners.

3.2.5 Install exposed sheet metal flashing and trim without excessive oil canning, buckling, and tool marks.

3.2.6 Install sealant tape where indicated.

3.2.7 Torch cutting of sheet metal flashing and trim is not permitted.

3.2.8 Do not use graphite pencils to mark metal surfaces.

3.2.9 Install shop-formed metal flashings in 10 foot lengths maximum with a minimum number of pieces in each straight run.

3.2.10 Expansion: Provide for thermal expansion of flashing – Space movement joints at a maximum of 10 feet with not joints allowed within 2 feet of corners or intersections.

3.2.11 Soldered Joints – clean surfaces to be soldered, removing oils and foreign matter. Pre-tin edges of sheets to be soldered to a width of 1-1/2 inches, except reduce pre-tinning where pre-tinning surfaces would show in completed Work.

3.2.11.1 Do not use torches for soldering. Heat surfaces to receive solder and flow solder into joints. Fill completely and remove flux and spatter from exposed
surfaces.

3.2.11.2 Tin edges of stainless steel sheets recommended for stainless steel and acid flux. Remove acid flux residue from metal immediately after tinning and soldering. Adhere to solder manufacturer’s written recommendations for cleaning and neutralizing.

3.3 Cleaning and Protections

3.3.1 Clean exposed metal surfaces of substrates that interfere with uniform oxidation and weathering.

3.3.2 Clean and neutralize flux materials. Clean off solder.

3.3.3 Clean off excess sealants.

3.3.4 Replace sheet metal flashings and trim that have been damaged or that have been deteriorated beyond successful repair by touchup or similar minor repair procedures.

END OF SECTION
PART 1 - GENERAL

1.1 Related Documents - Drawings and general provisions of the contract including General, Supplemental and Special Conditions, and other Division 1 specification sections apply to work of this section.

1.2 Work Included - Installation of new tin-zinc copper roofing at the mansard roof.

1.3 Quality Assurance

1.3.1 Qualifications of the Manufacturer: Products used in the work of this section shall be produced by manufacturers regularly engaged in the manufacture of similar items and with a history of successful production acceptable to the Designer.

1.3.2 Qualifications of the Installer: Use adequate numbers of skilled workmen who are thoroughly trained and experienced in the necessary crafts and are completely familiar with the specified requirements and the methods needed for the proper performance of the work in this section.

1.3.3 Prior to proceeding with fabrication of copper roofing components, prepare a mock-up of work for the Dormer and the Porch. Incorporate materials and methods of fabrication and installation identical with project requirements. The Contractor shall verify existing field conditions. Minor dimensional detail changes may be required to fit existing conditions. Mock-up shall be retained as quality standard for acceptance of completed copper roofing. If accepted, mockup may be incorporated as a part of copper roofing work.
1.3.4 In acceptance or rejection of the work of this section, the Owner will make no allowance for lack of skill on the part of the workmen.

1.4 Shop Drawings

1.4.1 Submit shop drawings in accordance with the General and Supplementary Conditions.

1.4.2 Indicate material profile, jointing pattern, jointing details, fastening methods, termination details, and type and gauge of metal.

1.5 Submittals - Submit samples in accordance with the General and Supplementary Conditions.

1.6 Storage and Handling

1.6.1 Store materials dry in accordance with the General and Supplementary Conditions.

1.6.2 Stack material to prevent twisting, bending, or abrasion.

1.6.3 During storage prevent material contact with any substance that would discolor or stain, including soil and water.

1.7 Scheduling - All new sheet copper roofing work shall be closely coordinated with the installation of related slate roofing and flashing materials.

1.8 Guarantee - See Section 01750

PART 2 PRODUCTS

2.1 Cold rolled, weighing not less than 20 ounces per square foot, as indicated on the drawings. Copper coated both sides with tin-zinc alloy. Base copper sheet or coil shall comply with B370. Finish and appearance shall be that of Revere Freedom Grey.

2.2 Accessory Materials

2.2.1 High Temperature Grade Peel-and-Stick Underlayment: Cold applied, self-adhering membrane composed of a high density, cross laminated polyethylene film coated on one side with a layer of butyl rubber or high temperature asphalt adhesive. Provide primer when recommended by water barrier manufacturer.

1.1.1 Minimum thickness: 30 mil.

1.1.2 Tensile Strength: ASTM D 412; 250 psi.

1.1.3 Membrane Elongation: ASTM D412; 250%

1.1.4 Permeance: ASTM E96; 0.05 Perms.

1.1.5 Acceptable Products:

1.1.5.1 Blueskin PE 200 HT, Henry.

1.1.5.2 Ultra, W.R. Grace Company.
1.1.5.3 CCW MiraDRI WIP 300 High Temperature, Carlisle Coatings and Waterproofing.

1.1.5.4 Or approved equal.

2.2.2 Slip Sheet: Shall be 4-lb minimum rosin-sized sheathing paper.

2.2.3 Accessories: Provide components required for a complete roof system, including trim, flashings, counterflashings, vent materials, ridge caps, closures, and cleats. Match materials and finishes of roof.

2.2.4 Trim, Closure-Pieces, and Accessories:
   2.2.4.1 Same material, thickness, and finish as adjacent copper roof panels, brake formed to required profiles.
   2.2.4.2 Comply with standards conforming to recognized industry standard sheet metal practice.

2.3 Fasteners
   2.3.1 For concealed fastening into wood, use copper or hardware bronze, ring shank nails 1-3/4 inches by 11 gauge.
   2.3.2 For exposed fastening into wood, use brass screws with neoprene washers.
   2.3.3 For fastening into concrete, use masonry/concrete anchors with neoprene washers. Use all metal stainless steel anchors only, no plastic anchors allowed.
   2.3.4 Pop Rivets:
      2.3.4.1 Shall be 1/8 inch to 3/16 inch diameter copper rivets with solid copper mandrels and washers for copper metal.
      2.3.4.2 Shall be 1/8 inch to 3/16 inch diameter aluminum rivets with solid aluminum mandrels and washers for aluminum.
   2.3.5 Cleats: Shall be 20 oz. cold rolled copper, 2 inches wide by 3 inches long. Secure with 10 gauge ring-shank stainless steel nails.
   2.3.6 Solder: Solder plain/bare copper or Freedom grey in accordance with instructions published by Revere Copper Products Inc.
   2.3.7 Flux: Shall be non-acid, non-corrosive specifically designed for use with 50/50 solder.
   2.3.8 Bituminous Coating: Shall be cold-applied mastic, SSPC paint 12, compounded for 15 mil dry film thickness per coat, except as otherwise indicated. Provide inert-type non-corrosive compound, nominally free of sulfur components and other deleterious materials.
   2.3.9 Caulking: See Section 07 60 00.
2.4 Fabrication

2.4.1 In addition to complying with all pertinent codes and regulations, fabricate and install sheet metal in accordance with the standards and practices noted in the “Architectural Sheet Metal Manual”, Sixth edition, published by the Sheet Metal and Air Conditioning Contractors National Association, Inc. (SMACNA).

2.4.2 Fabricate and install for waterproof and weather-resistant performance with expansion provision for running work, sufficient to permanently prevent leakage, damage, or deterioration of the work. Form work to fit substrate. Form exposed copper work without excessive oil-canning, buckling, and tool marks, true to line and levels indicated, with exposed edges folded back to form hems.

2.4.3 Flanges of metal flashing to be incorporated into the roof system shall be a minimum of 4 inches in width. Provide pre-drilled holes at 3 inches o.c. staggered for insertion of nails. Holes to be located 1 inch from the leading edge of the flange; second row to be 1 inch from the first.

2.4.4 Form and fabricate sheets, seams, strips, valleys, edge treatments, integral flashings, and other components of copper roofing true and accurate to size, free from distortion, sharp edges, and other defects detrimental to appearance or performance. Provide for thermal expansion and contraction of the work. Shop fabricate to the maximum extent possible.

PART 3 EXECUTION

3.1 Inspection

3.1.1 Inspect nailer areas to verify that they are clean, smooth, free of depressions, waves, or projections and solidly supported over joints.

3.1.2 Surfaces scheduled to receive copper roofing shall be clean, smooth, and free of defects. Projecting nails shall be driven flush with substrate.

3.1.3 Verify existing field conditions. Minor dimensional detail changes may be required to fit existing conditions.

3.2 High Temperature Grade Peel-and-Stick Underlayment:

3.2.1 Install high temperature grade peel-and-stick underlayment on clean, dry roof substrate.

3.2.2 Remove dust, dirt, and loose fasteners.

3.2.3 Remove protrusions from the deck area.

3.2.4 Verify substrate has no voids, damaged, or unsupported areas.

3.2.5 Repair voids or unacceptable areas before installing membrane.

3.2.6 Prime substrates with manufacturer’s approved primer if required for proper installation of membrane over substrate.
3.2.7 Install membrane in strict accordance with manufacturer’s printed application procedures, precautions, and limitations.

3.2.8 Start application at low points and lap membrane shingle fashion to prevent water penetration.

3.2.9 Apply horizontally, lapping preceding layers not less than 4 inches. End lap membranes not less than 6 inches. Maximize adhesion to substrate by brooming or rolling membrane in place after placement.

3.3 Install paper slip sheet on peel-and-stick underlayment to greatest extent possible unless otherwise recommended by manufacturer of sheet metal. Use adhesive for temporary anchorage, where possible, to minimize use of mechanical fasteners under copper roofing. Lap joints 2 inches minimum.

3.4 Installation

3.4.1 General

3.4.1.1 Install wood trim and moldings at dormers and shed roofs before application sheet copper roofing.

3.4.1.2 Dissimilar metals shall be kept separated to prevent galvanic action. Preventative measures shall include separation by suitable bituminous paint.

3.4.1.3 Where bituminous materials are to be applied to sheet metal, the flanges shall first be primed with an asphaltic primer. The primer shall be interrupted where caulking is to be applied.

3.4.1.4 All exposed edges of sheet metal shall be folded back, or hemmed, on concealed surfaces.

3.4.1.5 Fabricate and install work with lines and corners of exposed units true and accurate. Form exposed faces flat and free of buckles, excessive waves, and avoidable tool marks considering temper and reflectivity of metal. Provide uniform, neat seams with minimum exposure of solder, welds, and sealant.

3.4.1.6 Conceal fasteners and expansion provisions where possible in exposed work, and locate so as to minimize possibility of leakage. Cover and seal fasteners and anchors as required for a tight installation.

3.4.1.7 Tin uncoated copper surfaces at edges of sheets to be soldered, for a width of 1½ inches, using solder recommended for copper work. Where surfaces to be soldered are lead-coated, do not tin edges, but wire-brush lead coating before soldering.

3.4.1.8 All soldering shall be done slowly with well heated coppers. Coppers shall be heated sufficiently to sweat solder completely through full width of seams. Ample solder shall be used and seams shall show at least one full inch of evenly flowed solder. Wherever possible, all soldering shall be done in flat position. Seams on slopes steeper than 45° shall be soldered a second time. A liberal
amount of flux shall be brushed into seams.

3.4.1.9 Finish all sheet metal watertight and weathertight.

3.4.1.10 Fill gaps between deck panels at angle changes at base of slope roof at the back of the dormer decks and the flat-lock copper roof deck with concrete patching compound.

3.4.1.11 Secure clips and cleats: 12" on center if secured with self-tapping screws or 6" on center if secured with ring-shank nails.

3.4.2 Flat-Lock Seam Roof System

3.4.2.1 Flat seam roof shall be fabricated of 20 oz. lead coated copper panels; panels shall be 16½ inches wide by 22½ inches long. Panels shall have field formed folds ¾ inch wide. Corners of panels shall be cut off at 45° angle.

3.4.2.2 Panels shall be laid in courses with long dimension parallel to long dimension of porch roof. Shorter dimension shall be at right angle to longer dimension and staggered one half the long dimension.

3.4.2.3 Panels shall be held in place with cleats. Cleats shall be placed on each panel side, 2 cleats per side. Cleats shall be located 6 inches from edge. Cleats shall be secured to the substrate with fasteners; 2 fasteners per cleat. Cleats shall be folded into panel folds. Folds shall be thoroughly soldered.

3.4.2.4 Seams on surfaces 3 inches per foot or greater shall be filled with sealant.

3.5 Clean-up

3.5.1 Clean and neutralize all flux materials.

3.5.2 All excess solder and sealants shall be cleaned from the surface.

3.5.3 All hand prints, smudges and other superficial stains that were placed on the sheet metal during fabrication and installation shall be removed.

3.5.4 Leave job site clean at completion of work and properly dispose of all construction debris.

END OF SECTION
SECTION 07 92 00
JOINT SEALANTS

PART 1 - GENERAL

1.1 Drawings and general provisions of the contract, including General, Supplemental and Special Conditions and other Division 1 specification sections apply to work of this section.

1.2 Work Included – The contractor shall furnish and/or install all supervision, labor, materials, equipment, services and incidentals to complete all sealant work as shown on the drawings and/or herein specified.

1.3 Related Documents:

1.3.1 Drawings and general provisions of contract, including General and Supplemental Conditions, and other Division - 1 Specification sections apply to work of this section.

1.3.2 All work under this section shall be completed in accordance with the manufacturer’s printed instructions.

1.4 Work Included: Preparation and installation of joint sealants and backing material associated with concrete walls and planters.

1.5 Unusual Situations Or Job Conditions - The contractor, in order to properly prepare his bid, shall fully inspect the areas of work. If any unusual situations or additional faults, not covered by the bid documents are discovered, the contractor shall report such discoveries to the Designer prior to submitting the bid.

1.6 Protection: The building shall be so protected as to prevent any dust, grit, or debris, caused by work under this contract from entering the building. Should any dust, grit, or debris enter the building, it shall be immediately cleaned out by the contractor to the satisfaction of the Designer and Owner.

1.7 Quality Assurance:

1.7.1 Qualifications of Manufacturer – Products used in this work shall be produced by Manufacturers regularly engaged in the manufacture of similar products and with a history of successful production acceptable to the Designer.

1.7.2 The Sealant Contractor shall be an applicator approved by the Sealant Manufacturer. Such approval shall be established before the bid is submitted and a written certification of the Contractor’s approval shall be included with the bid.

1.7.3 In acceptance or rejection of the work of this section, the Owner will make no allowance for lack of skill on the part of the workmen. All sealant mechanics shall be fully experienced in their trade. Great care shall be taken to ensure that the sealant is not introduced to adjacent surfaces, and if such surfaces are inadvertently contaminated, material shall be removed immediately.
1.7.4 All surfaces to be sealed shall be properly prepared as hereinafter specified.

1.7.5 Any damage of any type caused by the contractor's execution of the work or any other action by the Contractor shall be repaired by the Contractor at his expense.

1.8 Guarantee shall be in accordance with Section 01 78 36.

1.9 Product Handling:

1.9.1 Materials shall be delivered in their original, tightly sealed containers or unopened packages, all clearly labeled with the manufacturer’s name, product name and lot numbers, where applicable.

1.9.2 Prior to use, unopened containers shall be protected from heat and direct sunshine. In cool or cold weather, store containers where temperatures are approximately 75 degrees F. For at least sixteen (16) hours before using. Do not open containers until necessary preparatory work has been completed. If a particular manufacturer whose products are approved for use on this project has different temperature requirements than those specified above, such requirements shall be followed.

1.9.3 Do not retain on the job site any material which has exceeded the shelf life recommended by its manufacturer.

1.10 Job Conditions – Do not apply sealants when the surface temperature is below 40 degrees Fahrenheit or above 125 degrees Fahrenheit. Do not apply materials when surface is damp or during cold, rainy, or frosty weather.

PART 2 - PRODUCTS

2.1 Silicone Sealant at Stone: Silicone sealant:

2.1.1 ASTM Specification C 920, Type S, Grade NS, Class 50, Use NT, G, M, A and O

2.1.2 ASTM Specification C 719 ± 50% movement

2.2 Bond Breaker Material: Backer rod shall be a closed cell polyethylene backer. Size shall be approximately 25% larger than the width of the joint to which it is to be installed.

2.3 Cleaner: Xylol, Toluene, or commercial solvent recommended by the sealant manufacturer.

2.4 Primer: as required by sealant manufacturer.

2.5 Other Materials – All other materials not specifically described but required for complete and proper caulking and installation of sealants shall be first quality of their respective kinds, new, and as selected and furnished by the caulking manufacturer, subject to the approval of the Designer.
PART 3 – Execution

3.1 Examine the areas and conditions under which work of this section will be performed. Correct conditions detrimental to the proper and timely completion of the work. Do not proceed until unsatisfactory conditions have been corrected.

3.2 Cleaning - Prior to sealant reconstruction, areas shall be thoroughly cleaned by pressure washing or similar methods.

3.3 Joint Preparation:

3.3.1 Cut away existing sealant and/or gasket as close as possible to the joint edge and remove all existing sealant and backing material.

3.3.2 Blow dust, loose particles and other debris with oil-free compressed air. Make as many passes with cleaning tools and compressed air as required to ensure that joints are clean and free of existing sealing materials and/or other dirt and debris.

3.3.3 Clean all joints of contaminants and impurities to the depth at which the new sealant and backer rod are to be installed. Level of joint cleaning and preparation shall be as required by the sealant manufacturer. This may be accomplished by wire brushing (power or hand), solvent wipe, or a combination.

3.3.4 Wood surfaces should be cleaned with solvent.

3.3.5 Cleaning of all surfaces should be done on the same day on which the sealant is applied.

3.3.6 All concrete surfaces shall be primed with the specified primer.

3.3.7 Granite and other substrates shall be primed as determined by field testing.

3.3.8 Refer to paragraph 3.6.3 for joint preparation at existing joints less than 1/4" wide.

3.4 Installation of Back-Up Material - Use only the back-up material recommended by the manufacturer of the sealant and approved by the Designer for the particular installation, compressing the back-up material 25 percent to 50 percent to secure a positive and secure fit. When using back-up of tube or rod stock, avoid lengthwise stretching of the material. Do not twist or braid hose, or rod back-up stock.

3.5 Joint Width and Sealant Depth:

3.5.1 Construct joints in accordance with manufacturer’s approved details or those of this specification in paragraph 3.11 whichever are more stringent.

3.5.2 The ratio of the width of the joint to depth of the sealant shall be, as close as possible, two to one (2:1) with no joint depth being less than one quarter (1/4) inch.

3.5.3 The sealant depth shall be controlled by the use of back-up materials to maintain the recommended depth.
3.5.4 Where depth of joint does not permit the use of back-up material, then a bond breaker tape must be installed to prevent three point bonding.

3.6 Sealant Application:

3.6.1 It shall be the responsibility of the applicator to install the sealant in accordance with the contract documents and in a manner that ensures optimum performance of the materials used.

3.6.2 All sealing shall be done when surface temperatures are above 40 degrees F. Do not apply sealant if precipitation is forecast in the next 24 hours after application. All surfaces receiving caulking or sealing material shall be dry and clean.

3.6.3 Masking - Thoroughly and completely mask all joints where the appearance of sealant on adjacent surfaces would be objectionable.

3.6.4 Sealant shall be applied in a continuous operation using a professional cartridge-type caulking gun or bulk-loading gun. Guns shall have nozzle of proper size and shall provide sufficient pressure to completely fill joints as designed.

3.6.5 There shall be no air voids throughout the entire joint cross section. To ensure complete joint fill, tooling shall be performed within ten (10) minutes of sealant application.

3.7 Tooling:

3.7.1 Tool all sealants at all conditions with light pressure to spread the material against the back-up material and the joint surfaces. Use a tool that keeps the sealant within the joint and results in the sealant having a concave surface. The sealant shall be dry tooled unless the sealant manufacturer specifically approves otherwise. If the sealant manufacturer approves, the tool may be dampened with a sealant manufacturer approved reducer. Do not use water or soapy water on the tool and do not over tool.

3.7.2 Tool the sealant at window sills and other like places so that precipitation, cleaning solutions, etc., will not pond.

3.7.3 When masking materials are used, they shall be removed immediately after tooling the sealant.

3.8 Cleaning:

3.8.1 Ensure that uncured sealants are not allowed to contact surfaces adjacent to the joints, or any other non-joint surfaces. If uncured sealants are introduced to prohibited areas, such sealants shall be removed as follows:

3.8.1.1 Non-porous Surfaces - Immediately remove all excess sealant adjacent to the joint and elsewhere by using xylol, toluol or methyl ethel ketone while sealant is still in uncured state.

3.8.1.2 Porous Surfaces - Allow sealant to develop initial cure, then remove by abrasion.
or other mechanical means. Exercise extreme care to maintain, undamaged, the original surface texture.

3.8.1.3 Equipment and Tools - Equipment and tools may be cleaned with solvents such as xylol, toluol or methyl ethel ketone while solvent is uncured.

3.8.2 Observe proper precautions when using flammable solvents.

3.9 Quality Control:

3.9.1 The following test shall be performed as a part of the work to verify the material, as installed, will perform as intended - Standard Field Adhesion Test - this test should be performed at the job site after the sealant is fully cured (typically 7-21 days). Five tests shall be required for the first 1000 LF of caulking and one test per 1000 LF thereafter:

3.9.1.1 Make a knife cut horizontally from one side of the joint to the other.

3.9.1.2 Make two vertical cuts (from the horizontal cut) approximately 3” long, at both sides of the joint.

3.9.1.3 Place a mark on the sealant tab 1” from the end of the vertical cuts.

3.9.1.4 Grasp a 2” piece of the sealant firmly just beyond the 1” mark and pull at a 90-degree angle.

3.9.1.5 If dissimilar substrates are being sealed, check the adhesion of the sealant to each substrate separately. This is accomplished by extending the vertical cut along one side of the joint, checking adhesion to the opposite side, and then repeating for the other surface.

3.9.1.6 The sample shall be considered to pass if the sealant can be pulled 3” (300 % extension) without bond loss. If the sample does not pass, contact the designer.

3.9.1.7 Inspect the joint for complete fill. The joint should not have voids and joint dimensions should match those defined in paragraph 3.4.2.

3.9.1.8 Record the test results in the Field Adhesion Test Log. This testing must be completed and results recorded, retained and available for review upon request. A sample form is found at the end of this section.

3.9.1.9 Upon request from Designer and at no additional cost, Contractor shall provide safe access to Designer for purposes of witnessing field testing and conducting quality control inspections.
# Field/Shop Adhesion Testing Log

## Project

## Sealant

## Sealant Lot #/Color

## Primer (if applicable)

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<th>Applied by (initials)</th>
<th>Test Date</th>
<th>Test Location (Elevation, Unit Number, etc.)</th>
<th>Primed (Y/N)</th>
<th>Primer Lot #</th>
<th>Sealant Color and Lot #</th>
<th>Acceptable Joint Fill (Y/N)</th>
<th>Acceptable Adhesion (Y/N) and %Elongation</th>
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SECTION 08 03 52

HISTORIC TREATMENT OF WOOD WINDOWS AND DOORS

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 restoration of wood windows and doors including:

1. Paint removal from window sash and frames.
2. Sash and frame component repairs and replacement.
3. Rot remediation.

1.3 DEFINITIONS

A. Window System Components Descriptions: Window component terminology shall be identified in AWI’s “Architectural Woodwork Quality Standards”, Section 1000.

B. Glazing includes glass, glazing points, and glazing compounds.

C. Reference Standards: AWI Quality Standard – Comply with applicable requirements in AWI's “Architectural Woodwork Quality Standards” for construction, finishes, grades of wood windows, and other requirements.

D. Replicate: To reproduce in exact detail, materials, and finish unless otherwise indicated.

E. Window: Includes window frame, sash, hardware, storm window, and exterior and interior shutters unless otherwise indicated by context.

F. 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, brick mold, and cornice or drip cap.
1.4 PREINSTALLATION MEETINGS

A. Preinstallation Conference: Conduct conference at Project site.

1.5 SEQUENCING AND SCHEDULING

A. Perform window repairs in the following sequence, which includes work specified in this and other Sections:
   1. Clean surfaces.
   2. General Wood-Repair Sequence:
      a. Remove paint to bare wood at loose or deteriorated locations. Remove paint that loosens with moderate hand pressure.
      b. Repair wood by consolidation, member replacement, partial member replacement, and patching.
      c. Sand, prime, fill, sand again, and prime surfaces again for refinishing.
   3. Apply finish coats.
   4. Install perimeter sealants and sealants to make windows inoperable, with exception to windows at fire escape locations.
   5. It is the intent that all windows will be refinished and repaired to allow for weathertight conditions.

1.6 ACTION SUBMITTALS

A. Product Data: For each type of product.
   1. Include recommendations for product application and use.
   2. Include test data substantiating that products comply with requirements.

B. Samples for Initial Selection: For each type of exposed wood and finish.
   1. Identify wood species, cut, and other features.

C. Samples for Verification: For the following products in manufacturer's standard sizes unless otherwise indicated, finished as required for use in the Work:
   1. Repaired Wood Window Members: Prepare Samples using existing wood window members removed from site, repaired, and prepared for refinishing.
   2. Refinished Wood Window Members: Prepare Samples using existing wood window members removed from site, repaired, and refinished.
1.7 INFORMATIONAL SUBMITTALS

A. Qualification Statements: Submit qualification data for historic treatment specialists including list of projects similar in scope, age, and type including contact information for Owner’s representatives sufficient to illustrate 5 years of full time involvement in projects of this type.

B. Field Quality Control Reports: Provide wood moisture content measurements before painting and at other points as directed by the Designer and Owner.

C. Special Procedure Submittals
   1. Provide a detailed, written description of the materials, methods, equipment, and sequence of operations to be used in the window restoration process including specific dry and cure time requirements.
   2. Provide a window/opening schedule integrating specific notes or deviations from standard process as described above for any openings.

1.8 MAINTENANCE MATERIAL SUBMITTALS FOR PARTS AND PAINTS

1. Provide the Owner with documentation of all finishes, types, paint colors and types.
2. Provide Owner with 1 pint of touch up paint / finish for each color.

1.9 QUALITY ASSURANCE

A. Regulatory Requirements: Comply with all local, state and federal authorities having jurisdiction with regard to preservation regulations and hazardous materials and disposal regulations.

B. Qualifications
   1. Historic Treatment Specialist Qualifications: A firm or individual experienced in historic treatment of windows similar in material, design, and extent to that indicated for this Project, whose work has resulted in construction with a record of successful in-service performance.
   2. Contractor must be engaged full time in restoration of windows a period of 5 years prior to the date of this project bid.
   3. Contractor must be able to provide examples of job specific drawings profiles, joinery design that they have performed for previous project.

C. Preconstruction Testing: Testing for hazardous materials has been performed and indicated it is not expected that hazardous materials will be encountered in the work. If suspected hazardous materials are encountered, do not disturb, immediately notify the Designer and Owner.

D. Mockups: Prepare mockups of window-repair processes to demonstrate aesthetic effects and to set quality standards for materials and execution and for fabrication and installation. Prepare mockups so they are as inconspicuous as practicable.
   1. Locate mockups in locations that enable viewing under same conditions as the completed Work.
2. Approval of mockups does not constitute approval of deviations from the Contract Documents contained in mockups unless Designer specifically approves such deviations in writing.
3. Subject to compliance with requirements, approved mockups may become part of the completed Work if undisturbed at time of Substantial Completion.

1.10 PRECONSTRUCTION TESTING

A. Preconstruction Testing Service: Engage a qualified wood-window-repair specialist to perform preconstruction testing on wood windows and doors.
   
   1. Provide test specimens representative of proposed materials and existing construction.
   2. Test repair products and methods for effectiveness and compliance with specified requirements.

1.11 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 are not deformed, broken, or otherwise damaged.

B. 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.

1.12 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. The contractor is responsible to schedule work in a manner necessary to work within optimum temperatures and humidity levels and protect partially completed work from inclement weather.

PART 2 - PRODUCTS

2.1 EXISTING MATERIALS

A. Products being rebuilt and restored are existing elements of the Owners building. Owner gives no representation as to their condition or that of the substrate. Contractor is to provide reasonable assumptions as to the conditions of the substrates based on their observations and experience with similar projects. Contractor is to include an assumption of rot and deterioration in the wood of the sash and visible members of the frame.
B. Existing materials shall be reused whenever possible in the repair and rehabilitation of historic wood windows and doors. This includes all wood elements, hardware, and glazing that are determined to be of historic significance. Replacement of window elements with new materials shall be done only when originals are so deteriorated as to prohibit their useful function.

2.2 MATERIALS

A. Adhesives: Exterior grade wood glue, advanced polymer, ANSI/HPVA Type 1 water resistance. D3 European standards.
   a.

B. Paint Removers:
   a. All paint removal will be done by hand with sharp, flat-bladed scrapers such as Five-in-One tool, no pointed or curved blades permitted.
   b. Hand Sand Paper: grits, 80, 100, 150 are permitted.

C. Replacement Wood Materials: Any wood replaced shall be done so with the same species as original in making every effort to match the age, grain direction and growth rate of the piece it is replacing.

D. Glazing (Bid Additive 4):
   1. 6.5mm, size to match existing. Consisting of an outer pane of energy efficiency glass and an inner pane of clear float glass, separated by a vacuum cavity of 0.2mm.
      a. Solar Reflectance: 16%
      b. Solar Transmittance: 62%
      c. Visible Light Reflectance: 18%
      d. Visible Light Transmittance: 75%

E. Sealants:
   1. Silicone, ASTM Specification C 920 Type S, Grade NS, Class 50, Use NT, G, A and O.

F. Glazing Compound: Shall be linseed oil-based, non-staining and non-bleeding. Acceptable manufacturers are Sarco Glaze Putty or approved equal.

G. Epoxies – Liquid Consolidants: Shall consist of a two-part, low-viscosity liquid epoxy designed for wood restoration, such as Abatron LiquidWood, or approved equal.

H. Epoxies – Paste: Shall consist of a two-part, thixotropic paste epoxy designed for wood restoration. Acceptable manufacturers are Abatron WoodEpox, or approved equal.

I. Finishes:
   a. Products:
      1) Primer: Alkyd Primer, one coat.
      2) Finish: Exterior alkyd enamel, two coats.
         • Binder: Urethane alkyd resin combination
         • Pigments: Titanium Dioxide, mineral and organic color pigments
         • Solvent: Mineral Spirits
• Clean up: FPE Mineral Spirits
• Specific gravity [g/cm3]: 1.28 white (varies according to color)
• Solids by contents (white):
  • by weight: 71%
  • by volume: 51%
• Viscosity: 95 – 100 KU
• Specular gloss: (60˚): 20.5 GU
• Recommended film thickness:
  • wet: 65 microns/coat
  • dry: 33 microns/coat
• Drying Time: 2 hours dust free 16 hours recoatable depending on humidity
• Curing Period: 21 days. After this amount of time, the paint film will be at its maximum hardness.
• VOC: 330 g/l

a) Custom tint to match existing, and approved mock-up.
b) Sheens to be approved by Owner during mock-up, assume combination of Satin and Brilliant sheens will be used.
c) Primer and finish materials must be obtained from single source.

PART 3 - EXECUTION

3.1 PREPARATION

A. Protect adjacent materials from damage by performing wood window repairs.
B. All existing sealant, caulk, and fillers shall be removed.
C. Clean wood windows and doors 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.
D. Condition replacement wood members and replacement units to prevailing conditions at installation areas before installing.

3.2 WOOD WINDOW REPAIRS, GENERAL

A. Have wood window repairs performed only by qualified wood-window-repair specialist.
B. Paint Removal
   a. All paint is to be removed from each sash and frame using non-destructive means such as scraping and sanding, no power equipment is permitted for pain removal.
   b. Only paint that loosens easily with moderate hand pressure will be removed. Excessive force will result in damage to the wood and is forbidden.
c. Following scraping, surfaces should be made even and smooth and prepared to receive the paint per the manufacturers written instructions with sandpaper. Only hand sanding is permitted.

d. Wood shall be allowed to dry to a moisture content of 8 to 12 percent before repainting. If heat methods are used for paint removal, glazing shall be protected from sudden change to avoid breakage.

C. Wood Repair:
1. Badly decayed areas with more than 30 percent wood decay shall be removed.
2. Moderately decayed areas with less than 30 percent wood decay, weathered or gouged wood shall be patched with approved patching compound, and shall be sanded smooth. Intact sash rails and stiles that are loose shall be repaired with new dowels to make joints tight.

D. Epoxy Wood Repair/Consolidation: Epoxy wood repair materials shall be applied in accordance with manufacturer’s written instructions. Health and safety instructions shall be followed in accordance with the manufacturer’s instructions. The source or cause of wood decay shall be identified and corrected prior to application of patching materials. Wet wood shall be completely dried to a moisture content of 8 to 12 percent to its full depth before patching. Wood that is to be patched shall be clean of dust, grease, sealants, and loose paint. Clean mixing equipment shall be used to avoid contamination. Mix and proportions shall be as directed by the manufacturer. Batches shall be only large enough to complete the specific job intended. Patching materials shall be completely cured before painting or reinstallation of patched pieces.

E. Epoxy Liquid Wood Consolidant: Epoxy liquid wood consolidants shall be used to penetrate and impregnate deteriorated wood sections to reinforce wood fibers that have become softened or absorbent.

F. Epoxy Paste: Epoxy paste shall be used to fill areas where portions of wood are missing such as holes, cracks, gaps, gouges, and other voids. Areas to receive epoxy paste patching material shall be primed with compatible epoxy liquid wood consolidants or a primer recommended by the manufacturer.

G. Wood Replacement: Extensively decayed wood shall be replaced with new pieces that match originals in all respects. Joinery shall match that of existing. Muntins shall have coped mortise and tenon joints. Molded members shall have mitered or coped joints.

H. Sill Gaps: Fill gaps between sill and jamb with epoxy to re-establish a connection between the sills and jams, and to eliminate areas of possible water infiltration.

I. Hardware: Existing hardware shall be reused and remain in place.

J. Glazing: lights shall remain in place.

3.3 PAINTING PREPARATION

A. Paint shall be removed to bare wood or first sound paint layer. All parts shall be cleaned by brush using tri sodium phosphate (TSP) solution, and let dry. Existing finish shall be de-
glossed. Open joints and cracks shall be filled with epoxy repair materials. Perimeter of sashes shall be sealed. For Alternate 1, clean surfaces with linseed soap and rinse thoroughly and leave to dry.

B. After repairs are completed, the window shall be made so that all parts are tight, true, and functioning properly. Wood surfaces shall be free of blemishes. Final adjustments for proper operation of ventilating units in the bell towers shall be made. Adjustments shall be made to assure smooth operation and weather-tight performance when locked.

C. Manufacturers Field Service: Engage wood-repair-material manufacturers' factory-authorized service representatives for consultation and Project-site inspection and to provide on-site assistance when requested by Designer.

3.4 EXTERIOR PAINTING

A. Following repairs, all exterior wooden elements should be properly prepared and properly painted.

B. Refer to manufacturers written instructions for allowable moisture content.

1. Primer:
   a. Fully tint to the color of the finish enamel.
   b. Apply in one coat following manufacturer’s specifications.

2. Finish Coats:
   a. Tint to submitted and approved color sample, and on-site paint mock-up.
   b. Apply only by hand with brushes. No spraying devices or rollers are permitted.
   c. Create long, straight, parallel brush strokes following the long direction of each element.

3. Application, including environmental conditions and recommended cure times must follow manufacturer’s specifications.

3.5 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 and doors. Avoid damage to coatings and finishes. Remove excess sealants, glazing and patching materials, dirt, and other substances.

END OF SECTION
SECTION 08 11 13
HOLLOW METAL DOORS AND FRAMES

PART 1 - GENERAL

1.1 SECTION REQUIREMENTS

A. Submittals: Product Data and Shop Drawings.

PART 2 - PRODUCTS

2.1 HOLLOW METAL DOORS AND FRAMES

A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
   1. Amweld Building Products, LLC.
   2. Ceco Door Products, an Assa Abloy Group
   3. Curries Company, an Assa Abloy Group
   4. Pioneer Industries, Inc.
   5. Republic Doors and Frames

B. Doors: Complying with SDI A250.8 for level and model and SDI A250.4 for physical-endurance level indicated, 1-3/4 inches (44 mm) thick unless otherwise indicated.

      a. Thermal-Rated (Insulated) Doors: Where indicated, provide doors with thermal-resistance value (R-value) of not less than 2.8 when tested according to ASTM C 1363.
   2. Hardware Reinforcement: Fabricate according to SDI A250.6 with reinforcement plates from same material as door face sheets.

C. Frames: ANSI A250.8; conceal fastenings unless otherwise indicated.
   1. Steel Sheet for Exterior Frames: 0.067-inch- (1.7-mm-) minimum thickness, metallic coated.
   3. Hardware Reinforcement: Fabricate according to ANSI/SDI A250.6 with reinforcement plates from same material as frames.
   4. Frame Anchors: Not less than 0.042 inch (1.0 mm) thick.
D. Glazing Stops: Nonremovable stops on outside of exterior doors and on secure side of interior doors; screw-applied, removable, glazing stops on inside, fabricated from same material as door face sheet in which they are installed.

E. Door Silencers: Three on strike jambs of single-door frames and two on heads of double-door frames.

F. Grout Guards: Provide where mortar might obstruct hardware operation.

G. Prepare doors and frames to receive mortised and concealed hardware according to SDI A250.6 and BHMA A156.115.

H. Reinforce doors and frames to receive surface-applied hardware.
   1. Hinge: Continuous channel for full height of door, 12 gauge.
   2. Closer: Continuous channel for full length of door, 12 gauge.
   3. Strick: Continuous channel for full height of door, 14 gauge.

I. Prime Finish: Manufacturer's standard, factory-applied coat of lead- and chromate-free primer complying with SDI A250.10 acceptance criteria.

2.2 MATERIALS

A. Cold-Rolled Steel Sheet: ASTM A 1008/A 1008M, suitable for exposed applications.

B. Hot-Rolled Steel Sheet: ASTM A 1011/A 1011M, free of scale, pitting, or surface defects.

C. Metallic-Coated Steel Sheet: ASTM A 653/A 653M, G60 (Z180) or A60 (ZF180).

D. Frame Anchors: ASTM A 879/A 879M, 4Z (12G) coating designation; mill phosphatized.
   1. For anchors built into exterior walls, sheet steel complying with ASTM A 1008/A 1008M or ASTM A 1011/A 1011M, hot-dip galvanized according to ASTM A 153/A 153M, Class B.

E. Inserts, Bolts, and Fasteners: Hot-dip galvanized according to ASTM A 153/A 153M.

2.3 FABRICATION

A. All doors shall be constructed with smooth, flush surfaces, without visible joints, seams or exposed faces.

B. Tops and bottoms of all doors shall be reinforced with a continuous steel channel not less than 16 gauge, extending the full width of the door and spot welded to the face sheet. The top channel shall be flush steel.

C. Floor and Jamb Anchors:
   1. Floor anchors shall be securely welded or screwed inside each jamb, with two holes provided at each jamb for anchorage.
   2. Minimum thickness of floor anchors shall be 16 gauge.
3. Frames for installation in masonry walls shall be provided with adjustable, wire-type jamb anchors. Anchors shall be not less than 0.156 inch diameter steel wire. The number of anchors shall be as follows:
   a. Frames up to 7'-6” in height: three anchors.
   b. Frames 7’-6” to 8’-0” in height: four anchors.

4. Frames for installation in stud partitions shall be provided either with steel anchors of not less than 18 gauge thickness, securely welded inside each jamb or insert type with notched clip to engage stud inserts to back of the frame as identified above.

PART 3 - EXECUTION

3.1 INSTALLATION

A. Install hollow metal frames to comply with SDI A250.11.

B. Install doors to provide clearances between doors and frames as indicated in SDI A250.11.

C. Prime-Coat Touchup: Immediately after erection, sand smooth rusted or damaged areas of prime coat and apply touchup of compatible air-drying rust-inhibitive primer. Use galvanizing repair paint for metallic coated surfaces.

END OF SECTION
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 access doors and frames for walls and ceilings.

1.3 ACTION SUBMITTALS

A. Product Data: For each type of product.

1. Include construction details, material descriptions, dimensions of individual components and profiles, and finishes.

B. Samples: For each type of access door and frame and for each finish specified, complete assembly minimum 6 by 6 inches (150 by 150 mm) in size.

C. Product Schedule: For access doors and frames.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

A. Fire-Rated Access Doors and Frames: Assemblies complying with NFPA 80 that are listed and labeled by a qualified testing agency, for fire-protection ratings indicated, according to NFPA 252 or UL 10B.

2.2 ACCESS DOORS AND FRAMES

A. Flush Access Doors with Exposed Flanges:

1. Subject to compliance with requirements, provide products by one of the following:
   a. Acudor Products, Inc.
   b. J.L. Industries, Inc / Activar
   d. Larsen’s Manufacturing Company
e. MIFAB, Inc.
f. Milcor, Inc.
g. Nystrom, Inc.
h. Williams Bros. Corporation of America.

2. Description: Face of door flush with frame, with exposed flange and concealed hinge.
3. Locations: Wall and ceiling.
4. Door: Minimum 0.060 inch thick sheet metal set flush with exposed face flange of frame.
5. Frame: Minimum 0.060 inch thick sheet metal with 1 inch wide, surface mounted trim.
6. Hinge: Continuous piano.
7. Latch: Cam latch operated by screwdriver with interior release.
8. Locking: Provide locks and keying compatible with the Universities standard requirements.

2.3 FABRICATION

A. General: Provide access door and frame assemblies manufactured as integral units ready for installation.

B. Metal Surfaces: For metal surfaces exposed to view in the completed Work, provide materials with smooth, flat surfaces without blemishes. Do not use materials with exposed pitting, seam marks, roller marks, rolled trade names, or roughness.

C. Doors and Frames: Grind exposed welds smooth and flush with adjacent surfaces. Furnish mounting holes, attachment devices and fasteners of type required to secure access doors to types of supports indicated.

1. For concealed flanges with drywall bead, provide edge trim for gypsum panels securely attached to perimeter of frames.
2. For concealed flanges with plaster bead for full-bed plaster applications, provide zinc-coated expanded-metal lath and exposed casing bead welded to perimeter of frames.

D. Latching Mechanisms: Furnish number required to hold door in flush, smooth plane when closed.

2.4 FINISHES

A. Comply with NAAMM's "Metal Finishes Manual for Architectural and Metal Products" for recommendations for applying and designating finishes.

B. Protect mechanical finishes on exposed surfaces from damage by applying a strippable, temporary protective covering before shipping.

C. Appearance of Finished Work: Noticeable variations in same piece are not acceptable. Variations in appearance of adjoining components are acceptable if they are within the range of approved Samples and are assembled or installed to minimize contrast.

D. Painted Finishes: Comply with coating manufacturer's written instructions for cleaning, conversion coating, and applying and baking finish.
1. Factory Primed: Apply manufacturer's standard, lead- and chromate-free, universal primer immediately after surface preparation and pretreatment.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine substrates for compliance with requirements for installation tolerances and other conditions affecting performance of the Work.

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

3.2 INSTALLATION

A. Comply with manufacturer's written instructions for installing access doors and frames.

3.3 ADJUSTING

A. Adjust doors and hardware, after installation, for proper operation.

END OF SECTION
SECTION 08 51 13
ALUMINUM WINDOWS

PART 1 GENERAL

1.01 SUMMARY

A. Section Includes:
   1. All exterior Architectural Performance Class (AW) windows furnished and installed as shown on drawings, specified in this section and designated in AAMA/WDMA/CSA 101/IA1S.2/A440-2011 North American Fenestration Standard (NAFS-2011).
   2. All labor, materials, tools, equipment and services needed to furnish and install AW Class windows.
   3. Components furnished with installed windows.
   4. Installation accessories furnished and installed.

1.02 REFERENCES

A. Refer to NAFS-2011 for a complete list of references and industry standards.

1.03 SYSTEM DESCRIPTION AND PERFORMANCE REQUIREMENTS

A. Design Wind Loads - Allowable Stress Design (ASD)
   1. The design wind pressure for the project will be:
      a. 27.82 psf positive and negative; 37.10 psf negative at corner zones
   2. All structural components, including meeting rails, mullions and anchors shall be designed accordingly, complying with deflection and stress requirements of Paragraph 1.03.B.

B. Air, Water and Structural Performance Requirements
   1. When tested in accordance with cited test procedures, windows shall meet or exceed the following performance criteria, as well as those indicated in NAFS-2011 for Architectural AW Performance Class windows, Performance Grade 100 (AW100) unless otherwise noted herein.
      a. Test units shall not be smaller in either width or height than the “Gateway Test Size” specified in NAFS-2011 for AW Performance Class.
      b. “Downsize” testing to meet Optional Performance Class requirements specified herein shall not be permitted.
      c. Testing to previous, less stringent versions of NAFS shall not be acceptable.
      d. Test units shall employ manufacturer’s standard sealing, lock spacing and anchorage.
   2. Air Test Performance Requirements
      a. Air infiltration maximum 0.1 cfm per square foot at 6.24 psf pressure differential when tested in accord with ASTM E283.
   3. Water Test Performance Requirements
      a. No uncontrolled water leakage at 15.00 psf static pressure differential, with water application rate of 5 gallons/hr/sq ft when tested in accord with both ASTM E331 and ASTM E547. Static water test shall be repeated after application of design test pressures.
   4. Structural Test Performance Requirements
      a. Uniform Load Deflection Test
         i. No deflection of any unsupported span L of test unit (framing rails, muntins, mullions, etc.) in excess of L/175 at both a positive and negative load of 100 psf (design test pressure) when tested in accord with ASTM E330.
      b. Uniform Load Structural Test
         i. Unit to be tested at 1.5 x design test pressure, both positive and negative, acting normal to plane of wall in accord with ASTM E330.
ii. No glass breakage; permanent damage to fasteners, hardware parts, or anchors; damage to make windows inoperable; or permanent deformation of any main frame or ventilator member in excess of 0.2% of its clear span.

C. Life Cycle Testing
   1. When tested in accordance with AAMA 910-10, there is to be no damage to fasteners, hardware parts, support arms, activating mechanisms or any other damage that would cause the window to be inoperable at the conclusion of testing.
      a. Air infiltration and water resistance tests shall meet the primary performance requirements specified after completion of 4000 operational cycles plus thermal cycling.
      b. Testing to previous, less stringent versions of AAMA 910 shall not be acceptable.

D. Condensation Resistance and Thermal Transmittance Performance Requirements
   1. Perform thermal tests in accordance with NFRC 102 and/or AAMA 1503, or provide finite element computer thermal modeling and calculations per NFRC 100, NFRC 705 or AAMA 507, using DOE/LBL THERM, WINDOW, and/or CMAST software.
      a. Thermal Transmittance (U-Factor) for the overall window area shall be less than or equal to 0.45 BTU/hr-ft²-°F.
      b. Solar Heat Gain Coefficient (SHGC) for the overall window area shall not exceed 0.25
      c. Condensation-Resistance Factor (CRF): Provide aluminum windows tested for thermal performance according to AAMA 1503, showing a CRF of 45.

E. Acoustic Performance Requirements
   1. Perform acoustical tests in accordance with ASTM E90 and ASTM E1425 on the glass type(s) specified in 08 80 00, rigidly supported in aluminum framing of the same product type.
   2. “Glass-only” test results shall not be acceptable.
   3. Sound Transmission Class (STC) shall not be less than 30.
   4. Outdoor-Indoor Transmission Class (OITC) shall not be less than 26.

1.04 SUBMITTALS

A. General Requirements
   1. Provide all submittals in a timely manner to meet the required construction completion schedule.

B. Shop Drawings
   1. Shop drawings must be prepared wholly by the window manufacturer, or a qualified engineering services firm under the guidance of the manufacturer. Shop drawings for pre-engineered configurations may be prepared by installers upon written manufacturer consent.
   2. Provide design details along with bid proposals to define system aesthetic and functional characteristics.
   3. Provide up to three photocopied sets of shop drawings, including half size details of all necessary conditions.

C. Samples
   1. Components: Submit samples of anchors, fasteners, hardware, assembled corner sections and other materials and components as requested by Architect.
   2. Finish: Submit color samples for Architect’s approval as requested.

D. Test Reports and Calculations
   1. Submit certified independent laboratory test reports verifying compliance with all test requirements of 1.03.
2. Submit structural calculations indicating adequacy of all materials furnished under this section, in meeting the uniform and structural load requirements as specified in 1.03A.

1.05 QUALITY ASSURANCE

A. Qualifications: The window manufacturer shall provide written consent for the installation subcontractor to install window products to be used on this project.

B. In-Plant Testing: Conduct detailed quality audits and ASTM E331 static water infiltration testing on a minimum of 4% of factory-glazed windows prior to shipping, subject to reasonable unit size restrictions.
1. Each tested unit shall be identified with a removable sticker on the inside glass face.
2. Provide detailed documentation of in-plant testing upon request.

1.06 DELIVERY, STORAGE AND HANDLING

A. Packing, Shipping, Handling and Unloading
1. Materials will be packed, loaded, shipped, unloaded, stored and protected in accordance with AAMA CW-10.

1.07 WARRANTY

A. Aluminum Window Warranty
1. Products: Submit a written warranty, executed by the window manufacturer, for a period of 10 years from the date of manufacture, against defective materials or workmanship, including substantial non-compliance with applicable specification requirements and industry standards, which result in premature failure of the windows, finish, factory-glazed glass, or parts, outside of normal wear.
2. In the event that windows or components are found defective, manufacturer will repair or provide replacement material without charge at manufacturer’s option.
3. Warranty for all components must be direct from the manufacturer (non pass-through) and non pro-rated for the entire term. Warranty must be assignable to the non-residential owner, and transferable to subsequent owners through its length.

B. Glazing Units: 20 years from date of substantial completion.

C. Aluminum Finish: 20 years from date of substantial completion.

PART 2 PRODUCTS

2.01 MANUFACTURERS

A. Basis-of-Design Product
2. Acceptable Manufacturers include, but are not limited to the following:
   a. Wausau Window and Wall Systems, 7800 International Drive, Wausau, WI.
   b. Graham Architectural Products, 1551 Mount Rose Avenue, York, PA.
   c. EFCO Corporation, 100 County Rd, Monett, MO.
3. Obtain aluminum windows from single source from single manufacturer.
4. Sightline centerlines are to match typical existing window sightlines.

2.02 MATERIALS

A. Aluminum Framing Members
1. Extruded aluminum billet, 6063-T5 or T6 alloy for primary non-radius components; 6063-T5 or T6, 6005-T5, 6105-T5 or 6061-T6 for anchor components; all meeting the requirements of ASTM B221.
2. Aluminum sheet alloy 5005-H32 (for anodic finishing), or alloy 3003-H14 (for painted or unfinished sheet) meeting the requirements of ASTM B209.
3. Principal window frame and sash ventilator members will be a minimum 0.125" in thickness at hardware mounting locations.
4. Extruded or formed trim components will be a minimum 0.060" in thickness.
5. Frame depth 3-1/2" minimum.
6. Sash ventilator sections must be tubular, and close flush with adjoining frame surfaces at interior and exterior.
   a. Overlap sash ventilators will not be accepted.

2.03 COMPONENTS

A. Hardware
1. All steel components including attachment fasteners to be stainless steel except as noted.
2. Extruded aluminum components 6063-T5 or -T6.
3. Locking handles, bases and strikes to be die cast, white bronze or stainless steel in manufacturer’s standard surface finish.
4. Thermo-plastic or thermo-set plastic caps, housings and other components to be injection-molded nylon, extruded PVC, or other suitable compound.
5. Hardware to be occupant-operated and include: stainless steel four-bar hinges, extruded aluminum butt hinges, locking cam handles, keepers, two-point keepers, linear operators, single-handle multi-lock, roto-operators, concealed friction adjusters, concealed limited opening devices.

B. Sealants
1. All sealants shall comply with applicable provisions of AAMA 800 and/or Federal Specifications FS-TT-001 and 002 Series.
2. Frame joinery sealants shall be suitable for application specified and as tested and approved by window manufacturer.

C. Glazing:
1. Glass and Glazing Materials: Complying with ASTM c1036, insulating glass SIGMA/IOCC certified to performance level CBA when tested in accordance with ASTM E2190.
   (1) Shall comply with system performance requirements as listed in Section 1 of this specification section.
2. Basis of Design Product: Solarban 70XL, clear, as manufactured by Virto Architectural Glass on the second (#2) surface.
   (1) Overall Unit Thickness: 1-5/16"
   (2) Thickness of Each Glass Lite: 6.0mm
   (3) Outdoor Lite: Tinted, fully tempered float glass, provide 2plies laminated.
   (4) Interspace Content: air
   (5) Indoor Lite: Fully tempered flat glass.
3. Provide manufacturers standard samples for approval by the Owner and Designer. The design intent is for the new glazing colors to match existing adjacent double hung windows.
4. Glazing Gaskets: Gaskets to meet the requirements of ASTM C864.
5. Spacers and Setting Blocks: Manufacturer's standard elastomeric type.
6. Bond-Breaker Tape: Manufacturer's standard TFE-fluorocarbon or polyethylene material to which sealants will not develop adhesion.
7. Glazing Sealants: As recommended by manufacturer for joint type.
D. Laminated Glass: ASTM C 1172. Use materials that have a proved record of no tendency to bubble, discolor, or lose physical and mechanical properties after fabrication and installation.
   1. Laminate glass with polyvinyl butyral interlayer to comply with interlayer manufacturer’s written instructions.
   2. Interlayer Thickness: Provide thickness not less than that indicated and as needed to comply with requirements.
   3. Color: The design intent is for the new glazing colors to match existing adjacent double hung windows.
   4. Provide at all clerestory glazing applications.

E. Glazing Materials
   1. Setting Blocks/Edge Blocking: Provide in sizes and locations recommended by GANA Glazing Manual. Setting blocks used in conjunction with soft-coat low-e glass shall be silicone.
   2. Back-bedding tapes, expanded cellular glazing tapes, toe beads, heel beads and cap beads shall meet the requirements of applicable specifications cited in AAMA 800.
   3. Glazing gaskets shall be non-shrinking, weather-resistant, and compatible with all materials in contact.
   4. Structural silicone sealant where used shall meet the requirements of ASTM C1184.
   5. Spacer tape in continuous contact with structural silicone shall be tested for compatibility and approved by the sealant manufacturer for the intended application.
   6. Gaskets in continuous contact with structural silicone shall be extruded silicone or compatible material.

F. Steel Components
   1. Provide steel reinforcements as necessary to meet the performance requirements of 1.03.
   2. Concealed steel anchors and reinforcing shall be factory painted after fabrication with TGIC powder coating, or rust-inhibitive primer complying with Federal Specification TT-P-645B.

G. Receptors:
   1. Provide extruded aluminum receptors to receive windows, as shown on architectural drawings.
   2. Finish to match window frames.

2.04 FABRICATION

A. General:
   1. Finish, fabricate and shop assemble frame and sash ventilator members into complete windows under the responsibility of one manufacturer.
   2. No bolts, screws or fastenings shall impair independent frame movement, or bridge the thermal barrier, unless such bridging was also present in thermal test units and thermal models.
   3. Fabricate to allow for thermal movement of materials when subjected to a temperature differential from -30 °F to +180 °F.

B. Frames:
   1. Cope and mechanically fasten each corner, or miter and weld, or corner block each corner; then seal weather tight.
   2. Make provisions for continuity of frame joinery seals at extrusion webs.

C. Main Sash Ventilator
   1. Miter all corners and mechanically stake over a solid extruded aluminum corner block, set and sealed in epoxy, leaving hairline joinery, then sealed weather tight.
   2. Make provisions for continuity of sash ventilator joinery seals at extrusion webs.

D. Hardware:
   1. Concealed Hinges
      a. Provide two stainless steel concealed four-bar adjustable friction hinges per vent meeting AAMA 904.1.
2. Locks
   a. Die cast, lacquered or e-coated white bronze, or stainless steel cam locks, strikes and/or keepers for manual operation shall secure sash in closed position.
   b. Provide locks for ventilators at maximum 40” spacing; 50” for single operator multi-lock hardware.
   c. Provide double grip hardware activated by a lower device for locks exceeding 6'-0" from floor.

E. Thermal Break Construction:
   1. Continuous extruded polyamide with 25% glass fiber reinforcing, mechanically crimped into cross-knurled cavities.
   2. Minimum thermal barrier width 24 mm.
   3. Quality assurance records must be maintained and available as requested.

F. Weather-stripping:
   1. Bulb- or fin-type neoprene, EPDM, dual-durometer PVC, polypropylene, TPE, or other suitable material as tested and approved by the window manufacturer.
   2. Miter, crowd, stake or join at corners. Provide drainage to exterior as necessary.
   3. Weather-stripping shall provide an effective pressure-equalization seal at the interior face of the sash ventilator.

G. Fasteners:
   1. Noncorrosive and compatible with window members, flashings, trim, hardware, anchors and other components.
   2. Do not use exposed fasteners.

2.05 FINISHES

A. Finish of Aluminum Components
   1. Finish of all exposed areas of aluminum windows and components shall be done in accord with the appropriate AAMA Voluntary Guide Specification. 70% PVDF, AAMA 2605, Custom color to match double hung windows at adjacent building, verify color in the field and obtain approval by Owner.

PART 3 EXECUTION

3.1 EXAMINATION

A. Examine openings, substrates, structural support, anchorage, and conditions, with Installer present, for compliance with requirements for installation tolerances and other conditions affecting performance of the Work.

B. Verify rough opening dimensions, levelness of sill plate, and operational clearances.

C. Examine wall flashings, vapor retarders, water and weather barriers, and other built-in components to ensure weathertight window installation.

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

3.2 INSTALLATION

A. Comply with manufacturer’s written instructions for installing windows, hardware, accessories, and other components. For installation procedures and requirements not addressed in manufacturer’s written instructions, comply with installation requirements in ASTM E 2112.
B. Install windows level, plumb, square, true to line, without distortion or impeding thermal movement, anchored securely in place to structural support, and in proper relation to wall flashing and other adjacent construction to produce weathertight construction.

C. Install windows and components to drain condensation, water penetrating joints, and moisture migrating within windows to the exterior.

D. Separate aluminum and other corroodible surfaces from sources of corrosion or electrolytic action at points of contact with other materials.

3.3 FIELD QUALITY CONTROL

E. Testing Agency: Engage a qualified testing agency to perform tests and inspections.

1. Testing and inspecting agency will interpret tests and state in each report whether tested work complies with or deviates from requirements.

F. Testing Services: Testing and inspecting of installed windows shall take place as follows:

1. Testing Methodology: Testing of windows for air infiltration and water resistance shall be performed according to AAMA 502.
2. Air-Infiltration Testing:
   a. Test Pressure: That required to determine compliance with AAMA/WDMA/CSA 101/1.S.2/A440 performance class indicated.
   b. Allowable Air-Leakage Rate: 1.5 times the applicable AAMA/WDMA/CSA 101/1.S.2/A440 rate for product type and performance class rounded down to one decimal place.
3. Water-Resistance Testing:
   b. Allowable Water Infiltration: No water penetration.
4. Testing Extent: Two windows of each type as selected by Architect and a qualified independent testing and inspecting agency, Windows shall be tested after perimeter sealants have cured.
5. Test Reports: Prepared according to AAMA 502.

G. Windows will be considered defective if they do not pass tests and inspections.

H. Prepare test and inspection reports.

3.4 ADJUSTING, CLEANING, AND PROTECTION

A. Adjust operating sashes and hardware for a tight fit at contact points and weather stripping for smooth operation and weathertight closure.

B. Clean exposed surfaces immediately after installing windows. Avoid damaging protective coatings and finishes. Remove excess sealants, glazing materials, dirt, and other substances.

1. Keep protective films and coverings in place until final cleaning.
C. Remove and replace glass that has been broken, chipped, cracked, abraded, or damaged during construction period.

D. Protect window surfaces from contact with contaminating substances resulting from construction operations. If contaminating substances do contact window surfaces, remove contaminants immediately according to manufacturer’s written instructions.

END OF SECTION
PART 1 GENERAL

1.1 Work Included – The contractor shall furnish and/or install all supervision, labor, materials, equipment, services and incidentals to complete all work as specified.

1.2 REFERENCES


1.3 SUBMITTALS

A. Product Data: Manufacturer's data sheets on each product to be used, including:
   1. Preparation instructions and recommendations.
   2. Storage and handling requirements and recommendations.
   3. Installation methods.

B. Shop Drawings: Show dimensions, layout, profiles and product components; details of anchoring and fastening; sealants and weatherstripping; and recorded field measurements.

C. Finish Samples: Submit color samples, for approval by Architect, that represent the allowable range of finish established from production material specified.

D. Component Samples: If requested by Architect, submit samples of anchors, fasteners, hardware, assembled corner sections and other materials and components.

E. Operation and Maintenance Data: Include methods for maintaining installed products and precautions against cleaning materials and methods detrimental to finishes and performance.

F. Executed warranty documents specified.

1.4 DELIVERY, STORAGE, AND HANDLING

A. Store materials protected from exposure to harmful weather conditions and at temperature conditions recommended by manufacturer.
   1. Store inside, if possible, in a clean, well-drained area free of dust and corrosive fumes.
   2. Stack vertically or on edge so that water cannot accumulate on or within materials. Use non-staining wood or plastic shims between components to provide water drainage and air circulation.
   3. Cover materials with tarpaulins or plastic hung on frames to provide air circulation.
   4. Keep water away from stored assemblies.

1.5 WARRANTY
A. Manufacturer’s Warranty: Submit warranty against defects in materials and workmanship for period of 5 years from the date of Substantial Completion.

PART 2 PRODUCTS

2.1 MANUFACTURERS

A. Manufacturers from the following or approved substitutes:

1. Allied Window, Inc.; 11111 Canal Road, Cincinnati, OH 45241. (800) 445-5411; Email: csales@alliedwindow.com

2. Indow Windows; 6427 NE 59th Place, Portland, OR 97218. (503) 284-2260; Email: opportunity@indowwindows.com

3. Mon-Ray, Inc., 7900 Excelsior Blvd., Ste. 140, Minneapolis, MN 55343. (800) 544-3646; Email: info@monray.com

2.2 STORM WINDOWS

A. General: Provide Custom "Invisible" Storm Windows that fit existing windows without gaps of more than 1/8 inch (3 mm) in each unit.

1. Verify actual measurements of openings by field measurement before fabrication; show recorded measurements on shop drawings.

2. Allow for out-of-square and irregular conditions.

3. Verify frame and sill conditions of each opening before fabrication; provide appropriate fabrication details to suit existing conditions.

B. One Lite Lift-Out Storm Windows: Interior mounted aluminum framed lift-out panels with a single frame, secured with head and sill channels.

1. Frame Sightline: 1 inch (25 mm) maximum, except 1-1/4 inches (31 mm) glazing muntins.

2. Frame Thickness: 3/8 inch (9.5 mm).


2.3 COMPONENTS

A. Master Frame and Panel and Sash Frame Members: Extruded aluminum with wall thickness not less than 0.062 inches (1.6 mm); miter corners and join with corner keys.

1. Aluminum: 6063-T5 alloy and temper with minimum ultimate strength of 22,000 psi (152 MPa) and yield strength of 16,000 psi (110 MPa).


3. Finish: CoroFlan ADS (Kynar equivalent finish which meets the durability criteria of AAMA 2605, with 15-year warranty. Custom color to match sample provided.

B. Fasteners: Zinc plated, cadmium plated or other non-corrosive metal compatible with aluminum.
C. Hardware: Nylon or zinc die-cast.

D. Type: Laminated glass.
   1. Monumental One Lite Glazing:
      a. Thickness: 1/4 inch (6 mm).

E. Glazing Gaskets: Removable and reusable virgin vinyl glazing splines with neatly mitered corners.

PART 3 EXECUTION

3.1 EXAMINATION

A. Do not begin installation until substrates have been properly prepared.

B. If substrate preparation is the responsibility of another installer, notify Architect of unsatisfactory preparation before proceeding.

3.2 PREPARATION

A. Clean surfaces thoroughly prior to installation.

B. Prepare surfaces using the methods recommended by the manufacturer for achieving the best result for the substrate under the project conditions.

3.3 INSTALLATION

A. Install in accordance with manufacturer's instructions.

3.4 PROTECTION

A. Protect installed products until completion of project.

B. Touch-up, repair or replace damaged products before Substantial Completion.

END OF SECTION
SECTION 08 63 00
METAL FRAMED SKYLIGHTS

PART 1 - GENERAL

1.1 Related Documents

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.2 Summary

A. This Section includes the following:
   1. Metal Framed, Hurricane Rated, Structural Skylights.
   2. Structural Seeel for steel framing

1.3 Performance Requirements

A. General: Provide metal-framed skylights capable of withstanding loads and thermal and structural movements indicated without failure. Failure includes the following:
   1. Deflection exceeding specified limits.
   2. Thermal stresses transferred to the building structure.
   3. Skylight framing members transferring stresses, including those caused by thermal and structural movement, to glazing.
   4. Weakening of fasteners, attachments, and other components.

B. Deflection Limits: As follows:
   1. Deflection of the entire length of framing members in direction normal to glazing plane is limited to 1/175 of clear span.

C. Lateral Support: Compression flanges 75% of flexural members requiring lateral be laterally braced by cross members with minimum depths equal to flexural member depth and by anchors to the building structure. Glazing material does not provide lateral support.

D. Structural Loads: Provide metal-framed skylights, including anchorage, capable of withstanding the effects of the following design loads when supporting full dead loads:
   1. Roof Loads
      a. Concentrated Load: 250 lbs applied to framing members at location that produces the most severe stress or deflection.
      b. Snow Loads: 15 psf
c. Wind Loads: -45 psf

E. Structural Performance: Provide metal-framed skylights, including anchorage, capable of withstanding pressures indicated without material and deflection failures and permanent deformation of structural members exceeding 0.2 percent of span when tested according to ASTM E 330.

F. Air Infiltration: Provide metal-framed skylights with maximum air leakage of 0.06 cfm/sq. ft. (0.03 L/s per sq. m) of surface when tested according to ASTM E 283 at a minimum static-air-pressure differential of 6.24lb/sq. ft. (300 Pa).

G. Water Penetration: Provide metal-framed skylights that do not evidence water penetration when tested according to ASTM E 331 at a minimum differential static pressure of 20 percent of positive design wind pressure, but not less than 15 lb/sq. ft. (718 Pa).

H. Thermal Movement: Provide metal-framed skylights that allow for thermal movements resulting from the following maximum change (range) in ambient temperatures by preventing buckling, sealant failure, and other detrimental effects.

1. Temperature Change (Range): 100 degrees F.

1.4 Submittals

A. Product Data: Include construction details, material descriptions, dimensions and profiles of components, and finishes for metal-framed skylights.

B. Shop Drawings: For metal-framed skylights. Include plans, elevations, sections, details, and attachments to other work as required.

C. Samples for Initial Selection: Manufacturer’s color charts consisting of sections of units showing the full range of colors available for factory-finished aluminum.

D. Samples for Verification: Provide color sample of selected finish on 2”x3” aluminum sheet.

E. Installer Certificates: If required, signed by manufacturer certifying that installers comply with requirements.

F. Product Test Reports: From a qualified testing agency indicating skylights comply with requirements, based on comprehensive testing of current products.

1.6 Quality Assurance

A. Installer Qualifications: An experienced installer who has specialized in installing metal-framed skylights similar to those indicated for this Project and who is acceptable to manufacturer.

B. Professional Engineer Qualifications: A professional engineer who is experienced in providing engineering services of the kind indicated. Engineering services are defined as those performed for installations of skylights that are similar to those indicated for this Project in material, design, and extent.

C. Testing Agency Qualifications: An independent testing agency with the experience and capability to conduct the testing indicated, as documented according to ASTM E 548.
1.7 Project Conditions

A. Field Measurements: Where metal-framed skylights are indicated to fit to other construction, verify dimensions of other construction by field measurements before fabrication and indicate measurements on Shop Drawings. Coordinate fabrication schedule with construction progress to avoid delaying the Work.
   1. Established Dimensions: Where field measurements cannot be made without delaying the Work, establish dimensions and proceed with fabricating skylights without field measurements. Coordinate construction to ensure that actual dimensions correspond to established dimensions.

1.8 Warranty

A. Warranty: Written warranty, executed by manufacturer agreeing to repair or replace components of metal-framed skylights that fail in materials or workmanship within specified warranty period. Failures include, but are not limited to, the following:
   1. Structural failures.
   2. Failure of systems to meet performance requirements.
   3. Deterioration of metals, metal finishes, and other materials beyond normal weathering.
   4. Water leakage; defined as uncontrolled water appearing on normally exposed interior surfaces of skylights from sources other than condensation, resulting from defects in skylight materials or workmanship. (Water controlled by flashing and gutters and drained back to the exterior and that cannot damage adjacent materials or finishes is not water leakage). Water leakage resulting from improper installations not part of this warranty.

B. System Warranty Period: 5 years from date of shipment from the manufacturer.

C. Plastic Warranty: Provide written warranty signed by manufacturer agreeing to repair or replace work that has or develops defects in the plastic. “Defects” is defined as abnormal aging or deterioration.
   1. Warranty Period for polycarbonate: 10 years from date of shipment from the manufacturer.

PART 2 - PRODUCTS

2.1 Manufacturers

A. Manufacturers: Subject to compliance with requirements, provide the following manufacturer’s or approved equal:
   1. Hurricane Rated system by Wasco Products, Inc., Commercial Division, Wells, ME (800-388-0293)
3. Hurricane Rated by American Skylights, 1218 Corporate Dr. E, Arlington, Texas, 76006.

2.2 Framing Materials

A. Framing Members: Extruded aluminum alloy 6063-T5 or T6, ASTM B 221 with minimum effective thickness of 0.109 inches.
B. Exterior Pressure Caps: Extruded aluminum alloy 6063-T5 or T6, ASTM B 221 with minimum effective thickness of 0.090 inches.
C. Concealed Flashing: Manufacturer’s standard corrosion-resistant, non-staining, non-bleeding flashing; compatible with adjacent materials.
   1. Minimum Thickness: 0.032 inch Apron Flashing.
   2. Minimum Thickness: 0.062 inch Closures.
E. Fasteners and Accessories: Manufacturer’s standard corrosion-resistant, non-staining, non-bleeding fasteners and accessories; compatible with adjacent materials.
   1. Aluminum Retaining Cap Fasteners and Framing Members Fasteners: ASTM A 193/A 193M, Series 300 stainless-steel screws; type as recommended by manufacturer.
   2. Connections to Supporting Structure: Series 300 Stainless Steel or ASTM A 307, hot dipped galvanized steel fasteners by installer.
F. Framing-System Sealants: Single-component, non-sag, high performance, non-priming, gun-grade elastomeric polyurethane sealant furnished by skylight manufacturer.
   2. Sealant conforms to USDA approval standards.
G. Bituminous Paint: Cold-applied asphalt mastic paint complying with SSPC-Paint 12, except containing no asbestos, and formulated for 30-mil thickness per coat.

2.3 Glazing Materials

A. Multiwall Polycarbonate: 25MM multiwall polycarbonate panels
   1. Clear/Crystal; VT=49%, SHGC=0.54, U-factor=0.16
B. Glazing Gaskets: Manufacturer’s proprietary pressure-glazing gaskets of elastomer type and hardness selected by the skylight manufacturer to comply with requirements. Glazing gaskets to be extruded thermoplastic elastomer by the skylight manufacturer.
C. Spacers, Edge Blocks, and Setting Blocks: Manufacturer’s standard permanent non-migrating type of elastomer type and hardness selected to comply with requirements. Spacers, Edge Blocks, and Setting Blocks to be extruded thermoplastic elastomer by the skylight manufacturer.
D. Glazing Weatherseal Sealant: Neutral-curing silicone sealant recommended by skylight and sealant manufacturers for this use and furnished by skylight manufacturer.
   1. Sealant is capable of withstanding 50 percent movement in both extension and compression (total of 100 percent movement) when tested for adhesion and cohesion under maximum cyclic movement according to ASTM C 719.
   2. Sealant complies with ASTM C 920 for Type S, Grade NS, Class 25, Uses NT, G, A, and, as applicable to substrates including other sealants with which it comes in contact, O.

E. Flashing Sealant: Single-component, non-sag, high performance, non-priming, gun-grade elastomeric polyurethane sealant furnished by skylight manufacturer.
   2. Sealant conforms to USDA approval standards.

2.4 Fabrication

A. Framing Components: As follows:
   1. Factory fit and assemble components, where practical.
   2. Fabricate components that, when assembled, will have accurately fitted joints with ends coped or mitered to produce hairline joints free of burrs and distortion.
   3. Fabricate components to drain water passing joints and to drain condensation and moisture occurring or migrating within skylight system to the exterior.
   4. Fabricate components to accommodate expansion, contraction, and field adjustment, and to provide for minimum clearance and shimming at skylight perimeter.
   5. Fabricate components to ensure that glazing is thermally and physically isolated from framing members.
   6. Form shapes with sharp profiles, straight and free of defects or deformations, before finishing.
   7. Fit and assemble components to greatest extent practicable before finishing.
   8. Reinforce members as required to retain fastener threads.
   9. Attach retainer bars with gasketed stainless steel fasteners spaced at a maximum of 12 inches on center.
   10. Weld components before finishing and in concealed locations to greatest extent practicable to minimize distortion.
   11. Before shipping, shop assemble, mark, and disassemble components that cannot be permanently shop assembled.

B. Provide continuous aluminum frame with weatherproof splice joints and locked and sealed or fully welded corners. Locate weep holes in the frame at each rafter connection to drain condensation.
C. Prepare framing to receive anchor and connection devices and fasteners.
D. Field Glazing: Locate and size extruded elastomeric setting blocks and spacers in accordance with the glazing manufacturer’s recommendations. At no point shall the glazing come in contact with the skylight frame or fasteners.

2.5 Aluminum Finishes

A. General: Comply with NAAMM “Metal Finishes Manual” recommendations for application and designations of finishes.

B. Finish designations prefixed by AA conform to the system for designations of aluminum finishes established by the Aluminum Association.
   1. Finish: AAMA 2605 FEVE Powder Coat,
   2. Color: Quaker Bronze

PART 3 - EXECUTION

3.1 Examination

A. Examine substrates and conditions, with Installer present, for compliance with requirements for installation tolerances and other conditions affecting skylight performance.
   1. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 Preparation

A. Metal Protection: As follows:
   1. Where aluminum will contact dissimilar metals, protect against galvanic action by painting contact surfaces with primer or by applying sealant or tape recommended by manufacturer for this purpose.
   2. Where aluminum will contact concrete or masonry, protect against corrosion by painting contact surfaces with bituminous paint.
   3. Where aluminum will contact pressure-treated wood, separate dissimilar materials by methods recommended by manufacturer.

3.3 Installation

A. General: Comply with manufacturer’s written instructions for protecting, handling, and installing skylight components.
   1. Fit frame joints to produce hairline joints free of burrs and distortion.
   2. Rigidly secure non-movement joints.
   3. Accommodate thermal and mechanical movements.
4. Install framing components to drain water passing joints and to drain condensation and moisture occurring or migrating within skylight system to the exterior.
5. Coordinate installation of flashings at skylight perimeters to maintain continuity of water barriers.
6. Set continuous curbs and flashings in a full sealant bed, unless otherwise indicated. Comply with requirements in Division 7 Section “Joint Sealants.”

B. Erection Tolerances: Install skylight components true in plane, accurately aligned, and without warp or rack. Adjust framing to comply with the following tolerances:
1. Variation from Plane: Limit variation from plane or location shown to 1/8 inch in 10 feet; 1/4 inch over total length.
2. Alignment: Where surfaces abut in line and at corners and where surfaces are separated by less than 3 inches, limit offset from true alignment to less than 1/32 inch; otherwise, limit offset from true alignment to 1/8 inch.

C. Field Glazing: Locate and size extruded elastomeric setting blocks and spacers in accordance with the glazing manufacturer’s recommendations. At no point shall the glazing come in contact with the skylight frame or fasteners
D. Install secondary-sealant weatherseal according to sealant manufacturer’s written instructions to provide weatherproof joints. Install joint fillers behind sealant as recommended by sealant manufacturer.

3.4 Cleaning

A. Clean skylights inside and outside, immediately after installation and after sealants have cured, according to manufacturer’s written recommendations.
   1. Remove temporary protective coverings and strippable coatings from pre-finished metal surfaces.
   Remove labels and markings from all components.
B. Remove excess sealant according to sealant manufacturer’s written recommendations.

END OF SECTION
SECTION 09 29 00
GYPSUM BOARD

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. Interior gypsum board.

1.3 ACTION SUBMITTALS
   A. Product Data: For each type of product.
   B. Samples: For the following products:
      1. Trim Accessories: Full-size Sample in 12-inch- (300-mm-) long length for each trim accessory indicated.
   C. Samples for Initial Selection: For each type of trim accessory indicated.
   D. Samples for Verification: For the following products:
      1. Trim Accessories: Full-size Sample in 12-inch- (300-mm-) long length for each trim accessory indicated.

1.4 DELIVERY, STORAGE AND HANDLING
   A. Store materials inside under cover and keep them dry and protected against weather, condensation, direct sunlight, construction traffic, and other potential causes of damage. Stack panels flat and supported on risers on a flat platform to prevent sagging.

1.5 FIELD CONDITIONS
   A. Environmental Limitations: Comply with ASTM C 840 requirements or gypsum board manufacturer's written instructions, whichever are more stringent.
   B. Do not install paper-faced gypsum panels until installation areas are enclosed and conditioned.
C. Do not install panels that are wet, moisture damaged, and mold damaged.
   1. Indications that panels are wet or moisture damaged include, but are not limited to, discoloration, sagging, or irregular shape.
   2. Indications that panels are mold damaged include, but are not limited to, fuzzy or splotchy surface contamination and discoloration.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

A. Fire-Resistance-Rated Assemblies: For fire-resistance-rated assemblies, provide materials and construction identical to those tested in assembly indicated according to ASTM E 119 by an independent testing agency.

B. STC-Rated Assemblies: For STC-rated assemblies, provide materials and construction identical to those tested in assembly indicated according to ASTM E 90 and classified according to ASTM E 413 by an independent testing agency.

2.2 GYPSUM BOARD, GENERAL

A. Size: Provide maximum lengths and widths available that will minimize joints in each area and that correspond with support system indicated.

2.3 INTERIOR GYPSUM BOARD

A. Gypsum Wallboard: ASTM C 1396.
   1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
      a. American Gypsum
      b. Certainteed Corporation
      c. Georgia-Pacific Gypsum, LLC
      d. National Gypsum Company
      e. USG Corporation.

B. Moisture and Mold Resistant Type: With moisture and mold resistant core and surfaces:
   1. Core: 5/8”, type X.
   2. Long Edges: Tapered

2.4 TRIM ACCESSORIES

A. Interior Trim: ASTM C 1047.
   1. Material: Galvanized or aluminum-coated steel sheet, rolled zinc.
   2. Shapes:
2.5 JOINT TREATMENT MATERIALS

A. General: Comply with ASTM C 475/C 475M.

B. Joint Tape:
   1. Interior Gypsum Board: Paper.
   2. Tile Backing Panels: As recommended by panel manufacturer.

C. Joint Compound for Interior Gypsum Board: For each coat, use formulation that is compatible with other compounds applied on previous or for successive coats.
   1. Prefilling: At open joints, rounded or beveled panel edges, and damaged surface areas, use setting-type taping compound.
   2. Embedding and First Coat: For embedding tape and first coat on joints, fasteners, and trim flanges, use setting-type taping compound.
   3. Fill Coat: For second coat, use setting-type compound.
   4. Finish Coat: For third coat, use drying-type compound.

D. Joint Compound for Tile Backing Panels:
   1. Glass-Mat, Water-Resistant Backing Panel: As recommended by backing panel manufacturer.
   2. Cementitious Backer Units: As recommended by backer unit manufacturer.
   3. Water-Resistant Gypsum Backing Board: Use setting-type taping compound and setting-type, sandable topping compound.

2.6 AUXILIARY MATERIALS

A. General: Provide auxiliary materials that comply with referenced installation standards and manufacturer's written instructions.

B. Steel Drill Screws: ASTM C 1002 unless otherwise indicated.
   1. Use screws complying with ASTM C 954 for fastening panels to steel members from 0.033 to 0.112 inch (0.84 to 2.84 mm) thick.
   2. For fastening cementitious backer units, use screws of type and size recommended by panel manufacturer.

C. Thermal Insulation: As specified in Section 072100 "Thermal Insulation."
D. Vapor Retarder: As specified in Section 072600 "Vapor Retarders."

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine areas and substrates including welded hollow-metal frames and support framing, with Installer present, for compliance with requirements and other conditions affecting performance of the Work.

B. Examine panels before installation. Reject panels that are wet, moisture damaged, and mold damaged.

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

3.2 APPLYING AND FINISHING PANELS, GENERAL

A. Comply with ASTM C 840.

B. Install ceiling panels across framing to minimize the number of abutting end joints and to avoid abutting end joints in central area of each ceiling. Stagger abutting end joints of adjacent panels not less than one framing member.

C. Install panels with face side out. Butt panels together for a light contact at edges and ends with not more than 1/16 inch (1.5 mm) of open space between panels. Do not force into place.

D. Locate edge and end joints over supports, except in ceiling applications where intermediate supports or gypsum board back-blocking is provided behind end joints. Do not place tapered edges against cut edges or ends. Stagger vertical joints on opposite sides of partitions. Do not make joints other than control joints at corners of framed openings.

E. Form control and expansion joints with space between edges of adjoining gypsum panels.

F. Cover both faces of support framing with gypsum panels in concealed spaces (above ceilings, etc.), except in chases braced internally.

   1. Unless concealed application is indicated or required for sound, fire, air, or smoke ratings, coverage may be accomplished with scraps of not less than 8 sq. ft. (0.7 sq. m) in area.
   2. Fit gypsum panels around ducts, pipes, and conduits.
   3. Where partitions intersect structural members projecting below underside of floor/roof slabs and decks, cut gypsum panels to fit profile formed by structural members; allow 1/4- to 3/8-inch- (6.4- to 9.5-mm-) wide joints to install sealant.

G. Isolate perimeter of gypsum board applied to non-load-bearing partitions at structural abutments. Provide 1/4- to 1/2-inch- (6.4- to 12.7-mm-) wide spaces at these locations and trim edges with edge trim where edges of panels are exposed. Seal joints between edges and abutting structural surfaces with acoustical sealant.
H. Attachment to Steel Framing: Attach panels so leading edge or end of each panel is attached to open (unsupported) edges of stud flanges first.

I. Wood Framing: Install gypsum panels over wood framing, with floating internal corner construction. Do not attach gypsum panels across the flat grain of wide-dimension lumber, including floor joists and headers. Float gypsum panels over these members or provide control joints to counteract wood shrinkage.

J. STC-Rated Assemblies: Seal construction at perimeters, behind control joints, and at openings and penetrations with a continuous bead of acoustical sealant. Install acoustical sealant at both faces of partitions at perimeters and through penetrations. Comply with ASTM C 919 and with manufacturer's written instructions for locating edge trim and closing off sound-flanking paths around or through assemblies, including sealing partitions above acoustical ceilings.

K. Install sound attenuation blankets before installing gypsum panels unless blankets are readily installed after panels have been installed on one side.

3.3 APPLYING INTERIOR GYPSUM BOARD

A. Install interior gypsum board in the following locations:

1. Wallboard Type: Vertical surfaces unless otherwise indicated.
2. Ceiling Type: Ceiling surfaces.

B. Single-Layer Application:

1. On ceilings, apply gypsum panels before wall/partition board application to greatest extent possible and at right angles to framing unless otherwise indicated.
2. On partitions/walls, apply gypsum panels vertically (parallel to framing) unless otherwise indicated or required by fire-resistance-rated assembly, and minimize end joints.
   a. Stagger abutting end joints not less than one framing member in alternate courses of panels.
   b. At stairwells and other high walls, install panels horizontally unless otherwise indicated or required by fire-resistance-rated assembly.
3. On Z-shaped furring members, apply gypsum panels vertically (parallel to framing) with no end joints. Locate edge joints over furring members.
4. Fastening Methods: Apply gypsum panels to supports with steel drill screws.

3.4 APPLYING EXTERIOR GYPSUM PANELS FOR CEILINGS AND SOFFITS

A. Apply panels perpendicular to supports, with end joints staggered and located over supports.

1. Install with 1/4-inch (6.4-mm) open space where panels abut other construction or structural penetrations.
2. Fasten with corrosion-resistant screws.
3.5 INSTALLING TRIM ACCESSORIES

A. General: For trim with back flanges intended for fasteners, attach to framing with same fasteners used for panels. Otherwise, attach trim according to manufacturer's written instructions.

B. Control Joints: Install control joints according to ASTM C 840 and in specific locations approved by Architect for visual effect.

C. Interior Trim: Install in the following locations:
   1. Cornerbead: Use at outside corners.
   2. Bullnose Bead: Use at outside corners.
   3. L-Bead: Use where indicated.

D. Exterior Trim: Install in the following locations:
   1. Cornerbead: Use at outside corners.

3.6 FINISHING GYPSUM BOARD

A. General: Treat gypsum board joints, interior angles, edge trim, control joints, penetrations, fastener heads, surface defects, and elsewhere as required to prepare gypsum board surfaces for decoration. Promptly remove residual joint compound from adjacent surfaces.

B. Prefill open joints and damaged surface areas.

C. Apply joint tape over gypsum board joints, except for trim products specifically indicated as not intended to receive tape.

D. Gypsum Board Finish Levels: Finish panels to levels indicated below and according to ASTM C 840:
   1. Level 4: At panel surfaces that will be exposed to view unless otherwise indicated.
      a. Primer and its application to surfaces are specified in Section 099123 “Interior Painting.”

E. Glass-Mat Gypsum Sheathing Board: Finish according to manufacturer's written instructions for use as exposed soffit board.

F. Glass-Mat Faced Panels: Finish according to manufacturer's written instructions.

G. Cementitious Backer Units: Finish according to manufacturer's written instructions.

3.7 PROTECTION

A. Protect adjacent surfaces from drywall compound and promptly remove from floors and other non-drywall surfaces. Repair surfaces stained, marred, or otherwise damaged during drywall application.
B. Protect installed products from damage from weather, condensation, direct sunlight, construction, and other causes during remainder of the construction period.

C. Remove and replace panels that are wet, moisture damaged, and mold damaged.

1. Indications that panels are wet or moisture damaged include, but are not limited to, discoloration, sagging, or irregular shape.

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

END OF SECTION
SECTION 09 91 13
EXTERIOR PAINTING

PART 1 - GENERAL

1.1 Drawings and general provisions of the contract, including General and Supplementary Conditions, and other Division 1 specification sections apply to work of this section.

1.2 Work Included – Surface preparation and the application of paint systems on the following exterior substrates:
   1.2.1 Wood

1.3 Related Work
   1.3.1 Joint Sealants – Section 07 92 00

1.4 Definitions:
   1.4.1 Gloss Level 1: Not more than 5 units at 60 degrees and 10 units at 85 degrees, according to ASTM D 523, a matt flat finish.
   1.4.2 Gloss Level 2: Not more than 10 units at 60 degrees and 10 to 35 units at 85 degrees, according to ASTM D 523, a high-side sheen flat, velvet-like finish.
   1.4.3 Gloss Level 3: 10 to 25 units at 60 degrees and 10 to 35 units at 85 degrees, according to ASTM D 523, an eggshell finish.
   1.4.4 Gloss Level 4: 20 to 35 units at 60 degrees and not less than 35 units at 85 degrees, according to ASTM D 523, a satin-like finish.
   1.4.5 Gloss Level 5: 35 to 70 units at 60 degrees, according to ASTM D 523, a semi-gloss finish.
   1.4.6 Gloss Level 6: 70-85 units at 60 degrees, according to ASTM D 523, a gloss finish.

1.5 Submittals - Refer to Section 01 33 00 of this Specification.

1.6 Maintenance Material Submittals: 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. Furnish 3 gallons of each material and color applied.

1.7 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 aesthetics effects and set quality standards for materials and execution.
   1.7.1.1 Designer will select one surface to represent surfaces and conditions for
application of each paint system.

1.7.1.2 Final approval of color selections will be based on mockups. If preliminary color selections are not approved, apply additional mockups of additional colors selected by the Designer at no added cost to the Owner.

1.7.1.3 Approval of mockups does not constitute approval of deviations from the Contract Documents contained in mock-ups unless the Designer specifically approves such deviations in writing.

1.7.1.4 Subject to compliance with requirements, approved mockups may become part of the completed work if undisturbed at Final Completions

1.8 Delivery, Storage, and Handling:

1.8.1 Deliver products to the project site in an undamaged condition in manufacturer’s original sealed containers, complete with labels and instructions for handling, storing, unpacking, protecting, and installing. Packaging shall bear the manufacture’s label with the following information:

1.8.1.1 Product name and type.

1.8.1.2 Batch date.

1.8.1.3 Color number.

1.8.1.4 VOC content.

1.8.1.5 Environmental handling requirements.

1.8.1.6 Surface preparation requirements.

1.8.1.7 Application instructions.

1.8.2 Store materials not in use in tightly covered containers in well-ventilated areas with ambient temperatures continuously maintained at not less than 45 degrees F.

1.8.2.1 Maintain containers in clean conditions, free of foreign materials and residue.

1.8.2.2 Remove rags and waste from storage areas daily.

1.9 Environmental Conditions:

1.9.1 Materials installation shall proceed only when weather conditions are in compliance with the applicable manufacturer’s recommendations for installation and no precipitation is imminent. Materials installed during adverse weather conditions shall be subject to removal and replacement with new materials at no additional cost to Owner.
1.9.2 Apply paints only when temperatures of surfaces to be painted and ambient air temperatures are between 50- and 95-degrees F.

1.9.3 Do not apply paints in snow, rain, fog, or mist; when relative humidity exceeds 85 percent; at temperatures less than 5 degrees F. above the dew point, or to damp or wet surfaces.

1.9.4 Hazardous Materials: It is not expected that hazardous materials will be encountered in the work. If suspected hazardous materials are encountered, do not disturb, immediately notify the Designer and Owner.

1.10 Guarantee - Refer to Section 01 78 36 of this Specification.

PART 2 - PRODUCTS

2.1 Primer – shall be specially formulated for use with latex exterior paints. Primer shall be penetrating type, mildew resistant, and shall allow for full adhesion of the finish coat. Primer shall have the following minimum characteristics:

- Finish Color: To match existing, in place mockups to be provided and approved by Designer and Owner.
- Volume Solids: 55.9% +/-2%
- Weight Solids: 73.4%
- Weight/Gallon: 10.79 lbs.
- Vehicle Type: Alkyd
- Flash Point: 115 degrees F. closed cup

2.2 Paint – shall be latex base specially formulated for use on exterior wood and metal. Paint shall be resistant to peeling, blistering, and caulking. Paint shall have the following minimum characteristics:

- Finish Color: To match existing, in place mockups to be provided and approved by Designer and Owner.
- Volume Solids: 35% +/-2%
- Pigment by Weight: 20%
- Titanium Dioxide: 18%
- Zinc Oxide: 2%
- Vehicle by Weight: 80%
- Acrylic Resin: 21%
- Tall Ester Resin: 3%
- Water: 56%

2.3 Manufacturers – Provide products from one of the following:

2.3.1 Sherwin-Williams Company
2.3.2 Benjamin Moore & Co.

2.3.3 PPG Architectural Finishes, Inc.

2.4 Source Limitations – Obtain paint materials from single source from single listed manufacturer.

2.5 General:

2.5.1 MPI Standards – Provide products that comply with MPI standards indicated and that are listed in its “MPI Approved Products List.”

2.5.2 Provide materials for use within each paint system that are compatible with one another and substrates indicated, under conditions of service and application as demonstrated by manufacturer, based on testing and field experience. For each paint system provide product recommended in writing by manufacturers of topcoat for use in paint system and on substrate indicated.

2.5.3 VOC Content – Provide materials that comply with VOC limits of authorities having jurisdictions.

2.5.4 Colors – As selected by Designer from manufacturers full range. Colors to match existing.

PART 3 - EXECUTION

3.1 Examination

3.1.1 Examine substrates and conditions, with Applicator present, for compliance with requirements for maximum moisture content and other conditions affecting performance of the Work. Verify suitability of substrates, including surface conditions and compatibility with existing finishes and primers. Where acceptability of substrate conditions is in question, apply samples and perform in-situ testing to verify compatibility, adhesion, and film integrity of new paint application. Report in writing, conditions that may affect application, appearance, or performance of paint.

3.1.2 Maximum moisture content of wood when measured with an electronic moisture meter shall not exceed manufacturers requirements.

3.1.3 Proceed with coating application only after unsatisfactory conditions have been corrected; application of coating indicates acceptance of surfaces and conditions.

3.2 Preparation

3.2.1 Comply with manufacturer's written instructions and recommendations in "MPI Manual" applicable to substrates and paint systems indicated.

3.2.2 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. After completing painting operations, use workers skilled in the trades involved to reinstall items that were removed. Remove surface applied protection.

3.2.3 Clean substrates of substances that could impair bond of paints, including dust, dirt, oil, grease, and incompatible paints and encapsulants. Remove incompatible primers and reprime substrate with compatible primers or apply tie coats as required to produce paint system indicated.

3.2.4 Mildew shall be removed by scrubbing with a solution of one part household bleach to three parts of water. Scrub with brush and allow the solution to remain on the surface for 10 minutes. Allow surfaces to dry a minimum of 48 hours before application of paint.

3.2.5 All nail heads, screws, and fasteners shall be properly seated and secured prior to applying primer and paint.

3.2.6 Caul nail heads, siding joints, and around framing as required.

3.2.7 Verify that all replacement work has been completed prior to start of priming and painting.

3.2.8 Application of materials will constitute acceptance of the surface by the Contractor.

3.3 Application

3.3.1 Apply paints in accordance to manufacturer’s written instructions and recommendations in “MPI Manual.”

3.3.1.1 Use applicators and techniques suited for paint and substrate.

3.3.1.2 Paint surfaces, behind movable items same as similar exposed surfaces. Before final installation, paint surfaces behind permanently fixed items with prime coat only.

3.3.2 If undercoats or other conditions show through topcoat, apply additional coats until cured film has a uniform paint finish, color, and appearance.

3.3.3 Apply paints to produce surface films without cloudiness, spotting, holidays, laps, brush marks, roller tracking, runs, sags, ropiness, or other surface imperfections. Cut in sharp lines and color breaks.

3.4 Cleaning and Protection

3.4.1 At end of each workday, remove rubbish, empty cans, rags, and other discarded materials from Project site.

3.4.2 After completing paint application, clean spattered surfaces. Remove spattered paints by washing, scraping, or other methods. Do not scratch or damage adjacent finished
surfaces.

3.4.3 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 Designer, and leave in an undamaged condition.

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

END OF SECTION
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 [interior substrates:] [the following interior substrates:]

1. Concrete.
2. Wood.
4. Plaster.

B. Related Requirements:
1. Section 099300 "Staining and Transparent Finishing" for surface preparation and the application of wood stains and transparent finishes on interior wood substrates.

1.3 DEFINITIONS

A. MPI Gloss Level 1: Not more than five units at 60 degrees and 10 units at 85 degrees, according to ASTM D 523.

B. MPI Gloss Level 2: Not more than 10 units at 60 degrees and 10 to 35 units at 85 degrees, according to ASTM D 523.

C. MPI Gloss Level 3: 10 to 25 units at 60 degrees and 10 to 35 units at 85 degrees, according to ASTM D 523.

D. MPI Gloss Level 4: 20 to 35 units at 60 degrees and not less than 35 units at 85 degrees, according to ASTM D 523.

E. MPI Gloss Level 5: 35 to 70 units at 60 degrees, according to ASTM D 523.

F. MPI Gloss Level 6: 70 to 85 units at 60 degrees, according to ASTM D 523.

G. MPI Gloss Level 7: More than 85 units at 60 degrees, according to ASTM D 523.
1.4 ACTION SUBMITTALS

A. Product Data: For each type of product. Include preparation requirements and application instructions.
   1. Include Printout of current "MPI Approved Products List" for each product category specified, with the proposed product highlighted.
   2. Indicate VOC content.

B. Samples for Initial Selection: For each type of topcoat product.

C. Samples for Verification: For each type of paint system and in 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.

D. Product List: Cross-reference to paint system and locations of application areas. Use same designations indicated on Drawings and in schedules. Include color designations.

1.5 MAINTENANCE MATERIAL SUBMITTALS

A. Furnish extra materials[, from the same product run,] that match products installed and that are packaged with protective covering for storage and identified with labels describing contents.
   1. Paint: 2 percent, but not less than 1 gal. (3.8 L) of each material and color applied.

1.6 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. Architect will select one surface to represent surfaces and conditions for application of each paint system.
      a. Vertical and Horizontal Surfaces: Provide samples of at least 100 sq. ft. (9 sq. m).
      b. Other Items: Architect will designate items or areas required.
   2. 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.
   3. Approval of mockups does not constitute approval of deviations from the Contract Documents contained in mockups unless Architect specifically approves such deviations in writing.
4. Subject to compliance with requirements, approved mockups may become part of the completed Work if undisturbed at time of Substantial Completion.

1.7 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.

1.8 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 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 one of the products listed in the Interior Painting Schedule for the paint category indicated.

2.2 PAINT, GENERAL

A. MPI Standards: Products shall comply with MPI standards indicated and shall be listed in its "MPI Approved Products Lists."

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

2.3 SOURCE QUALITY CONTROL

A. Testing of Paint Materials: Owner reserves the right to invoke the following procedure:
   1. Owner will engage the services of a qualified testing agency to sample paint materials. Contractor will be notified in advance and may be present when samples are taken. If
paint materials have already been delivered to Project site, samples may be taken at Project site. Samples will be identified, sealed, and certified by testing agency.

2. Testing agency will perform tests for compliance with product requirements.

3. 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. Concrete: 12 percent.
2. Fiber-Cement Board: 12 percent.
3. Wood: 15 percent.
4. Gypsum Board: 12 percent.
5. Plaster: 12 percent.

C. Gypsum Board Substrates: Verify that finishing compound is sanded smooth.

D. Plaster Substrates: Verify that plaster is fully cured.

E. Spray-Textured Ceiling Substrates: Verify that surfaces are dry.

F. Verify suitability of substrates, including surface conditions and compatibility, with existing finishes and primers.

G. 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.

B. Remove hardware, covers, plates, and similar items already in place that are removable and are not to be painted. If removal is impractical or impossible because of size or weight of item, provide surface-applied protection before surface preparation and painting.
1. After completing painting operations, use workers skilled in the trades involved to reinstall items that were removed. Remove surface-applied protection if any.

C. Clean substrates of substances that could impair bond of 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.

D. Concrete Substrates: Remove release agents, curing compounds, efflorescence, and chalk. Do not paint surfaces if moisture content or alkalinity of surfaces to be painted exceeds that permitted in manufacturer's written instructions.

E. Wood Substrates:
   1. Scrape and clean knots, and apply coat of knot sealer before applying primer.
   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.

3.3 APPLICATION

A. Apply paints according to manufacturer's written instructions and to recommendations in "MPI Manual."
   1. Use applicators and techniques suited for paint and substrate indicated.
   2. Paint surfaces behind movable equipment and furniture same as similar exposed surfaces. Before final installation, paint surfaces behind permanently fixed equipment or furniture with prime coat only.
   3. Paint front and backsides of access panels, removable or hinged covers, and similar hinged items to match exposed surfaces.
   4. Do not paint over labels of independent testing agencies or equipment name, identification, performance rating, or nomenclature plates.
   5. Primers specified in painting schedules may be omitted on items that are factory primed or factory finished if acceptable to topcoat manufacturers.

B. Tint each undercoat a lighter shade to facilitate identification of each coat if multiple coats of same material are to be applied. Tint undercoats to match color of topcoat, but 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.
3.4 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.

3.5 CLEANING AND PROTECTION

A. At end of each workday, remove rubbish, empty cans, rags, and other discarded materials from Project site.

B. After completing 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.

3.6 INTERIOR PAINTING SCHEDULE

A. Wood Substrates:

1. Institutional Low-Odor/VOC Latex System
   a. Prime Coat: Interior latex-based wood primer
   c. Topcoat: Institutional low-odor/VOC interior latex (semigloss)

B. Gypsum Board and Plaster Substrates:

1. Institutional Low-Odor/VOC Latex System
   c. Topcoat for Ceilings: Institutional low-odor/VOC interior latex (flat)
   d. Topcoat for Other Locations: Institutional low-odor/VOC interior latex (eggshell)
SECTION 11 01 40
Fall Protection Railing Systems

PART 1 GENERAL

1.1 SECTION INCLUDES
A. Delegated Design for low-slope Roof edge fall protection. (SRC360 Mobile Rail)
B. Accessories. (Roof Pads, Toe Boards, SRC Base Mover)

1.2 REFERENCES
A. Occupational Safety & Health Administration (OSHA):
   1. 29 CFR 1910.28(b) – Duty to Have Fall Protection and Falling Object Protection
   2. 29 CFR 1910.29(b) – Fall Protection Systems and Falling Object Protection criteria
      and practices.
   4. 29 CFR 1926.500 - Scope, Application, Definitions Applicable to this Subpart.
   5. 29 CFR 1926.501 - Duty to Have Fall Protection.
   7. 29 CFR 1926.503 - Training Requirements.
B. California Occupational Safety & Health Administration (CAL OSHA):
   1. 1620 - Design of Temporary Railing.
   2. 1621 - Railings and Toe Boards.
   3. 1633 - Elevator Shafts to be Guarded.
   4. 3209 - Standard Guardrails.
   5. 3210 - Guardrails at Elevated Locations.
   6. 3211 - Wall Openings.
   7. 3212 - Floor Openings, Floor Holes and Roofs.
   8. 3213 - Service Pits and Yard Surface Openings.
   9. 3214 - Stair Rails and Handrails.

1.3 SUBMITTALS
A. Manufacturer's data sheets on each product to be used, including:
   1. Preparation instructions and recommendations.
   2. Storage and handling requirements and recommendations.
   3. Installation methods.
B. Shop Drawings: Drawings showing plans, elevations, sections and details of
   components.

1.4 DELIVERY, STORAGE, AND HANDLING
A. Deliver materials to the job site in good condition and adequately protected against
   damage as handrails are a finished product.
B. Inspect rail sections for damage before signing the receipt from the trucking
   company. Truck driver must note damaged goods on the bill of lading if damaged
   product is found.
C. Store products in manufacturer's unopened packaging until ready for installation.
D. Products to be palletized and labeled by roof level or designated drop zone.

1.5 PROJECT CONDITIONS
A. Field Measurements: Where handrails and railings are indicated to fit to other construction, check actual dimensions of other construction by accurate field measurements before fabrication.

1.6 WARRANTY
A. Warranty: Provide manufacture's two (2) year warranty.

PART 2 PRODUCTS

2.1 MANUFACTURERS
A. Safety Rail Company, LLC
B. Edge Fall Protection
C. Kee Safety, Inc.

2.2 SYSTEMS
A. Roof Edge Protection: Provide freestanding pedestrian egress barrier system on roof, including railings, bases, and hardware.
   1. Basis of Design Product: SRC360 Mobile Safety Rail System
   2. Standards: System shall have top and mid rail in accordance with OSHA Standards - 29 CFR 1910.29 (b).
   3. Structural Load: 200 lb (90.7 kg), minimum, in any direction to all components in accordance with OSHA Regulation 29 CFR 1926.502.
   4. Height: 42 inches (1067 mm), nominal.
   5. Railings: 1-5/8 inch (41 mm) O.D. x .065W hot rolled pickled electric weld steel tubing, free of sharp edges and snag points.
   6. Mounting Bases: 104 lb. Class 30 gray iron material cast with four receiver posts. Provide rubber pads on bottom of bases.
   7. Receiver Posts: Shall have a positive locking system into holes that allow rails to be mounted in any direction. Receiver posts shall have drain holes.
   8. Accessories:
      a. Toe Board Brackets: Provide brackets as manufactured by Safety Rail Company LLC as required
      b. Finishing Rail: D-shaped railing extension for ladder landings, length of rail section and D-loop as indicated on the Drawings as required
      c. Ladder Spanner Brackets: Provide brackets at ladder transition points as required
   9. Hardware: Securing pins shall be 1010 carbon steel, zinc plated and yellow chromate dipped. Pins shall consist of collared pin and latch.
   10. Product origin: Railings and Base Castings are specified as 100% made in USA. Manufacturer must provide steel mill and foundry certificates for verification prior to shipment.
   11. Quality/Standards Certifications: Manufacturer must be American Welding Society Welding Certified for Welding Standards AWS D1.1 & AWS D1.3 Third party qualification documentation required prior to shipment.

2.3 ACCESSORIES
A. Roof Pads: Provide the following pad under each base to protect roof membrane.
   1. Approved Product: Part#150142 Roof Pad.
B. Base Mover: Provide two-wheeled steel cart to transport one base unit.
1. Approved Product: Part#400062 Safety Rail Company Base Mover

2.4 FINISHES
   Finish: Factory finished powder coat paint
   Hot Dip Zinc Galvanized
   Color: To be selected by Owner

PART 3 EXECUTION

3.1 EXAMINATION
   A. Do not begin installation until substrates have been properly prepared.
   B. If substrate preparation is the responsibility of another installer, notify
      Architect of unsatisfactory preparation before proceeding.

3.2 PREPARATION
   C. Prepare surfaces using the methods recommended by the manufacturer for
      achieving the best result for the substrate under the project conditions.

3.3 INSTALLATION
   D. Install in accordance with manufacturer's instructions.

3.4 PROTECTION
   E. Protect installed products until completion of project.
   F. Touch-up, repair or replace damaged products before Substantial
      Completion.

END OF SECTION
PART I - GENERAL

1.1 Drawings and general provisions of the contract, including General Conditions of the Contract, Supplementary General Conditions, and other Division 1 specification sections apply to work of this section.

1.2 Work Included – Personal Fall Arrest Anchorage Systems:

1.2.1 Delegated Design Mansard Roof fall protection

1.2.2 Training.

1.3 References

1.3.1 Occupational Safety and Health Administration (OSHA):

1.3.1.1 OSHA 1910, Subpart D – Walking and Working Surfaces.

1.3.1.2 OSHA 1910.66, Subpart F – Powered Platforms.

1.3.1.3 OSHA 1910.66, Appendix C – Personal Fall Arrest Systems.

1.3.1.4 OSHA Procedures and Precautions for Employees Using Decent Control Equipment.

1.3.2 American National Standards Institute: ANSI Z 359 – Fall Protection Code.

1.3.3 American Institute of Steel Construction (AISC): Load and Resistant Factor Design.

1.3.4 ASTM International:

1.3.4.1 ASTM A 36 – Standard Specification for Carbon Structural Steel.

1.3.4.2 ASTM A 492 – Standard Specification for Stainless Steel Bars and Shapes.

1.3.4.3 ASTM A 500 – Standard Specification for Cold Formed Welded and Seamless Carbon Steel Structural Tubing in Rounds and Shapes.

1.3.4.4 ASTM A 572 – Standard Specification for High-Strength Low-Alloy Columbium-Vanadium Structural Steel.

1.3.5 American Welding Society: AWS D1.1 – Structural Welding Code.

1.4 Submittals - Refer to Section 01 33 00 of this Specification.
1.4.1 Product Data: Manufacturer’s data sheets and detail drawings for each product to be used, including:

1.4.1.1 Preparation instructions and recommendations.

1.4.1.2 Storage and handling requirements and recommendations.

1.4.1.3 Product literature, material qualifications.

1.4.1.4 Installation details and methods.

1.4.1.5 Dimensions of product components.

1.4.1.6 Finishes of anchor components.

1.4.2 Shop Drawings:

1.4.2.1 Shall be to scale and clearly show dimensioned layout of system components.

1.4.2.2 Include details for each specified product to indicate materials; dimensions, accessories, rated load, and ultimate load. Details shall clearly indicate attachment to building structure and welds shall be indicated by AWS welding symbols, distinguishing between shop and field welds, and show size, length and type of each weld. Include notes to indicate proper use of system.

1.4.2.3 Shall bear the seal of the supervising registered professional engineer. Professional engineer shall be licensed in the jurisdiction where the project is located.

1.4.2.4 Fall Protection Engineer shall submit a signed and sealed letter stating that the integrity of the existing structural members was evaluated and certify that the structural members can support the fall protection loads. They shall support this letter with signed and sealed calculations or signed and sealed test reports of testing performed on the actual fall protection equipment installed.

1.4.3 Close Out Submittals: Provide a Fall Protection Anchorage System Log Book to include:

1.4.3.1 Requirements for inspection and re-certifications.

1.4.3.2 Statement by supervising registered professional engineer that system was designed and installed in compliance with current OSHA, ANSI, and state regulatory requirements and is certified for use.

1.4.3.3 As-built Drawings to indicate as-installed anchorage locations, details, and user notes.

1.4.3.4 Manufacturer's 1-year standard warranty document commencing on date of project substantial completion. Manufacturer's warranty is in addition to any warranties as required by project contract documents.
1.5 Quality Assurance

1.5.1 Manufacturer Qualifications:

1.5.1.1 Provide products for a manufacturer that specializes in the design, fabrication, and installation of fall protection anchorage systems with a minimum of five years of documented experience. Companies such as miscellaneous steel fabricators that do not normally design and fabricate fall protection anchorage components are not acceptable.

1.5.1.2 Manufacturer shall carry specific liability insurance (products and completed operations) in an amount not less than $5,000,000 to protect against product failure.

1.5.1.3 Manufacturer shall provide samples of product for inspection or outside agency testing at the request of the owner. Manufacturer shall be compensated for additional product.

1.5.2 Installer Qualifications:

1.5.2.1 Installation contractor shall be trained or qualified by manufacturer.

1.5.2.2 The fall protection installation contractor shall maintain appropriate insurance as applicable for the installation of fall protection systems. Installer shall have specific liability insurance (products and completed operations) in an amount not less than $5,000,000. Proof of these insurance listings shall be supplied with the submittals listed herein.

1.5.2.3 Welding methods shall comply with AWS D1.1 and welding personnel shall be certified in accordance with AWS requirements.

1.6 Delivery, Storage, and Handling

1.6.1 Deliver, store and handle materials and products in strict compliance with manufacturer's instructions and recommendations and industry standards.

1.6.2 Inspect products prior to installation and replace damage products.

1.6.3 Store products indoors in manufacturer's or fabricator's original containers and packaging, with labels clearly identifying product name and manufacturer. Protect from damage.

1.7 Sequencing and Coordination

1.7.1 Coordinate installation of products that connect to the work of other trades. Furnish setting drawings and directions for installing products that are to be embedded in concrete or masonry. Deliver such items to the project site in time for installation.
1.7.2 General Contractor shall be immediately made aware of any site conditions that may interfere with proper installation and intended use of anchorage system.

1.8 Project Conditions

1.8.1 Maintain environmental conditions (temperature, humidity, and ventilation) within limits recommended by manufacturer for optimum results. Do not install systems under environmental conditions outside manufacturer's recommended limits.

PART 2 – PRODUCTS

2.1 Manufacturers

2.1.1 Delegated Design System Description –

2.1.1.1 Appropriate end user equipment to work in travel restraint capacity to access the full perimeter of the mansard roof gutters and ladders.

2.1.1.2 Cable: Stainless steel wire rope. Minimum 5/16-inch (8 mm) diameter. Wire rope and wire rope termination components shall be stainless steel.

2.1.1.3 End-user training that is supplemented by an instruction for use guide.

2.2 Fabrication

2.2.1 Product manufacturing shall be constructed without defects in appearance or defects damaging to the performance of the product.

2.2.2 Anchors shall be checked for any material (including but not limited to welding material build-ups) and are free of sharp edges or abrasions that can cause damage to worker’s ropes.

PART 3 – EXECUTION

3.1 Examination and Preparation

3.1.1 Inspect and prepare substrates for compliance with anchorage requirements using the methods recommended by the manufacturer for achieving best result for the substrates under project conditions.

3.1.2 Do not proceed with installation until substrates have been prepared using the methods recommended by the manufacturer and deviations from manufacturer's recommended tolerances and conditions that will be detrimental to the anchorage system are corrected. Commencement of installation constitutes acceptance of conditions.

3.1.3 If preparation is the responsibility of another installer, notify Architect in writing of deviations from manufacturer's recommended installation tolerances and conditions.

3.2 Installation
3.2.1 Install products in accordance to manufacturer's instructions and approved shop drawings.

3.2.2 Coordinate installation with General Contractor to ensure an approved water-tight roofing and flashing method will be used.

3.2.3 Clean mounting surfaces to insure direct and even bearing of base plates.

3.2.4 Torque fasteners to manufacturer's required rating.

3.2.5 All fasteners threads shall be deformed by mechanical, chemical or welding methods to prevent accidental removal or vandalism.

3.2.6 All welders must be certified to applicable American Welding Society (AWS) standards.

3.2.7 After installation, clean and paint as necessary any field welds with cold galvanizing compound to prevent corrosion.

3.3 Field Quality Control

3.3.1 Anchors utilizing adhesive studs shall be tested using a load cell test apparatus in accordance with manufacturer's written instructions.

3.3.2 Equipment shall be tested and inspected on site in accordance with manufacturer's recommendations and under the supervision of a professional engineer. Testing should be conducted in accordance with applicable OSHA/ANSI standards. Testing data shall be recorded and submitted with system log book.

3.4 Protection

3.4.1 Protect installed products until completion of project.

3.4.2 Touch-up, repair or replace damaged products before Substantial Completion.

3.5 Adjustment

3.5.1 Verify that products have been installed in accordance with manufacturer's instructions. Adjust as necessary to ensure compliance.

3.5.2 Correct component deficiencies to assure compliance prior to substantial completion.

3.6 Training - Provide on-site instruction by manufacturer's certified technician for owner's designated operators in proper use of personal fall arrest anchorage system. Provide at least one 2 hr training session and one bound copy of training materials.

END OF SECTION
Dear Mr. Najar:

France Environmental, Inc. (FEI) has completed the asbestos and lead-based paint (LBP) sampling of suspect building materials in the building referenced above. FEI’s scope of work consisted of a comprehensive exterior survey including the roofing materials, roof mechanical penthouse and the interior attic space. Other interior building materials found on other floors were excluded from this survey. Mr. Andrew H. Baird (Virginia Asbestos Inspector License Number 3303002589) and Mr. Micheal D. Allshouse (Virginia Lead Inspector/Risk Assessor License Number 3356001040) conducted the fieldwork on November 9, 2021.

**Asbestos Sampling:**

FEI collected sixty-five (65) bulk samples of suspect asbestos-containing building materials (ACBM’s). A list of the samples collected and the results of these samples can be found in the attached Bulk Sample Summary Sheet. FEI hand delivered the samples, under chain-of-custody, to AmeriSci Richmond located in Midlothian, Virginia where they were separated into and ninety-nine (99) individual layers. Ninety-four (94) layers were analyzed for the presence of asbestos by Polarized Light Microscopy (PLM).

A material is considered by the EPA and the Commonwealth of Virginia to be asbestos-containing if at least one (1) sample collected from a multi-sample group contains asbestos in an amount greater than one percent (>1%).

- Black/Gray Flashing Caulk – Roof 53
- White Exterior Window Glazing – All Levels Except Roof and Basement Front Bay Windows
- Black Exterior Roof Patch Tar – Upper Roof Fascia – Slate & Wall of Old Stairwell
- Brown 9”x9” Vinyl Floor Tile with Black Mastic – Floor Tile Only - Attic Rooms
- White with Brown 4” O.D. Pipe Insulation – Attic Eves
A complete summary of the materials sampled and the location of these materials can be found in the Sampled Material Data Summary Charts. Copies of the Laboratory Analysis Report; Sample Location Drawings; and the Inspector’s License have also been attached to this report.

**Lead-Based Paint Sampling:**

The lead-based paint (LBP) survey was performed by an EPA accredited and Virginia licensed lead-based paint inspector. An X-Ray Fluorescence (XRF) machine is a portable, non-destructive testing device, which was used to measure the lead content in paint. XRF field-testing was performed with the LPA-1, manufactured by Radiation Monitoring Devices (RMD). XRF test data, including calibration checks against known standards, were recorded on inspection worksheet(s) to generate a permanent record of the data.

During the lead inspection, FEI may not conduct lead testing in every room and/or sample every painted/varnished/stained building component. However, all like building materials, i.e., same color/substrate, etc., are grouped together and considered positive or negative in conjunction with the building materials that were sampled. FEI conducts sampling of building materials that are representative of the possible lead containing materials in a building.

One Hundred Sixty-Two (162) shots were taken with the XRF machine to determine the lead content of the building components. Lead-Based Paint as defined by the Commonwealth of Virginia was identified on the following components:

**Exterior**
- Cream Wooden Window Components (Sill, Sash, Casing & Trough) Throughout
- White Brick Wall – Roof 53
- Tan Brick Wall – Roof 53
- Cream Wooden Door Casing – Throughout
- Cream Wooden Transom Windows – Throughout
- Cream Metal Door Lintels - Throughout
- Cream Wooden Fascia & Soffit – Throughout
- White/Gray Metal Roof – Throughout
- White Metal Chimney Cap – All Chimneys
- White Metal Skylight – Roof 25
- White Metal Wall Panel – Roof 7 & 20
- Cream Wooden Front Entrance Porch Components
- Black Wooden Doors – Side Entrance Courtyard
- Cream Wood Porch Ceiling, Brace & Fascia – Side Entrance Courtyard
- Yellow Metal Corner Cap – Southwest Elevation

**Interior**
- White Exterior Wooden Door Casing – 4th Floor, Room 404
- Cream Exterior Wooden Door Casing – 4th Floor, Room 405
Employers whose workers conduct tasks that disturb painted surfaces should be aware that the OSHA Lead Regulation for Construction (29 CFR 1926.62) applies to work involving paint containing any measurable amount of lead, not just paint containing lead at concentrations equal to or greater than 1.0 mg/cm² (or 0.5% by weight). Employers should be advised to comply with all applicable requirements of the OSHA Lead standard including, but not limited to: employee training; use of respirators and personal protective equipment; exposure monitoring; medical surveillance; and work practices.

Waste (paint chips, painted building components, etc.) generated from activities such as building renovation or re-painting that disturb painted surfaces must be assessed to determine if the waste will be considered hazardous according to EPA regulations. A composite sample of the waste should be collected and analyzed using the Toxicity Characteristic Leaching Procedure (TCLP) for lead. Solid waste with lead TCLP results greater than or equal to 5 parts per million (ppm) is considered hazardous waste and must be disposed of in accordance with applicable U.S. EPA and Commonwealth of Virginia regulations.

The Lead-Based Paint Sample Data Sheets are attached to this report and summarizes all of the building components sampled. A copy of the Inspector’s License(s); and Sample Location Drawings associated with this project are also attached.

Should you have any questions or require additional information, please contact me at (804) 716-0560.

Respectfully Submitted,

FRANCE ENVIRONMENTAL, INC.

Andrew H. Baird
Asbestos Inspector

Michael E. Leonard
Senior Project Manager

Attachments:  Asbestos Sampled Material Data Summary Charts
Asbestos Bulk Sample Summary Sheets
Asbestos Sample Location Drawings
Laboratory Analysis Report (Asbestos Bulk Samples)
Lead-Based Paint Sample Data Sheets
XRF Sample Location Drawings
Photo Logs of Asbestos and Lead Containing Materials
Inspector License(s)
ASBESTOS SAMPLED MATERIAL DATA SUMMARY
CHARTS
<table>
<thead>
<tr>
<th>MS GROUP</th>
<th>DESCRIPTION</th>
<th>ASBESTOS YES/NO</th>
<th>LOCATION</th>
<th>TOTAL QUANTITY</th>
<th>CATEGORY</th>
<th>CONDITION</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>Gray Exterior Asphalt Rolled Shingle with Gray Insulation</td>
<td>NO</td>
<td>Roof 53</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>B</td>
<td>Black/Gray Roof Flashing Caulk</td>
<td>YES</td>
<td>Roof 53 – North and Northwest Walls Only</td>
<td>100 Ln. Ft.</td>
<td>Category I</td>
<td>Good</td>
</tr>
<tr>
<td>C</td>
<td>Gray Exterior Roof Flashing Caulk</td>
<td>NO</td>
<td>Roof 53 – West and South Walls</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>D</td>
<td>Gray Exterior Asphalt Rolled Roof Flashing</td>
<td>YES</td>
<td>Roof 53</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>G</td>
<td>Black Exterior Roof Flashing Caulk</td>
<td>NO</td>
<td>Roof 53B</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>L</td>
<td>White Roof Paint on Metal</td>
<td>NO</td>
<td>Roofs 1-8 &amp; 50-52</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>M</td>
<td>White Exterior Roof Paint with Black Roofing Materials</td>
<td>NO</td>
<td>Roof 12</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>N</td>
<td>White Exterior Roof Curb Flashing</td>
<td>NO</td>
<td>Roof 12 - Sky Lights &amp; Roof 7</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>O</td>
<td>White Exterior Pitch Pocket Tar</td>
<td>NO</td>
<td>Roof 12 – Hand Rails &amp; Exterior Duct Stand</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>P</td>
<td>White Exterior Sky Light Caulk</td>
<td>NO</td>
<td>Roof – 12 and Roof 25</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>Q</td>
<td>White Exterior Roof Paint with Black Roofing Materials</td>
<td>NO</td>
<td>Roof 10</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>R</td>
<td>White Exterior Roof Flashing</td>
<td>NO</td>
<td>Roof 12 - Throughout</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>S</td>
<td>Black Exterior Felt Paper Under Slate Shingle Roof</td>
<td>NO</td>
<td>Upper Roof Fascia</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
</tr>
</tbody>
</table>

Ln. Ft. = Linear Feet

FEI has intended to offer estimates of asbestos-containing materials (ACMs) identified during this Asbestos Survey for budgetary estimating purposes. The locations and quantities presented are only inclusive of the area surveyed by the inspector for this renovation project. FEI does not guarantee and/or warranty the above estimates. As a result, the Contractor is discouraged from using these estimates as the only source for submitting construction bids. Instead, the locations and estimated quantities of materials presented above should be field verified by the one preparing each bid.
# SAMPLED MATERIAL DATA SUMMARY CHART

**TESTED FOR:** VCU Facilities Management Planning & Design  
700 West Grace Street  
Suite 1614  
Richmond, Virginia 23284  

**PROJECT:** VCU – Founders Hall, 827 W. Franklin St., Richmond, VA  
Building Envelope, Roofs & Attic Renovation Project  

**FEI PROJECT NO.:** FEI-21AL633  

**INSPECTOR(S):** Andrew H. Baird and Micheal D. Allshouse  

**INSPECTION DATE(S):** November 9, 2021

**ROOFING - Continued**  

<table>
<thead>
<tr>
<th>MS GROUP</th>
<th>DESCRIPTION</th>
<th>ASBESTOS YES/NO</th>
<th>LOCATION</th>
<th>TOTAL QUANTITY</th>
<th>CATEGORY</th>
<th>CONDITION</th>
</tr>
</thead>
<tbody>
<tr>
<td>T</td>
<td>White Roof Paint on Metal</td>
<td>NO</td>
<td>Roofs 14-49 &amp; Roof 12 (Some Roofs are Concrete with MS Group “T” on it)</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
</tr>
</tbody>
</table>
| V        | Black Exterior Roof Patch Tar | YES | Upper Roof Fascia – Slate (Limited)  
Old Stairwell Corner Wall | 20 sq. Ft. | Category I | Good |
| W        | White Exterior Chimney Flashing Caulk | NO | All Chimneys | N/A | N/A | N/A |

Ln. Ft. = Linear Feet  
N/A = Not Applicable

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<table>
<thead>
<tr>
<th>MS GROUP</th>
<th>DESCRIPTION</th>
<th>ASBESTOS YES/NO</th>
<th>LOCATION</th>
<th>TOTAL QUANTITY</th>
<th>CATEGORY</th>
<th>CONDITION</th>
</tr>
</thead>
<tbody>
<tr>
<td>E</td>
<td>White Exterior Window Caulking</td>
<td>NO</td>
<td>Basement – 4th Floors</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>F</td>
<td>White Exterior Window Glazing</td>
<td>YES</td>
<td>Basement – 3rd Floor, Except Basement Front Bay Windows</td>
<td>10,000 Ln. Ft.</td>
<td>Category II</td>
<td>Good</td>
</tr>
<tr>
<td>H</td>
<td>White Exterior Door Caulk</td>
<td>NO</td>
<td>Basement Front Bay Windows</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>I</td>
<td>White Exterior Thick Window Glazing</td>
<td>NO</td>
<td>Penthouse Entrance</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>J</td>
<td>Black Interior Vibration Joint Cloth</td>
<td>NO</td>
<td>Penthouse Entrance</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>U</td>
<td>White Exterior Window Glazing</td>
<td>NO</td>
<td>Upper Gable Windows</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>X</td>
<td>White Ceiling Plaster with Gray Base Coat with Brown Fiber Board</td>
<td>NO</td>
<td>Attic Throughout</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>Y</td>
<td>White Wall Plaster with Gray Base Coat with Brown Fiber Board</td>
<td>NO</td>
<td>Attic Throughout</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>Z</td>
<td>Brown 9”x9” Vinyl Floor Tile (VFT) with Black Mastic (BM) on Wood</td>
<td>YES-VFT</td>
<td>Attic Rooms – 402, 405 and 410</td>
<td>1,200 Sq. Ft.</td>
<td>Category I</td>
<td>Poor</td>
</tr>
<tr>
<td>A2</td>
<td>Tan Wall Tile with Brown Mastic</td>
<td>NO</td>
<td>Attic Rooms – 401-406 and 409-410</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>C2</td>
<td>White Exterior Column Caulk</td>
<td>NO</td>
<td>Front Entrance</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>D2</td>
<td>Black Exterior Wall Water Proofing on Brick Wall</td>
<td>NO</td>
<td>Basement – Northwest Elevation</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>E2</td>
<td>Cream Exterior Brick Wall Caulk</td>
<td>NO</td>
<td>Basement – Northwest Elevation</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
</tr>
</tbody>
</table>

Ln. Ft. = Linear Feet  
Sq. Ft. = Square Feet  
N/A = Not Applicable

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ASBESTOS BULK SAMPLE SUMMARY SHEETS
## BULK SAMPLE SUMMARY SHEET

**VCU, Founders Hall**  
827 West Franklin Street  
Richmond, Virginia

<table>
<thead>
<tr>
<th>MS Group</th>
<th>Sample Num.</th>
<th>Material Description</th>
<th>Sample Location</th>
<th>Analysis Result</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>1</td>
<td>Gray Exterior Asphalt Rolled Shingle with Gray Insulation</td>
<td>Roof 53</td>
<td>N.A.D.</td>
</tr>
<tr>
<td>A</td>
<td>2</td>
<td>Gray Exterior Asphalt Rolled Shingle with Gray Insulation</td>
<td>Roof 53</td>
<td>N.A.D.</td>
</tr>
<tr>
<td>B</td>
<td>3</td>
<td>Black/Gray Roof Flashing Caulk</td>
<td>Roof 53 – Northwest Wall</td>
<td>Gray=N.A.D. Black/Silver=2% CHRY</td>
</tr>
<tr>
<td>B</td>
<td>4</td>
<td>Black/Gray Roof Flashing Caulk</td>
<td>Roof 53 – Northwest Wall</td>
<td>Gray=N.A.D. Black/Silver=NA/PS</td>
</tr>
<tr>
<td>C</td>
<td>5</td>
<td>Gray Exterior Roof Flashing Caulk</td>
<td>Roof 53 – Southwest</td>
<td>N.A.D.</td>
</tr>
<tr>
<td>C</td>
<td>6</td>
<td>Gray Exterior Roof Flashing Caulk</td>
<td>Roof 53 – Southeast</td>
<td>N.A.D.</td>
</tr>
<tr>
<td>D</td>
<td>7</td>
<td>Gray Exterior Asphalt Rolled Roof Flashing</td>
<td>Roof 53</td>
<td>N.A.D.</td>
</tr>
<tr>
<td>D</td>
<td>8</td>
<td>Gray Exterior Asphalt Rolled Roof Flashing</td>
<td>Roof 53</td>
<td>N.A.D.</td>
</tr>
<tr>
<td>E</td>
<td>9</td>
<td>White Exterior Window Caulk</td>
<td>Roof – 53 Level</td>
<td>N.A.D.</td>
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<tr>
<td>E</td>
<td>10A</td>
<td>White Exterior Window Caulk</td>
<td>Roof – 53 Level</td>
<td>N.A.D.</td>
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<tr>
<td>F</td>
<td>10B</td>
<td>White Exterior Window Glazing</td>
<td>Roof – 53 Level</td>
<td>5% CHRY</td>
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<td>F</td>
<td>11</td>
<td>White Exterior Window Glazing</td>
<td>Roof – 53 Level</td>
<td>N.A.D.</td>
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<tr>
<td>F</td>
<td>12</td>
<td>White Exterior Window Glazing</td>
<td>Roof – 53 Level</td>
<td>N.A.D.</td>
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<tr>
<td>G</td>
<td>13</td>
<td>Black Exterior Roof Flashing Caulk</td>
<td>Roof 53B</td>
<td>N.A.D.</td>
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<tr>
<td>G</td>
<td>14</td>
<td>Black Exterior Roof Flashing Caulk</td>
<td>Roof 53B</td>
<td>N.A.D.</td>
</tr>
<tr>
<td>H</td>
<td>15</td>
<td>White Exterior Door Caulk</td>
<td>Basement Level</td>
<td>N.A.D.</td>
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<tr>
<td>H</td>
<td>16</td>
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<td>Basement Level</td>
<td>N.A.D.</td>
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<tr>
<td>I</td>
<td>17</td>
<td>White Exterior Thick Window Glazing</td>
<td>Basement – Front Bay Window</td>
<td>N.A.D.</td>
</tr>
<tr>
<td>I</td>
<td>18</td>
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<td>Basement – Front Bay Window</td>
<td>N.A.D.</td>
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<td>Black Interior Vibration Cloth</td>
<td>Penthouse</td>
<td>N.A.D.</td>
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<td>L</td>
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<td>M</td>
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<td>M</td>
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<td>N</td>
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<td>White Exterior Roof Curb Flashing</td>
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<td>Black Exterior Pitch Pocket Tar (Painted White)</td>
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<td>Black Exterior Felt Paper Under Slate Shingle Roof</td>
<td>Upper Roof – Fascia</td>
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<td>Black Exterior Felt Paper Under Slate Shingle Roof</td>
<td>Upper Roof – Fascia</td>
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N.A.D. = No Asbestos Detected in Sample  
CHRY = Chrysotile Asbestos  
NA/PS = Not Analyzed/First Positive Stop
# BULK SAMPLE SUMMARY SHEET

**VCU, Founders Hall**  
827 West Franklin Street  
Richmond, Virginia

<table>
<thead>
<tr>
<th>MS Group</th>
<th>Sample Num.</th>
<th>Material Description</th>
<th>Sample Location</th>
<th>Analysis Result</th>
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<td>V</td>
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<td>Black Exterior Roof Patch Tar</td>
<td>Upper Roof Fascia - Slate</td>
<td>10% CHRY</td>
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<td>44</td>
<td>Black Exterior Roof Patch Tar</td>
<td>Old Stairwell Corner</td>
<td>NA/PS</td>
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<td>W</td>
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<td>White Exterior Chimney Flashing Caulk</td>
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<td>White Exterior Chimney Flashing Caulk</td>
<td>Roof 23 - Chimney</td>
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<td>X</td>
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<td>White Ceiling Plaster with Gray Base Coat with Brown Fiber Board</td>
<td>Attic - 402</td>
<td>N.A.D.</td>
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<tr>
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<td>White Ceiling Plaster with Gray Base Coat with Brown Fiber Board</td>
<td>Attic - 405</td>
<td>N.A.D.</td>
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<tr>
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<td>Y</td>
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<td>Z</td>
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<td>Brown 9”x9” Vinyl Floor Tile (VFT) with Black Mastic (BM) on Wood</td>
<td>Attic - 402</td>
<td>VFT=2% CHRY BM=N.A.D.</td>
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<tr>
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<td>Brown 9”x9” Vinyl Floor Tile (VFT) with Black Mastic (BM) on Wood</td>
<td>Attic - 405</td>
<td>VFT=NA/PS BM=N.A.D.</td>
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<td>A2</td>
<td>55</td>
<td>Tan Wall Tile with Brown Mastic</td>
<td>Attic – 402</td>
<td>N.A.D.</td>
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<td>B2</td>
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<td>White with Brown 4” O.D. Pipe Insulation</td>
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<td>7% CHRY</td>
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<tr>
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<td>58</td>
<td>White with Brown 4” O.D. Pipe Insulation</td>
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<td>NA/PS</td>
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<tr>
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<td>White with Brown 4” O.D. Pipe Insulation</td>
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<td>NA/PS</td>
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<td>Front Entrance</td>
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<tr>
<td>D2</td>
<td>62</td>
<td>Black Exterior Wall Water Proofing on Brick Wall</td>
<td>Basement Northwest Elevation</td>
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<td>D2</td>
<td>63</td>
<td>Black Exterior Wall Water Proofing on Brick Wall</td>
<td>Basement Northwest Elevation</td>
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<td>E2</td>
<td>64</td>
<td>Cream Exterior Brick Wall Caulk</td>
<td>Basement Northwest Elevation</td>
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<tr>
<td>E2</td>
<td>65</td>
<td>Cream Exterior Brick Wall Caulk</td>
<td>Basement Northwest Elevation</td>
<td>N.A.D.</td>
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</table>

N.A.D. = No Asbestos Detected in Sample  
CHRY = Chrysotile Asbestos  
NA/PS = Not Analyzed/First Positive Stop
ASBESTOS SAMPLE LOCATION DRAWINGS
Asbestos Sample Location Drawing
VCU – Founders Hall – Roof Levels
Richmond, Virginia
FEI Proj: FEI-21AL633 Survey Date: 11/09/2021
LABORATORY ANALYSIS REPORT
(ASBESTOS BULK SAMPLES)
# PLM Bulk Asbestos Report

**France Environmental Inc**  
Attn: Joe France  
7834 Forest Hill Ave  
Suite 7  
Richmond, VA 23225  

---

<table>
<thead>
<tr>
<th>Client No. / HGA</th>
<th>Lab No.</th>
<th>Asbestos Present</th>
<th>Total % Asbestos</th>
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</thead>
<tbody>
<tr>
<td>1</td>
<td>121111379-01L1</td>
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<td></td>
</tr>
<tr>
<td><strong>Location:</strong></td>
<td>Gray Exterior Asphalt Rolled Shingle with Gray Insulation; Roof 53</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Analyst Description:</strong></td>
<td>Black, Heterogeneous, Non-Fibrous, Roofing</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Asbestos Types:</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Other Material:</strong></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

(by CVES) by Jean L. Mayes on 11/12/21

| 1                | 121111379-01L2   | No               | NAD              |
| A                |                   |                  |                  |
| **Location:**    | Gray Exterior Asphalt Rolled Shingle with Gray Insulation; Roof 53 |                  |                  |
| **Analyst Description:** | Brown, Heterogeneous, Fibrous, Insulation |                  |                  |
|                  | **Asbestos Types:** |                  |                  |
|                  | **Other Material:** |                  |                  |

(by CVES) by Jean L. Mayes on 11/12/21

| 2                | 121111379-02L1   | No               | NAD              |
| A                |                   |                  |                  |
| **Location:**    | Gray Exterior Asphalt Rolled Shingle with Gray Insulation; Roof 53 |                  |                  |
| **Analyst Description:** | Black, Heterogeneous, Non-Fibrous, Roofing |                  |                  |
|                  | **Asbestos Types:** |                  |                  |
|                  | **Other Material:** |                  |                  |

(by CVES) by Jean L. Mayes on 11/12/21

| 2                | 121111379-02L2   | No               | NAD              |
| A                |                   |                  |                  |
| **Location:**    | Gray Exterior Asphalt Rolled Shingle with Gray Insulation; Roof 53 |                  |                  |
| **Analyst Description:** | Brown, Heterogeneous, Fibrous, Insulation |                  |                  |
|                  | **Asbestos Types:** |                  |                  |
|                  | **Other Material:** |                  |                  |

(by CVES) by Jean L. Mayes on 11/12/21

| 3                | 121111379-03L1   | No               | NAD              |
| B                |                   |                  |                  |
| **Location:**    | Black/Gray Flashing Caulk; Roof 53 - Northwest Wall |                  |                  |
| **Analyst Description:** | Gray, Heterogeneous, Non-Fibrous, Caulk |                  |                  |
|                  | **Asbestos Types:** |                  |                  |
|                  | **Other Material:** |                  |                  |

(by CVES) by Jean L. Mayes on 11/12/21

---

See Reporting notes on last page
<table>
<thead>
<tr>
<th>Client No. / HGA</th>
<th>Lab No.</th>
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<th>Total % Asbestos</th>
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<td>2%</td>
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<td></td>
<td>Other Material: Non-fibrous 98%</td>
<td></td>
<td>by Jean L. Mayes</td>
</tr>
<tr>
<td></td>
<td>by Jean L. Mayes on 11/12/21</td>
<td></td>
<td>on 11/12/21</td>
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<tr>
<td>4 B</td>
<td>121111379-04L1</td>
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<td>NAD</td>
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<tr>
<td></td>
<td>Other Material: Non-fibrous 100%</td>
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<td>by Jean L. Mayes</td>
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<td></td>
<td>on 11/12/21</td>
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<td>Other Material: Non-fibrous 100%</td>
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<td>on 11/12/21</td>
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<td>Other Material: Non-fibrous 100%</td>
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<td>by Jean L. Mayes</td>
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<td>on 11/12/21</td>
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<td>7 D</td>
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<td>by Jean L. Mayes</td>
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<td></td>
<td>by Jean L. Mayes on 11/12/21</td>
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<td>on 11/12/21</td>
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See Reporting notes on last page
## PLM Bulk Asbestos Report

FEI-21AL633; VCU Founders Hall - 827 W Franklin St, Richmond, VA; (Report Amended 11/16/2021)

<table>
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<tr>
<th>Client No. / HGA</th>
<th>Lab No.</th>
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<td>Location: White Exterior Window Glazing; Roof - 53 Level</td>
<td></td>
<td>by Jean L. Mayes on 11/12/21</td>
</tr>
<tr>
<td></td>
<td>Analyst Description: White, Heterogeneous, Non-Fibrous, Bulk Material</td>
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<td>Other Material:</td>
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See Reporting notes on last page
## PLM Bulk Asbestos Report

**FEI-21AL633; VCU Founders Hall - 827 W Franklin St, Richmond, VA; (Report Amended 11/16/2021)**

<table>
<thead>
<tr>
<th>Client No. / HGA</th>
<th>Lab No.</th>
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<th>Total % Asbestos</th>
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<tbody>
<tr>
<td>13</td>
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<tr>
<td><strong>G</strong></td>
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<td></td>
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<tr>
<td><strong>Location:</strong></td>
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<td></td>
</tr>
<tr>
<td><strong>Analyst Description:</strong></td>
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<tr>
<td><strong>Asbestos Types:</strong></td>
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<tr>
<td><strong>Other Material:</strong></td>
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<tr>
<td>14</td>
<td>121111379-14</td>
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<td><strong>G</strong></td>
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<tr>
<td><strong>Location:</strong></td>
<td>Black Exterior Flashing Caulk; Roof 53B</td>
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<tr>
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<tr>
<td>15</td>
<td>121111379-15</td>
<td>No</td>
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<td><strong>H</strong></td>
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<tr>
<td><strong>Location:</strong></td>
<td>White Exterior Door Caulk; Basement Level</td>
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<tr>
<td><strong>Location:</strong></td>
<td>White Exterior Door Caulk; Basement Level</td>
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<td></td>
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</tr>
<tr>
<td><strong>Location:</strong></td>
<td>White Exterior Thick Window Glazing; Basement - Front Bay Window</td>
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<td><strong>Analyst Description:</strong></td>
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<td><strong>Asbestos Types:</strong></td>
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<td><strong>Other Material:</strong></td>
<td>Non-fibrous 100%</td>
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<td>18</td>
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<tr>
<td><strong>Location:</strong></td>
<td>White Exterior Thick Window Glazing; Basement - Northwest Elevation</td>
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<td><strong>Asbestos Types:</strong></td>
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<tr>
<td><strong>Other Material:</strong></td>
<td>Non-fibrous 100%</td>
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</tbody>
</table>

See Reporting notes on last page
## PLM Bulk Asbestos Report

FEI-21AL633; VCU Founders Hall - 827 W Franklin St, Richmond, VA; (Report Amended 11/16/2021)

### Table of Asbestos Present

<table>
<thead>
<tr>
<th>Client No. / HGA</th>
<th>Lab No.</th>
<th>Asbestos Present</th>
<th>Total % Asbestos</th>
<th>Location</th>
<th>Analyst Description</th>
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<tr>
<td>19</td>
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<td>Location: Black Interior Vibration Cloth; Penthouse</td>
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<td>Analyst Description: Brown, Heterogeneous, Fibrous, Bulk Material</td>
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<td></td>
<td></td>
<td>Asbestos Types: Cellulose 95%, Non-fibrous 5%</td>
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<td></td>
<td></td>
<td></td>
<td>by Jean L. Mayes on 11/12/21</td>
<td></td>
</tr>
</tbody>
</table>

| 20              | 121111379-20 | No              | NAD              | Location: Black Interior Vibration Cloth; Penthouse |
|                 |          |                  |                  | Analyst Description: Brown, Heterogeneous, Fibrous, Bulk Material |
|                 |          |                  |                  | Asbestos Types: Cellulose 95%, Non-fibrous 5% |
|                 |          |                  |                  | by Jean L. Mayes on 11/12/21 |

| 21              | 121111379-21 | No              | NAD              | Location: White Exterior Door Caulk; Penthouse Entrance |
|                 |          |                  |                  | Analyst Description: White, Heterogeneous, Non-Fibrous, Bulk Material |
|                 |          |                  |                  | Asbestos Types: Non-fibrous 100% |
|                 |          |                  |                  | by Jean L. Mayes on 11/12/21 |

| 22              | 121111379-22 | No              | NAD              | Location: White Exterior Door Caulk; Penthouse Entrance |
|                 |          |                  |                  | Analyst Description: White, Heterogeneous, Non-Fibrous, Bulk Material |
|                 |          |                  |                  | Asbestos Types: Non-fibrous 100% |
|                 |          |                  |                  | by Jean L. Mayes on 11/12/21 |

| 23              | 121111379-23 | No              | NAD              | Location: White Roof Paint on Metal; Penthouse Roof |
|                 |          |                  |                  | Analyst Description: White, Heterogeneous, Non-Fibrous, Bulk Material |
|                 |          |                  |                  | Asbestos Types: Non-fibrous 100% |
|                 |          |                  |                  | by Jean L. Mayes on 11/12/21 |

| 24              | 121111379-24 | No              | NAD              | Location: White Roof Paint on Metal; Old Stairwell Roof |
|                 |          |                  |                  | Analyst Description: White, Heterogeneous, Non-Fibrous, Bulk Material |
|                 |          |                  |                  | Asbestos Types: Non-fibrous 100% |
|                 |          |                  |                  | by Jean L. Mayes on 11/12/21 |

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### PLM Bulk Asbestos Report

**FEI-21AL633; VCU Founders Hall - 827 W Franklin St, Richmond, VA; (Report Amended 11/16/2021)**

#### Client No. / HGA | Lab No. | Asbestos Present | Total % Asbestos | Location
--- | --- | --- | --- | ---
25 | 12111379-25L1 | No | NAD | Location: White Exterior Roof Paint with Black Roofing Materials; Roof 12

**Analyst Description:** Black, Heterogeneous, Non-Fibrous, Roofing

**Asbestos Types:**

**Other Material:** Non-fibrous 100%

(by CVES) by Jean L. Mayes on 11/12/21

---

25 | 12111379-25L2 | No | NAD | Location: White Exterior Roof Paint with Black Roofing Materials; Roof 12

**Analyst Description:** White, Heterogeneous, Non-Fibrous, Paint

**Asbestos Types:**

**Other Material:** Non-fibrous 100%

(by CVES) by Jean L. Mayes on 11/12/21

---

26 | 12111379-26L1 | No | NAD | Location: White Exterior Roof Paint with Black Roofing Materials; Roof 12

**Analyst Description:** Black, Heterogeneous, Non-Fibrous, Roofing

**Asbestos Types:**

**Other Material:** Non-fibrous 100%

(by CVES) by Jean L. Mayes on 11/12/21

---

26 | 12111379-26L2 | No | NAD | Location: White Exterior Roof Paint with Black Roofing Materials; Roof 12

**Analyst Description:** White, Heterogeneous, Non-Fibrous, Paint

**Asbestos Types:**

**Other Material:** Non-fibrous 100%

(by CVES) by Jean L. Mayes on 11/12/21

---

27 | 12111379-27L1 | No | NAD | Location: White Exterior Curbing; Roof 12 - Skylight

**Analyst Description:** Black, Heterogeneous, Non-Fibrous, Roofing

**Asbestos Types:**

**Other Material:** Synthetic fibers 10%, Non-fibrous 90%

(by CVES) by Jean L. Mayes on 11/12/21

---

27 | 12111379-27L2 | No | NAD | Location: White Exterior Curbing; Roof 12 - Skylight

**Analyst Description:** White, Heterogeneous, Non-Fibrous, Paint

**Asbestos Types:**

**Other Material:** Non-fibrous 100%

(by CVES) by Jean L. Mayes on 11/12/21

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See Reporting notes on last page
# PLM Bulk Asbestos Report

FEI-21AL633; VCU Founders Hall - 827 W Franklin St, Richmond, VA; (Report Amended 11/16/2021)

<table>
<thead>
<tr>
<th>Client No. / HGA</th>
<th>Lab No.</th>
<th>Asbestos Present</th>
<th>Total % Asbestos</th>
</tr>
</thead>
<tbody>
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<td>28 N</td>
<td>121111379-28L1</td>
<td>No</td>
<td>NAD (by CVES)</td>
</tr>
<tr>
<td></td>
<td><strong>Location</strong>: White Exterior Curbing; Roof 7</td>
<td></td>
<td>by Jean L. Mayes on 11/12/21</td>
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<tr>
<td></td>
<td><strong>Analyst Description</strong>: Black, Heterogeneous, Non-Fibrous, Roofing</td>
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<tr>
<td></td>
<td><strong>Asbestos Types</strong>: Synthetic fibers 10%, Non-fibrous 90%</td>
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</tr>
<tr>
<td>28 N</td>
<td>121111379-28L2</td>
<td>No</td>
<td>NAD (by CVES)</td>
</tr>
<tr>
<td></td>
<td><strong>Location</strong>: White Exterior Curbing; Roof 7</td>
<td></td>
<td>by Jean L. Mayes on 11/12/21</td>
</tr>
<tr>
<td></td>
<td><strong>Analyst Description</strong>: White, Heterogeneous, Non-Fibrous, Paint</td>
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<tr>
<td></td>
<td><strong>Asbestos Types</strong>: Non-fibrous 100%</td>
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<tr>
<td>29 O</td>
<td>121111379-29L1</td>
<td>No</td>
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<tr>
<td></td>
<td><strong>Location</strong>: White Exterior Pitch Pocket; Roof 12 - Hand Rail</td>
<td></td>
<td>by Jean L. Mayes on 11/12/21</td>
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<td></td>
<td><strong>Analyst Description</strong>: Black, Heterogeneous, Non-Fibrous, Roofing</td>
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<td><strong>Asbestos Types</strong>: Synthetic fibers 10%, Non-fibrous 90%</td>
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<td>29 O</td>
<td>121111379-29L2</td>
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<tr>
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<td><strong>Location</strong>: White Exterior Pitch Pocket; Roof 12 - Hand Rail</td>
<td></td>
<td>by Jean L. Mayes on 11/12/21</td>
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<td><strong>Analyst Description</strong>: White, Heterogeneous, Non-Fibrous, Paint</td>
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<td><strong>Asbestos Types</strong>: Non-fibrous 100%</td>
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<tr>
<td>30 O</td>
<td>121111379-30L1</td>
<td>No</td>
<td>NAD (by CVES)</td>
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<td><strong>Location</strong>: White Exterior Pitch Pocket; Roof 12 - Exhaust Duct Stand</td>
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<td>by Jean L. Mayes on 11/12/21</td>
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<td><strong>Analyst Description</strong>: Black, Heterogeneous, Non-Fibrous, Roofing</td>
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<td><strong>Asbestos Types</strong>: Cellulose 10%, Non-fibrous 90%</td>
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<td><strong>Location</strong>: White Exterior Pitch Pocket; Roof 12 - Exhaust Duct Stand</td>
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<td>by Jean L. Mayes on 11/12/21</td>
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<td><strong>Analyst Description</strong>: White, Heterogeneous, Non-Fibrous, Paint</td>
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<td><strong>Asbestos Types</strong>: Non-fibrous 100%</td>
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See Reporting notes on last page
### PLM Bulk Asbestos Report

FEI-21AL633; VCU Founders Hall - 827 W Franklin St, Richmond, VA; (Report Amended 11/16/2021)

<table>
<thead>
<tr>
<th>Client No. / HGA</th>
<th>Lab No.</th>
<th>Asbestos Present</th>
<th>Total % Asbestos</th>
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<tr>
<td>P</td>
<td>Location: White Exterior Sky Light Caulk; Roof 12</td>
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**Analyst Description:** White, Heterogeneous, Non-Fibrous, Bulk Material

**Asbestos Types:**

**Other Material:** Non-fibrous 100%

| 32              | 121111379-32     | No               | NAD             |
| P               | Location: White Exterior Sky Light Caulk; Roof 25 |                  |                 |

**Analyst Description:** Multi-Colored, Heterogeneous, Non-Fibrous, Bulk Material

**Asbestos Types:**

**Other Material:** Non-fibrous 100%

| 33              | 121111379-33L1   | No               | NAD             |
| Q               | Location: White Exterior Roof Paint with Black Roofing Material; Roof 10 |                  |                 |

**Analyst Description:** Black, Heterogeneous, Non-Fibrous, Roofing

**Asbestos Types:**

**Other Material:** Fibrous glass 3%, Synthetic fibers 10%, Non-fibrous 87%

| 33              | 121111379-33L2   | No               | NAD             |
| Q               | Location: White Exterior Roof Paint with Black Roofing Material; Roof 10 |                  |                 |

**Analyst Description:** White, Heterogeneous, Non-Fibrous, Paint

**Asbestos Types:**

**Other Material:** Non-fibrous 100%

| 34              | 121111379-34L1   | No               | NAD             |
| Q               | Location: White Exterior Roof Paint with Black Roofing Material; Roof 10 |                  |                 |

**Analyst Description:** Black, Heterogeneous, Non-Fibrous, Roofing

**Asbestos Types:**

**Other Material:** Fibrous glass 3%, Synthetic fibers 10%, Non-fibrous 87%

| 34              | 121111379-34L2   | No               | NAD             |
| Q               | Location: White Exterior Roof Paint with Black Roofing Material; Roof 10 |                  |                 |

**Analyst Description:** White, Heterogeneous, Non-Fibrous, Paint

**Asbestos Types:**

**Other Material:** Non-fibrous 100%

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See Reporting notes on last page
# PLM Bulk Asbestos Report
FEI-21AL633; VCU Founders Hall - 827 W Franklin St, Richmond, VA; (Report Amended 11/16/2021)

### Client Name: France Environmental Inc

<table>
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<td>Location: White Exterior Flashing; Roof 12</td>
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<td>Synthetic fibers 15%, Non-fibrous 85%</td>
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<td>Other Material:</td>
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<td></td>
<td>Synthetic fibers 15%, Non-fibrous 85%</td>
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<td>Non-fibrous 100%</td>
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<td>(by Jean L. Mayes on 11/12/21)</td>
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<tr>
<td>37 S</td>
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<tr>
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<td>Cellulose 90%, Non-fibrous 10%</td>
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<td>(by Jean L. Mayes on 11/12/21)</td>
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<td>38 S</td>
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<td></td>
<td>Other Material:</td>
<td></td>
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<tr>
<td></td>
<td>Cellulose 90%, Non-fibrous 10%</td>
<td></td>
<td>(by Jean L. Mayes on 11/12/21)</td>
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</tbody>
</table>

See Reporting notes on last page
### PLM Bulk Asbestos Report

**FEI-21AL633; VCU Founders Hall - 827 W Franklin St, Richmond, VA; (Report Amended 11/16/2021)**

<table>
<thead>
<tr>
<th>Client No. / HGA</th>
<th>Lab No.</th>
<th>Asbestos Present</th>
<th>Total % Asbestos</th>
</tr>
</thead>
<tbody>
<tr>
<td>39</td>
<td>121111379-39</td>
<td><strong>No</strong></td>
<td><strong>NAD</strong></td>
</tr>
<tr>
<td>T</td>
<td><strong>Location:</strong> White Roof Paint on Metal; Roof 24</td>
<td></td>
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</tr>
<tr>
<td></td>
<td><strong>Analyst Description:</strong> White, Heterogeneous, Non-Fibrous, Bulk Material</td>
<td></td>
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</tr>
<tr>
<td></td>
<td><strong>Asbestos Types:</strong> Non-fibrous 100%</td>
<td></td>
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</tr>
<tr>
<td></td>
<td>(by CVES) by Jean L. Mayes on 11/12/21</td>
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<tr>
<td>40</td>
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<td><strong>No</strong></td>
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<tr>
<td>T</td>
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<td><strong>Asbestos Types:</strong> Non-fibrous 100%</td>
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<td>(by CVES) by Jean L. Mayes on 11/12/21</td>
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<tr>
<td>41</td>
<td>121111379-41</td>
<td><strong>No</strong></td>
<td><strong>NAD</strong></td>
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<tr>
<td>U</td>
<td><strong>Location:</strong> White Exterior Window Glazing; Roof 20</td>
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<tr>
<td></td>
<td><strong>Analyst Description:</strong> White, Heterogeneous, Non-Fibrous, Bulk Material</td>
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<td><strong>Asbestos Types:</strong> Non-fibrous 100%</td>
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<td>(by CVES) by Jean L. Mayes on 11/12/21</td>
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<td>42</td>
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<td>U</td>
<td><strong>Location:</strong> White Exterior Window Glazing; Roof 16</td>
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<td><strong>Analyst Description:</strong> White, Heterogeneous, Non-Fibrous, Bulk Material</td>
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<td></td>
<td><strong>Asbestos Types:</strong> Non-fibrous 100%</td>
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<td>(by CVES) by Jean L. Mayes on 11/12/21</td>
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<tr>
<td>43</td>
<td>121111379-43</td>
<td><strong>Yes</strong></td>
<td><strong>10%</strong></td>
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<tr>
<td>V</td>
<td><strong>Location:</strong> Black Exterior Roof Patch Tar; Upper Roof Fascia - Slate</td>
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<td><strong>Asbestos Types:</strong> Chrysotile 10.0 %</td>
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<td><strong>Other Material:</strong> Non-fibrous 90%</td>
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<td>(by CVES) by Jean L. Mayes on 11/12/21</td>
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<td>44</td>
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<td><strong>NA/PS</strong></td>
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<td>V</td>
<td><strong>Location:</strong> Black Exterior Roof Patch Tar; Old Stairwell Corner</td>
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<td><strong>Analyst Description:</strong> Bulk Material</td>
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<td></td>
<td><strong>Asbestos Types:</strong></td>
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<td></td>
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<tr>
<td></td>
<td><strong>Other Material:</strong></td>
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See Reporting notes on last page
## PLM Bulk Asbestos Report

FEI-21AL633; VCU Founders Hall - 827 W Franklin St, Richmond, VA; (Report Amended 11/16/2021)

<table>
<thead>
<tr>
<th>Client No. / HGA</th>
<th>Lab No.</th>
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<td>W</td>
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<td>(by CVES)</td>
</tr>
<tr>
<td></td>
<td><strong>Location:</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>White Exterior</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Chimney Flashing</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Caulk; Roof 12 -</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Chimney</td>
<td></td>
<td></td>
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<td></td>
<td><strong>Analyst Description:</strong> White, Heterogeneous, Non-Fibrous, Bulk Material</td>
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<tr>
<td></td>
<td><strong>Asbestos Types:</strong> Non-fibrous 100%</td>
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<td></td>
<td><strong>Other Material:</strong> Non-fibrous 100%</td>
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<tr>
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<td>121111379-46</td>
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<tr>
<td>W</td>
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<td>(by CVES)</td>
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<td></td>
<td><strong>Location:</strong> White Exterior Chimney Flashing Caulk; Roof 23 - Chimney</td>
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<td><strong>Analyst Description:</strong> White, Heterogeneous, Non-Fibrous, Bulk Material</td>
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<td><strong>Asbestos Types:</strong> Non-fibrous 100%</td>
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<td></td>
<td><strong>Other Material:</strong> Non-fibrous 100%</td>
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<tr>
<td>47</td>
<td>121111379-47L1</td>
<td>No</td>
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<tr>
<td>X</td>
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<td>(by CVES)</td>
</tr>
<tr>
<td></td>
<td><strong>Location:</strong> White Ceiling Plaster with Gray Coat with Brown Fiber Board; Attic - 402</td>
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<tr>
<td></td>
<td><strong>Analyst Description:</strong> Tan, Heterogeneous, Non-Fibrous, Skim Coat (Plaster)</td>
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<td></td>
</tr>
<tr>
<td></td>
<td><strong>Asbestos Types:</strong> Non-fibrous 100%</td>
<td></td>
<td></td>
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<td></td>
<td><strong>Other Material:</strong> Non-fibrous 100%</td>
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<tr>
<td>47</td>
<td>121111379-47.2</td>
<td>No</td>
<td>NAD</td>
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<tr>
<td>X</td>
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<td>(by CVES)</td>
</tr>
<tr>
<td></td>
<td><strong>Location:</strong> White Ceiling Plaster with Gray Coat with Brown Fiber Board; Attic - 402</td>
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<td></td>
</tr>
<tr>
<td></td>
<td><strong>Analyst Description:</strong> Gray, Heterogeneous, Non-Fibrous, Base Coat (Plaster)</td>
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<td></td>
<td><strong>Asbestos Types:</strong> Non-fibrous 100%</td>
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<td></td>
<td><strong>Other Material:</strong> Non-fibrous 100%</td>
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<tr>
<td>47</td>
<td>121111379-47L3</td>
<td>No</td>
<td>NAD</td>
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<td>X</td>
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<td>(by CVES)</td>
</tr>
<tr>
<td></td>
<td><strong>Location:</strong> White Ceiling Plaster with Gray Coat with Brown Fiber Board; Attic - 402</td>
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<tr>
<td></td>
<td><strong>Analyst Description:</strong> Brown, Heterogeneous, Fibrous, Fiber Board</td>
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<td></td>
</tr>
<tr>
<td></td>
<td><strong>Asbestos Types:</strong> Cellulose 95%, Non-fibrous 5%</td>
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<tr>
<td></td>
<td><strong>Other Material:</strong> Cellulose 95%, Non-fibrous 5%</td>
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<td></td>
</tr>
<tr>
<td>48</td>
<td>121111379-48L1</td>
<td>No</td>
<td>NAD</td>
</tr>
<tr>
<td>X</td>
<td></td>
<td></td>
<td>(by CVES)</td>
</tr>
<tr>
<td></td>
<td><strong>Location:</strong> White Ceiling Plaster with Gray Coat with Brown Fiber Board; Attic - 405</td>
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<tr>
<td></td>
<td><strong>Analyst Description:</strong> Tan, Heterogeneous, Non-Fibrous, Skim Coat (Plaster)</td>
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<tr>
<td></td>
<td><strong>Asbestos Types:</strong> Non-fibrous 100%</td>
<td></td>
<td></td>
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<tr>
<td></td>
<td><strong>Other Material:</strong> Non-fibrous 100%</td>
<td></td>
<td></td>
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</table>

See Reporting notes on last page
<table>
<thead>
<tr>
<th>Client No. / HGA</th>
<th>Lab No.</th>
<th>Asbestos Present</th>
<th>Total % Asbestos</th>
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<tr>
<td>48</td>
<td>12111379-48.2</td>
<td><strong>No</strong></td>
<td><strong>NAD</strong></td>
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<tr>
<td>X</td>
<td><strong>Location:</strong> White Ceiling Plaster with Gray Coat with Brown Fiber Board; Attic - 405</td>
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</tr>
</tbody>
</table>
| **Analyst Description:** Gray, Heterogeneous, Non-Fibrous, Base Coat (Plaster)  
**Asbestos Types:**  
**Other Material:** Cellulose 1%, Non-fibrous 99% |
| 48              | 12111379-48L3| **No**           | **NAD**          |
| X               | **Location:** White Ceiling Plaster with Gray Coat with Brown Fiber Board; Attic - 405 |
| **Analyst Description:** Brown, Heterogeneous, Fibrous, Fiber Board  
**Asbestos Types:**  
**Other Material:** Cellulose 95%, Non-fibrous 5% |
| 49              | 12111379-49L1| **No**           | **NAD**          |
| X               | **Location:** White Ceiling Plaster with Gray Coat with Brown Fiber Board; Attic - 410 |
| **Analyst Description:** White, Heterogeneous, Non-Fibrous, Skim Coat (Plaster)  
**Asbestos Types:**  
**Other Material:** Non-fibrous 100% |
| 49              | 12111379-49.2| **No**           | **NAD**          |
| X               | **Location:** White Ceiling Plaster with Gray Coat with Brown Fiber Board; Attic - 410 |
| **Analyst Description:** Gray, Heterogeneous, Non-Fibrous, Base Coat (Plaster)  
**Asbestos Types:**  
**Other Material:** Cellulose 1%, Non-fibrous 99% |
| 49              | 12111379-49L3| **No**           | **NAD**          |
| X               | **Location:** White Ceiling Plaster with Gray Coat with Brown Fiber Board; Attic - 410 |
| **Analyst Description:** Brown, Heterogeneous, Fibrous, Fiber Board  
**Asbestos Types:**  
**Other Material:** Cellulose 95%, Non-fibrous 5% |
| 50              | 12111379-50.1| **No**           | **NAD**          |
| Y               | **Location:** White Wall Plaster with Gray Coat with Brown Fiber Board; Attic - 402 |
| **Analyst Description:** White, Heterogeneous, Non-Fibrous, Skim Coat (Plaster)  
**Asbestos Types:**  
**Other Material:** Non-fibrous 100% |

See Reporting notes on last page
# PLM Bulk Asbestos Report

FEI-21AL633; VCU Founders Hall - 827 W Franklin St, Richmond, VA; (Report Amended 11/16/2021)

## Client No. / HGA

<table>
<thead>
<tr>
<th>Client No. / HGA</th>
<th>Lab No.</th>
<th>Asbestos Present</th>
<th>Total % Asbestos</th>
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<td>51</td>
<td>121111379-51.1</td>
<td>No</td>
<td>NAD</td>
</tr>
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<td>51</td>
<td>121111379-51.2</td>
<td>No</td>
<td>NAD</td>
</tr>
<tr>
<td>52</td>
<td>121111379-52.1</td>
<td>No</td>
<td>NAD</td>
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<tr>
<td>52</td>
<td>121111379-52.2</td>
<td>No</td>
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</tr>
<tr>
<td>53</td>
<td>121111379-53L1</td>
<td>Yes</td>
<td>2%</td>
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</table>

### Analyst Description:

**Location:** White Wall Plaster with Gray Coat with Brown Fiber Board; Attic - 402

- **Asbestos Types:**
  - Gray, Heterogeneous, Non-Fibrous, Base Coat (Plaster)
  - Other Material: Cellulose 2%, Non-fibrous 98%

**Location:** White Wall Plaster with Gray Coat with Brown Fiber Board; Attic - 405

- **Asbestos Types:**
  - White, Heterogeneous, Non-Fibrous, Skim Coat (Plaster)
  - Other Material: Non-fibrous 100%

**Location:** White Wall Plaster with Gray Coat with Brown Fiber Board; Attic - 405

- **Asbestos Types:**
  - Gray, Heterogeneous, Non-Fibrous, Base Coat (Plaster)
  - Other Material: Cellulose 2%, Non-fibrous 98%

**Location:** White Wall Plaster with Gray Coat with Brown Fiber Board; Attic - 410

- **Asbestos Types:**
  - White, Heterogeneous, Non-Fibrous, Skim Coat (Plaster)
  - Other Material: Non-fibrous 100%

**Location:** White Wall Plaster with Gray Coat with Brown Fiber Board; Attic - 410

- **Asbestos Types:**
  - Gray, Heterogeneous, Non-Fibrous, Base Coat (Plaster)
  - Other Material: Cellulose 1%, Non-fibrous 99%

**Location:** Brown 9"x9" with Black Mastic on Wood; Attic - 402

- **Asbestos Types:**
  - Brown, Heterogeneous, Non-Fibrous, Floor Tile
  - Chrysotile 2.0 %
  - Other Material: Non-fibrous 98%

See Reporting notes on last page
### PLM Bulk Asbestos Report

FEI-21AL633; VCU Founders Hall - 827 W Franklin St, Richmond, VA; (Report Amended 11/16/2021)

<table>
<thead>
<tr>
<th>Client No. / HGA</th>
<th>Lab No.</th>
<th>Asbestos Present</th>
<th>Location</th>
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<td>Analyst Description: Black, Heterogeneous, Non-Fibrous, Mastic</td>
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<td>Asbestos Types:</td>
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<td>Other Material:</td>
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<td>53 Z</td>
<td>12111379-53L3</td>
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<td>Analyst Description: Black, Heterogeneous, Fibrous, Felt</td>
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<td>Other Material:</td>
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<td>54 Z</td>
<td>12111379-54L1</td>
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<td>Location: Brown 9&quot;x9&quot; with Black Mastic on Wood; Attic - 405</td>
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<td>Analyst Description: Floor Tile</td>
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<td>Asbestos Types:</td>
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<td>Other Material:</td>
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<td>54 Z</td>
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<td>Analyst Description: Black, Heterogeneous, Non-Fibrous, Felt</td>
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<td>Asbestos Types:</td>
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<td>Other Material:</td>
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<td>55 A2</td>
<td>12111379-55L1</td>
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<td>Analyst Description: Tan, Heterogeneous, Non-Fibrous, Tile</td>
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<td></td>
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<td>Other Material:</td>
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</table>

See Reporting notes on last page
## PLM Bulk Asbestos Report

FEI-21AL633; VCU Founders Hall - 827 W Franklin St, Richmond, VA; (Report Amended 11/16/2021)

### Table: Asbestos Present and Total % Asbestos

<table>
<thead>
<tr>
<th>Client No. / HGA</th>
<th>Lab No.</th>
<th>Asbestos Present</th>
<th>Total % Asbestos</th>
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<td>12111379-55L2</td>
<td>No</td>
<td>NAD</td>
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<td></td>
<td>Location: Tan Wall Tile with Brown Mastic; Attic - 402</td>
<td>by CVES</td>
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</tr>
<tr>
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<td>Analyst Description: Brown, Heterogeneous, Non-Fibrous, Mastic</td>
<td>by Jean L. Mayes</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Asbestos Types:</td>
<td>on 11/12/21</td>
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<td></td>
<td>Other Material: Non-fibrous 100%</td>
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<tr>
<td>56 A2</td>
<td>12111379-56L1</td>
<td>No</td>
<td>NAD</td>
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<tr>
<td></td>
<td>Location: Tan Wall Tile with Brown Mastic; Attic - 406</td>
<td>by CVES</td>
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<td>Asbestos Types:</td>
<td>by Jean L. Mayes</td>
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<tr>
<td></td>
<td>Other Material: Fibrous Talc 2%, Non-fibrous 98%</td>
<td>on 11/12/21</td>
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<tr>
<td>56 A2</td>
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<td>No</td>
<td>NAD</td>
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<tr>
<td></td>
<td>Location: Tan Wall Tile with Brown Mastic; Attic - 406</td>
<td>by CVES</td>
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<tr>
<td></td>
<td>Analyst Description: Brown, Heterogeneous, Non-Fibrous, Mastic</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Asbestos Types:</td>
<td>by Jean L. Mayes</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Other Material: Non-fibrous 100%</td>
<td>on 11/12/21</td>
<td></td>
</tr>
<tr>
<td>57 B2</td>
<td>12111379-57L1</td>
<td>Yes</td>
<td>7%</td>
</tr>
<tr>
<td></td>
<td>Location: White with Brown 4&quot; O.D. Pipe Insulation; Attic - 405</td>
<td>by CVES</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Analyst Description: Brown, Heterogeneous, Fibrous, Insulation</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Asbestos Types: Chrysotile 7.0 %</td>
<td>by Jean L. Mayes</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Other Material: Cellulose 80%, Non-fibrous 13%</td>
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<tr>
<td>57 B2</td>
<td>12111379-57L2</td>
<td>No</td>
<td>NAD</td>
</tr>
<tr>
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<td>Location: White with Brown 4&quot; O.D. Pipe Insulation; Attic - 405</td>
<td>by CVES</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Analyst Description: Brown, Heterogeneous, Fibrous, Insulation</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Asbestos Types: Animal hair 95%, Non-fibrous 5%</td>
<td>by Jean L. Mayes</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Other Material:</td>
<td>on 11/12/21</td>
<td></td>
</tr>
<tr>
<td>58 B2</td>
<td>12111379-58L1</td>
<td>NA/PS</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Location: White with Brown 4&quot; O.D. Pipe Insulation; Attic - 405</td>
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<tr>
<td></td>
<td>Analyst Description: Insulation</td>
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<td></td>
<td>Asbestos Types:</td>
<td></td>
<td></td>
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<tr>
<td></td>
<td>Other Material:</td>
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See Reporting notes on last page
PLM Bulk Asbestos Report
FEI-21AL633; VCU Founders Hall - 827 W Franklin St, Richmond, VA; (Report Amended 11/16/2021)

<table>
<thead>
<tr>
<th>Client No. / HGA</th>
<th>Lab No.</th>
<th>Asbestos Present</th>
<th>Total % Asbestos</th>
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<tr>
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<td>121111379-58L2</td>
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<td>Analyst Description: Brown, Heterogeneous, Fibrous, Insulation</td>
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<tr>
<td></td>
<td>Asbestos Types:</td>
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<tr>
<td></td>
<td>Other Material: Animal hair 95%, Non-fibrous 5%</td>
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</tr>
<tr>
<td>59 B2</td>
<td>121111379-59L1</td>
<td>NA/PS</td>
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<td>Location: White with Brown 4&quot; O.D. Pipe Insulation; Attic - 405</td>
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<td>121111379-59L2</td>
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<td></td>
<td>Analyst Description: Brown, Heterogeneous, Fibrous, Insulation</td>
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<td></td>
<td>Asbestos Types:</td>
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<tr>
<td></td>
<td>Other Material: Animal hair 95%, Non-fibrous 5%</td>
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<td></td>
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<td>60 C2</td>
<td>121111379-60</td>
<td>No</td>
<td>NAD</td>
</tr>
<tr>
<td></td>
<td>Location: White Exterior Column Caulk; Front Entrance</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Analyst Description: White, Heterogeneous, Non-Fibrous, Bulk Material</td>
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<td>Asbestos Types:</td>
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<td></td>
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<td>121111379-61</td>
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<td>NAD</td>
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<td>Analyst Description: White, Heterogeneous, Non-Fibrous, Bulk Material</td>
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<td>Asbestos Types:</td>
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<td></td>
<td>Other Material: Non-fibrous 100%</td>
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<td>62 D2</td>
<td>121111379-62</td>
<td>No</td>
<td>NAD</td>
</tr>
<tr>
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<td>Location: Black Exterior Wall Water Proofing; Basement Northwest Elevation</td>
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<tr>
<td></td>
<td>Analyst Description: Black, Heterogeneous, Non-Fibrous, Bulk Material</td>
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<tr>
<td></td>
<td>Asbestos Types:</td>
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</tr>
<tr>
<td></td>
<td>Other Material: Non-fibrous 100%</td>
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</tbody>
</table>

See Reporting notes on last page
## PLM Bulk Asbestos Report

**FEI-21AL633; VCU Founders Hall - 827 W Franklin St, Richmond, VA; (Report Amended 11/16/2021)**

### Client No. / HGA | Lab No. | Asbestos Present | Total % Asbestos
--- | --- | --- | ---
63 | 121111379-63 | **No** | NAD  
(by CVES)  
by Jean L. Mayes  
on 11/12/21

**Analyst Description:** Black, Heterogeneous, Non-Fibrous, Bulk Material  
**Asbestos Types:**  
**Other Material:** Cellulose 4%, Non-fibrous 96%

| 64 | 121111379-64 | **No** | NAD  
(by CVES)  
by Jean L. Mayes  
on 11/12/21

**Analyst Description:** Brown, Heterogeneous, Non-Fibrous, Bulk Material  
**Asbestos Types:**  
**Other Material:** Non-fibrous 100%

| 65 | 121111379-65 | **No** | NAD  
(by CVES)  
by Jean L. Mayes  
on 11/12/21

**Analyst Description:** Brown, Heterogeneous, Non-Fibrous, Bulk Material  
**Asbestos Types:**  
**Other Material:** Non-fibrous 100%

---

### Reporting Notes:

Analyst by: Jean L. Mayes  
Reviewed by: Jean L. Mayes  
Date: 11/12/2021

*NAD = no asbestos detected, Detection Limit <1%, Reporting Limits: CVES = 1%, 400 Pt Ct = 0.25%, 1000 Pt Ct = 0.1%; “Present” or NVA = “No Visible Asbestos” are observations made during a qualitative analysis; NA = not analyzed; NA/PS = not analyzed / positive stop; PLM Bulk Asbestos Analysis using Olympus, Model BH-2 microscope, Serial #233533, by EPA 600/R-93/116 per 40 CFR 763 (NVLAP Lab Code 101904-0) and ELAP PLM Analysis Protocol 198.1 for New York friable samples which includes quantitation of any vermiculite observed (198.6 for NOB samples) or EPA 400 pt ct by EPA 600/M4-82-020 (NYSDOH ELAP Lab # 10984); CA ELAP Lab # 2508; Note: PLM is not consistently reliable in detecting asbestos in floor coverings and similar NOB materials. NAD or Trace results by PLM are inconclusive, TEM is currently the only method that can be used to determine if this material can be considered or treated as non-asbestos-containing in New York State (also see EPA Advisory for floor tile, FR 59, 146, 38970, 8/1/94). NIST Accreditation requirements mandate that this report must not be reproduced except in full without the approval of the laboratory. This PLM report relates ONLY to the items tested.
<table>
<thead>
<tr>
<th>AmeriSci Richmond</th>
<th>Report Amendment Explanation Form (append to amended report)</th>
<th>Date Amended</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>11/16/2021</td>
</tr>
</tbody>
</table>

Client: France Environmental Inc
AmeriSci Job #: 12111379
Client Job: FEI-21AL633
Analysis Type: PLM
AmeriSci Sample #s affected: 12111379-
Amended by (print/sign): Kenyell H Morris

Original Item(s) Being Amended:
Client changed sample numbers

Changes Made: 10,10 to 10a,10b

Reason for Changes:
to match new coc

Attach original sheet with incorrect item or items to be amended clearly indicated or circled.
**CHAIN OF CUSTODY RECORD**

<table>
<thead>
<tr>
<th>Project Name: VCU Founders Hall – 827 W. Franklin St., Richmond, VA</th>
<th>Sample to Lab Via: Drop Off</th>
<th>Report To: France Environmental, Inc.</th>
<th>Sample Type:</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Building:</strong> Roof Levels, Attic Floor &amp; Exterior</td>
<td>Date Sent to Lab: 11-9-21</td>
<td>Project Manager: Mike Leonard</td>
<td>___ Asbestos – PCM</td>
</tr>
<tr>
<td></td>
<td>Date Sampled: 11-9-2</td>
<td>Address: 7834 Forest Hill Ave, Suite 7</td>
<td>___ Asbestos – TEM</td>
</tr>
<tr>
<td></td>
<td>Turn-Around Time: 3-Day</td>
<td>City/State/Zip: Richmond, VA 23225</td>
<td>X Asbestos – Bulk</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>___ Lead-in-Air</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>___ Lead – Wipe</td>
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<tr>
<td></td>
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<td></td>
<td>___ Lead – TCLP</td>
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<td></td>
<td></td>
<td></td>
<td>___ Lead – Bulk</td>
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<tr>
<td></td>
<td></td>
<td></td>
<td>___ Other</td>
</tr>
<tr>
<td>Field Inspector: Andrew Baird</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**LABORATORY SUBMITTED TO:**

X AmeriSci Richmond (ACCT #: 11647) 13635 Genito Road Midlothian, Virginia 23112 804.763.1200

___ Schneider Laboratories, Inc. (ACCT #: 2763) 2512 West Cary Street Richmond, Virginia 23220-5117 804.363.8778

X **FIRST POSITIVE STOP**

<table>
<thead>
<tr>
<th>Sample Group</th>
<th>Sample Number</th>
<th>Sample Description</th>
<th>Sample Location</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>1</td>
<td>Gray Exterior Asphalt Rolled Shingle with Gray Insulation</td>
<td>Roof 53</td>
</tr>
<tr>
<td>A</td>
<td>2</td>
<td>Gray Exterior Asphalt Rolled Shingle with Gray Insulation</td>
<td>Roof 53</td>
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<tr>
<td>B</td>
<td>3</td>
<td>Black/Gray Flashing Caulk</td>
<td>Roof 53 – Northwest Wall</td>
</tr>
<tr>
<td>B</td>
<td>4</td>
<td>Black/Gray Flashing Caulk</td>
<td>Roof 53 – Northwest Wall</td>
</tr>
<tr>
<td>C</td>
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<td>C</td>
<td>6</td>
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<td>D</td>
<td>8</td>
<td>Gray Exterior Asphalt Rolled Flashing</td>
<td>Roof 53</td>
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<tr>
<td>E</td>
<td>9</td>
<td>White Exterior Window Caulk</td>
<td>Roof – 53 Level</td>
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<tr>
<td>E</td>
<td>10A</td>
<td>White Exterior Window Caulk</td>
<td>Roof – 53 Level</td>
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<td>10B</td>
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<td>Roof – 53 Level</td>
</tr>
<tr>
<td>F</td>
<td>11</td>
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<td>Roof – 53 Level</td>
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<tr>
<td>F</td>
<td>12</td>
<td>White Exterior Window Glazing</td>
<td>Roof – 53 Level</td>
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<td>G</td>
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<td>G</td>
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<td>Roof 53B</td>
</tr>
<tr>
<td>H</td>
<td>15</td>
<td>White Exterior Door Caulk</td>
<td>Basement Level</td>
</tr>
<tr>
<td>H</td>
<td>16</td>
<td>White Exterior Door Caulk</td>
<td>Basement Level</td>
</tr>
<tr>
<td>I</td>
<td>17</td>
<td>White Exterior Thick Window Glazing</td>
<td>Basement – Front Bay Window</td>
</tr>
<tr>
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<td>18</td>
<td>White Exterior Thick Window Glazing</td>
<td>Basement – Northwest Elevation</td>
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Relinquished by: Andrew Baird Date: 11-9-21 Time: PM

Accepted by: Andrew Baird Date: 11-9-21 Time: 

Additional Remarks: 3-Day TAT

Sampler Signature: Andrew Baird
# Chain of Custody Record

**Project Name:** VCU Founders Hall – 827 W. Franklin St., Richmond, VA  
**Building:** Roof Levels, Attic Floor & Exterior  
**Project Number:** FEI-21AL633  
**Client Name:** VCU  
**Field Inspector:** Andrew Baird

**Sample to Lab Via:** Drop Off  
**Date Sent to Lab:** 11-9-21  
**Date Sampled:** 11-9-2  
**Project Manager:** Mike Leonard  
**Address:** 7834 Forest Hill Ave, Suite 7  
**City/State/Zip:** Richmond, VA 23225  
**Report Via:**  
- **Verbal**  
- **U.S. Mail**  
- **Overnight**  
- **Fax**  
- **X** Electronic – France Distribution List  
**Telephone:** Work: 804-716-0560  
**Sample Type:**  
- Asbestos – PCM  
- Asbestos – TEM  
- Asbestos – Bulk  
- Lead-in-Air  
- Lead – Wipe  
- Lead – TCLP  
- Lead – Bulk  
- Other

**Laboratory Submitted To:**  
**X** AmerSci Richmond (ACCT #: 11647)  
13635 Genito Road  
Midlothian, Virginia 23112  
804.763.1200  
Schneider Laboratories, Inc. (ACCT #: 2763)  
2512 West Cary Street  
Richmond, Virginia 23220-5117  
804.353.6778  
**X** FIRST POSITIVE STOP

<table>
<thead>
<tr>
<th>Sample Group</th>
<th>Sample Number</th>
<th>Sample Description</th>
<th>Sample Location</th>
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<td>J</td>
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<td>Black Interior Vibration Cloth</td>
<td>Penthouse</td>
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<td>20</td>
<td>Black Interior Vibration Cloth</td>
<td>Penthouse</td>
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<tr>
<td>K</td>
<td>21</td>
<td>White Exterior Door Caulk</td>
<td>Penthouse Entrance</td>
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<td>22</td>
<td>White Exterior Door Caulk</td>
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<td>L</td>
<td>23</td>
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<td>L</td>
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<td>White Roof Paint on Metal</td>
<td>Old Stairwell Roof</td>
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<td>M</td>
<td>25</td>
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<td>29</td>
<td>White Exterior Pitch Pocket</td>
<td>Roof 12 – Hand Rail</td>
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<td>30</td>
<td>White Exterior Pitch Pocket</td>
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<td>Roof 10</td>
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<td>Roof 12</td>
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**Relinquished by:** Andrew Baird  
**Date:** 11-9-21  
**Time:** PM  
**Accepted by:** Kendall Moore  
**Date:** 11/16/21  
**Time:**  
**Additional Remarks:** 3-Day TAT  
**Sampler Signature:** Andrew Baird
**CHAIN OF CUSTODY RECORD**

<table>
<thead>
<tr>
<th>Project Name:</th>
<th>VCU Founders Hall – 827 W. Franklin St., Richmond, VA</th>
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<tbody>
<tr>
<td>Building:</td>
<td>Roof Levels, Attic Floor &amp; Exterior</td>
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<tr>
<td>Project Number:</td>
<td>FEI-21AL633</td>
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<td>Client Name:</td>
<td>VCU</td>
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<tr>
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<td>Andrew Baird</td>
</tr>
<tr>
<td><strong>Sample to Lab Via:</strong></td>
<td>Drop Off</td>
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<tr>
<td>Date Sent to Lab:</td>
<td>11-9-21</td>
</tr>
<tr>
<td>Date Sampled:</td>
<td>11-9-2</td>
</tr>
<tr>
<td><strong>Report Via:</strong></td>
<td>Verbal, Fax, U.S. Mail, Overnight, Electronic - France Distribution List</td>
</tr>
<tr>
<td>Report To:</td>
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</tr>
<tr>
<td><strong>Sample Location</strong></td>
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<tr>
<td><strong>Sample Description</strong></td>
<td>White Exterior Flashing</td>
</tr>
<tr>
<td><strong>Sample Type:</strong></td>
<td>Asbestos - TEM, Asbestos - Bulk, Lead-In-Air, Lead - Wipe, Lead - Bulk, Other</td>
</tr>
</tbody>
</table>

**LABORATORY SUBMITTED TO:**
- AmeriSci Richmond (ACCT #: 11647)
  13635 Genito Road
  Midlothian, Virginia 23112
  804.763.1200

- Schneider Laboratories, Inc. (ACCT #: 2763)
  2512 West Cary Street
  Richmond, Virginia 23220-5117
  804.353.6778

**FIRST POSITIVE STOP**

<table>
<thead>
<tr>
<th>Sample Group</th>
<th>Sample Number</th>
<th>Sample Description</th>
<th>Sample Location</th>
</tr>
</thead>
<tbody>
<tr>
<td>R</td>
<td>36</td>
<td>White Exterior Flashing</td>
<td>Roof 12</td>
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<tr>
<td>S</td>
<td>37</td>
<td>Black Exterior Felt Paper Under Slate Roof</td>
<td>Upper Roof - Fascia</td>
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<tr>
<td>S</td>
<td>38</td>
<td>Black Exterior Felt Paper Under Slate Roof</td>
<td>Upper Roof - Fascia</td>
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<td>T</td>
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<td>White Roof Paint on Metal</td>
<td>Roof 24</td>
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<td>Roof 19</td>
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<tr>
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<td>41</td>
<td>White Exterior Window Glazing</td>
<td>Roof 20</td>
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<tr>
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<td>Roof 16</td>
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<td>V</td>
<td>43</td>
<td>Black Exterior Roof Patch Tar</td>
<td>Upper Roof Fascia - Slate</td>
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<td>44</td>
<td>Black Exterior Roof Patch Tar</td>
<td>Old Stairwell Corner</td>
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<tr>
<td>W</td>
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<td>White Exterior Chimney Flashing Caulk</td>
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**Relinquished by:** Andrew Baird

**Accepted by:** Andrew Baird

**Date:** 11-9-21  **Time:**  PM

**Additional Remarks:** 3-Day TAT

**Sampler Signature:** Andrew Baird
### CHAIN OF CUSTODY RECORD 12/11/1379

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<tr>
<th>Project Name:</th>
<th>Sample to Lab Via:</th>
<th>Report To:</th>
<th>Sample Type:</th>
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<tr>
<td>VCU Founders Hall – 827 W. Franklin St., Richmond, VA</td>
<td>Drop Off</td>
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<td>___ Asbestos – PCM</td>
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<td>Mike Leonard</td>
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<td>Date Sampled:</td>
<td>Address:</td>
<td>___ Lead-in-Air</td>
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<td>7834 Forest Hill Ave, Suite 7</td>
<td>___ Lead – Wipe</td>
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<td>Richmond, VA 23225</td>
<td>___ Other</td>
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**LABORATORY SUBMITTED TO:**

___ X AmeriSci Richmond (ACCT #: 11647)  
13635 Genito Road  
Midlothian, Virginia 23112  
804.763.1200  

___ Schneider Laboratories, Inc. (ACCT #: 2763)  
2512 West Cary Street  
Richmond, Virginia 23220-5117  
804.353.6778  

___ X FIRST POSITIVE STOP

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Relinquished by: Andrew Baird  
Date: 11-9-21  
Time: PM  

Accepted by:  
Date: 11/16/13  
Time:  

Additional Remarks: 3-Day TAT  
Sampler Signature: Andrew Baird
LEAD-BASED PAINT SAMPLE DATA SHEETS
LEAD-BASED PAINT
SAMPLE DATA SHEET

Area Name: Envelope Repairs
Unit Address: Founders Hall (VCU) 827 W. Franklin Street
Operator: Micheal Allshouse
Recorder: Micheal Allshouse
RMD Model: LPA-1
Serial No.: 2610
Project No: FEI-21AL633
Inspection Date: 11/09/21

RMD Model: LPA-1
Calibration Check Tolerance: ±0.3
Serial No.: 2610
Cal. Block Value: 1.0 mg/cm²

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Key:
M=metal  C=concrete  I=Indicates surface is intact
W=wood    T=tile       N=NON-intact in (%) increments
G=gypsum  B=brick      (Deteriorated Paint)
P=plaster D=drywall
PC=poured concrete CB=concrete block
RM=roofing material TR=transite
WP=wood panel CT=ceramic tile

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<th>Building Component</th>
<th>Paint Color</th>
<th>Sample Location</th>
<th>Sub Type</th>
<th>Surf Cond.</th>
<th>Quick (mg/cm²)</th>
<th>Photo Log No.</th>
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# LEAD-BASED PAINT
## SAMPLE DATA SHEET

**Area Name:** Envelope Repairs  
**Unit Address:** Founders Hall (VCU)  
**Project No:** FEI-21AL633  

**Operator:** Micheal Allshouse  
**Recorder:** Micheal Allshouse  
**RMD Model:** LPA-1  
**Serial No.:** 2610  
**Inspection Date:** 11/09/21  

---

### Key:

- **M** = metal  
- **C** = concrete  
- **W** = wood  
- **G** = gypsum  
- **P** = plaster  
- **PC** = poured concrete  
- **RM** = roofing material  
- **WP** = wood panel  
- **N** = NON-intact in (%) increments  
- **B** = brick  
- **D** = drywall  
- **T** = tile  
- **TR** = transite  
- **CT** = ceramic tile  
- **G** = gypsum  
- **I** = Indicates surface is intact  

---

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<th>Sample/Test #</th>
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<th>Paint Color</th>
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<th>Sub Type</th>
<th>Surf Cond.</th>
<th>Quick (mg/cm²)</th>
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**LEAD-BASED PAINT**  
**SAMPLE DATA SHEET**

**Area Name:** Envelope Repairs  
**Unit Address:** Founders Hall (VCU)  
827 W. Franklin Street  
Richmond, Virginia  
**Project No:** FEI-21AL633

**Operator:** Micheal Allshouse  
**Recorder:** Micheal Allshouse  
**RMD Model:** LPA-1  
**Serial No.:** 2610  
**Inspection Date:** 11/09/21

**Key:**

- **M** = metal  
- **C** = concrete  
- **I** = Indicates surface is intact  
- **W** = wood  
- **T** = tile  
- **N** = NON-intact in (%) increments  
- **G** = gypsum  
- **B** = brick  
- **P** = plaster  
- **D** = drywall  
- **PC** = poured concrete  
- **CB** = concrete block  
- **RM** = roofing material  
- **TR** = transite  
- **WP** = wood panel  
- **CT** = ceramic tile

<table>
<thead>
<tr>
<th>Sample/Test #</th>
<th>Building Component</th>
<th>Paint Color</th>
<th>Sample Location</th>
<th>Sub Type</th>
<th>Surf Cond.</th>
<th>Quick (mg/cm²)</th>
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# LEAD-BASED PAINT

## SAMPLE DATA SHEET

**Area Name:** Envelope Repairs  
**Unit Address:** Founders Hall (VCU)  
827 W. Franklin Street  
Richmond, Virginia  
**Project No.** FEI-21AL633  
**Operator:** Micheal Allshouse  
**Recorder:** Micheal Allshouse  
**RMD Model:** LPA-1  
**Serial No.:** 2610  
**Inspection Date:** 11/09/21

**Key:**  
M=metal  
W=wood  
G=gypsum  
P=plaster  
PC=poured concrete  
RM=roofing material  
WP=wood panel  
C=concrete  
B=brick  
D=drywall  
CT=ceramic tile  
I=Indicates surface is intact  
N=NON-intact in (%) increments  
(N)Deteriorated Paint

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<tr>
<th>Sample/Test #</th>
<th>Building Component</th>
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<th>Sample Location</th>
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<th>Building Component</th>
<th>Paint Color</th>
<th>Sample Location</th>
<th>Sub Type</th>
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</table>
# Lead-Based Paint Sample Data Sheet

**Area Name:** Envelope Repairs  
**Unit Address:** Founders Hall (VCU)  
**Project No:** FEI-21AL633  
**RMD Model:** LPA-1  
**Serial No.:** 2610  
**Operator:** Micheal Allshouse  
**Recorder:** Micheal Allshouse  
**Inspection Date:** 11/09/21  

**Key:**
- M=metal  
- W=wood  
- C=concrete  
- G=gypsum  
- P=plaster  
- PC=poured concrete  
- B=brick  
- D=drywall  
- RM=roofing material  
- CB=concrete block  
- TR=transite  
- WP=wood panel  
- CT=ceramic tile  
- N=NON-Intact in (%) increments  
- I=Indicates surface is intact  
- T=tile  
- D=deteriorated paint

<table>
<thead>
<tr>
<th>Sample/Test #</th>
<th>Building Component</th>
<th>Paint Color</th>
<th>Sample Location</th>
<th>Sub Type</th>
<th>Surf Cond.</th>
<th>Quick (mg/cm²)</th>
<th>Photo Log No.</th>
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LEAD-BASED PAINT SAMPLE LOCATION DRAWINGS
XRF Sample Location Drawing
VCU – Founders Hall – Northwest & Northeast Elevations
Richmond, Virginia
FEI Proj: FEI-21AL633 Survey Date: 11/09/21
XRF Sample Location Drawing
VCU – Founders Hall – Southeast & Southwest Elevations
Richmond, Virginia
FEI Proj: FEI-21AL633       Survey Date: 11/09/21
PHOTO LOGS OF ASBESTOS AND LEAD MATERIALS
Photograph No. 1
Cream Wooden Window Components
(XRF Shot #'s 1,3,4,7,20,21,22,23,138,139,140,141,142,155,156,157,158)

Photograph No. 2
Cream Wooden Window Components
(XRF Shot #'s 68,69,75,76)
**Photograph No. 3**
White Brick Wall
(XRF Shot #14)

**Photograph No. 4**
White Brick Wall
(XRF Shot #15)
Photograph No. 5
Cream Wooden Door Casings Lintels & Transom Windows
(XRF Shot #'s 17,18,19,29,36,145)

Photograph No. 6
Cream/White Wooden Fascia & Soffit
(XRF Shot #'s 30,31,57,66,77,78)
Photograph No. 7
White/Gray Metal Roofs
(XRF Shot #s 3961,64,65,71,72)

Photograph No. 8
White Metal Wall Panel
(XRF Shot #s 44,67,73)
Photograph No. 9
White Metal Chimney Caps
(XRF Shot # 70 & 79)

Photograph No. 10
White Wooden Door Casing
(XRF Shot # 105)
Photograph No. 11
Cream Wooden Door Casing
(XRF Shot # 109)

Photograph No. 12
Cream Wooden Front Entrance Porch Components
(XRF Shot #'s 129,130,131,132,135,136,137)
**Photograph No. 13**
Black Wooden Doors & Cream Wooden Porch/Overhang Components
(XRF Shot # 144,145,146,147,148,151)

**Photograph No. 14**
Yellow Concrete Corner Cap
(XRF Shot # 162)
INSPECTOR LICENSE(S)
COMMONWEALTH of VIRGINIA
Department of Professional and Occupational Regulation
9960 Mayland Drive, Suite 400, Richmond, VA 23233
Telephone: (804) 367-8500

NUMBER
3303002589

BOARD FOR ASBESTOS, LEAD, AND HOME INSPECTORS
ASBESTOS INSPECTOR LICENSE

ANDREW HEARNE BAIRD
7816 OLIVET CHURCH RD
NEW KENT, VA 23124-0000

Status can be verified at http://www.dpor.virginia.gov

(SEE REVERSE SIDE FOR PRIVILEGES AND INSTRUCTIONS)
COMMONWEALTH of VIRGINIA
Department of Professional and Occupational Regulation
9960 Mayland Drive, Suite 400, Richmond, VA 23233
Telephone: (804) 367-8500

BOARD FOR ASBESTOS, LEAD, AND HOME INSPECTORS
LEAD RISK ASSESSOR LICENSE

MICHEAL DAMIEN ALLSHOUSE
2213 SEMINOLE AVENUE
CHESTER, VA 23831

Status can be verified at http://www.dpor.virginia.gov

(SEE REVERSE SIDE FOR PRIVILEGES AND INSTRUCTIONS)