



IDA LEE ROOF REPLACEMENT

**BIDDING DOCUMENTS
SUPPLEMENTAL SPECIFICATIONS**

**TOWN OF LEESBURG
25 WEST MARKET STREET
LEESBURG, VIRGINIA 20176**

APRIL 22, 2021

**INVITATION FOR BID (IFB)
IFB NO. 100314-FY21-32**

NOTICE OF ADDENDA: Any addenda to this IFB will be posted on the Town's Bid Board (<http://www.leesburgva.gov/bidboard>) and will only be emailed to those firms who have REGISTERED on the Bid Board. It is the firm's responsibility to provide a correct email address and to be aware of any addenda.

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**TOWN OF LEESBURG
ADVERTISEMENT FOR BID**

**IFB NO. 100314-FY21-32
IDA LEE ROOF REPLACEMENT**

****NOTE: The Town of Leesburg has implemented revised procurement procedures during the COVID-19 State of Emergency. Effective January 1, 2021, and for the duration of the Emergency or until further notice, all bids and proposals in response to a formal solicitation issued by the Town will be securely received via eVA, the Commonwealth's eProcurement website. Additionally, during this time the Town will not conduct in-person public bid openings.

SEALED BIDS to construct the above project WILL BE RECEIVED by the Town of Leesburg, electronically via the Commonwealth's e-procurement website (www.eva.virginia.gov), **UNTIL BUT NO LATER THAN 4:00 P.M. ON THURSDAY, MAY 13, 2021.** Bids shall be submitted electronically using the following naming convention: the IFB number and the name of the bidder (i.e. "IFB No. 100314-FY21-32_Your Company's Name").

A non-mandatory pre-bid meeting will be held on Thursday, April 29, 2021 at 10:00 a.m. via Cisco Webex. Cisco Webex conferencing information, including instructions to join the meeting via computer and/or phone, will be available from the Town's Bid Board.

All questions regarding this bid must be submitted in writing via email to CapitalBidQuestions@leesburgva.gov until but no later than 5:00 P.M. on Tuesday, May 4, 2021.

Bids will be publicly opened via Cisco Webex using the eVA e-Procurement website at the due date and time listed above. The bid opening will be livestreamed via Cisco Webex and made available to the public. Cisco Webex conferencing information will be available, including instructions to join the meeting via computer and/or phone, from the Town's Bid Board.

This project replaces a portion of the existing roof at the Ida Lee Recreation Center. The roof will be replaced over the main indoor pool and the men's and women's locker rooms. Work will also include the rehabilitation and/or replacement of existing skylights, including the skylight over the facility's main entrance hallway. The Town reserves the right to perform all, part, or none of the work.

Bid Documents are available for download from the Town's Bid Board at <http://www.leesburgva.gov/bidboard>. **Any addenda issued for this project will be posted on the Town's Bid Board and eVA (<https://eva.virginia.gov>) with a courtesy email to those firms who have registered on the Town's Bid Board. It is the bidders' responsibility to provide a correct email address and to be aware of any addenda.**

Bud Siegel, P.E., Acting Manager
Office of Capital Projects



REQUIRED BID RESPONSE FORMS
IFB NO. 100314-FY21-32
IDA LEE ROOF REPLACEMENT

Bidders shall submit bids to the Town in accordance with the Submission of Bids section of the Bid Documents and shall include the following completed documents with their bid submission:

Checklist

- _____ **Bid Submission Form (includes Conflict of Interest and Collusion Certifications)**
- _____ **Acknowledgement of Addenda**
- _____ **Bid Form – Pricing **** SUBMITTED ELECTRONICALLY VIA EVA******
- _____ **Escrow of Retained Funds**
- _____ **Bid Bond **** The original bid security shall be delivered to the Town within two (2) business days after the bids are due to the Town. See the Bid Bond section of the Bid Documents for details and instructions. ******
- _____ **Qualification Form**
- _____ **Reference Form**
- _____ **Subcontractor Plan**

Bidders shall use the required bid response forms included in the Bid Documents when submitting their bid to the Town. Bidders who do not provide all required bid response forms may be deemed non-responsive.



BID SUBMISSION FORM
IFB NO. IFB NO. 100314-FY21-32
IDA LEE ROOF REPLACEMENT

SUBMIT A SIGNED BID FORM VIA EVA, WWW.EVA.VIRGINIA.GOV

**FORMAL BIDS WILL BE DUE NO LATER THAN:
4:00 P.M. ON THURSDAY, MAY 13, 2021**

The undersigned agrees to furnish all necessary labor, equipment, materials, and all things necessary to perform the work as set forth in accordance with the plans and specifications at the following prices.

SECTION I – COMPANY IDENTIFICATION AND OWNERSHIP DISCLOSURE

Company _____

Address _____

Contact Person _____ Title _____

Telephone No. _____ Fax No. _____

Email _____

Business Type (check one):

Corporation Limited Partnership Limited Liability Company

General Partnership Unincorporated Assoc. Sole Proprietorship

Organized under the laws of the State of _____

State Corp. Commission Registration No. _____ (attach Certificate of Good Standing)

Virginia Contractor's License No. _____

Federal Identification No. _____

The Town of Leesburg requests, as a matter of policy, that any bidder receiving a contract of award resulting from a formal solicitation issued by the Town shall make certification as specified below. Receipt of such certification, shall be a prerequisite to the award of contract and payment thereof.

SECTION II – EMPLOYEES NOT TO BENEFIT - I (we) hereby certify that if the contract is awarded to our company, partnership, or corporation, that no employee of the Town of Leesburg, or members of his/her immediate family, including spouse, parents or children has received or been promised, directly or indirectly, any financial benefit, by way of fee, commission, finder's fee, political contribution or any similar form of remuneration on account of the act of awarding and/or executing this contract.

SECTION III – CONFLICTS OF INTEREST - This solicitation is subject to the provisions of VA Code Ann. Section 2.1-639.2 et seq., the State and Local Government Conflict of Interests Act. **The Bidder [] is [] is not aware of any information bearing on the existence of any potential organizational conflict of interest.**

SECTION IV – COLLUSION - I certify that this offer is made without prior understanding, agreement, or connection with any corporation, firm, or person submitting an offer for the same services, materials, supplies, or equipment and is in all respects fair and without collusion or fraud. I understand collusive bidding is a violation of the State and federal law and can result in fines, prison sentences, and civil damage awards. I hereby certify that the responses to the above representations, certifications, and other statements are accurate and complete. I agree to abide by all conditions of this IFB and certify that I am authorized to sign for my company.

Signature _____ Date _____
Name (Printed) _____ Title _____

BIDDER MUST RETURN THIS FORM WITH THEIR BID



**ACKNOWLEDGEMENT OF ADDENDA
IFB NO. IFB NO. 100314-FY21-32
IDA LEE ROOF REPLACEMENT**

Bidder acknowledges receipt of the following ADDENDA, which have been considered in the preparation of this bid.

Addendum No. _____
Addendum No. _____
Addendum No. _____
Addendum No. _____

Dated: _____
Dated: _____
Dated: _____
Dated: _____

BIDDER MUST RETURN THIS FORM WITH THEIR BID

ESCROW OF RETAINED FUNDS

In accordance with Section 2.2-4334 of the Virginia Public Procurement Act (VPPA), any Contract valued at \$200,000.00 or more for construction of highways, roads, streets, bridges, parking lots, demolition, clearing, grading, excavating, paving, pile driving miscellaneous drainage structures, and the installation of water, gas, sewer lines and pumping stations where portions of the Contract price are to be retained, at the time of submitting a bid, the CONTRACTOR shall have the option to indicate preference for using the escrow account procedure for utilization of the Town retained funds by so indicating in the space provided in the proposal documents. In the event the successful Contract elects to use the escrow account procedure, the "Escrow Agreement" included in the Contract documents shall be executed and submitted to the Manager, Office of Capital Projects within 15 days after receipt of the Notice to Award. If the "Escrow Agreement" form is not submitted, the CONTRACTOR shall forfeit his rights to the use of the escrow account procedure within the 15-day period.

In order to have retained funds paid to an escrow agent, the CONTRACTOR, the escrow agent, and the surety shall execute the "Escrow Agreement" furnished by the TOWN, and submit same to the Manager of Capital Projects for approval. The CONTRACTOR's escrow agent shall be a trust company, approved bank or savings and loan institution with its principal office located in the Commonwealth of Virginia. The "Escrow Agreement" shall contain the complete address of the escrow agent and surety, and the executed "Escrow Agreement" will be authority for the TOWN to make payment of retained funds to the escrow agent. After approving the agreement, the TOWN will pay to the escrow agent the funds retained as provided herein, except that funds retained for lack of progress or other deficiencies on the part of the CONTRACTOR will not be paid to the escrow agent. The escrow agent may, in accordance with the stipulations contained in the "Escrow Agreement", invest the funds paid into the escrow account and pay earnings on such investments to the CONTRACTOR, or release the funds to the CONTRACTOR, provided such funds are fully secured by approved securities.

Retained funds invested, and securities held as collateral for retainage may be released only as and when directed by the Manager, Office of Capital Projects. When the final estimate is released for payment, the Manager, Office of Capital Projects will direct the escrow agent to settle the escrow amount by paying the CONTRACTOR or the TOWN monies due them as determined by the Manager, Office of Capital Projects. The TOWN reserves the right to recall retained funds and to release same to the surety upon receipt of written request from the CONTRACTOR or in the event of default.

- () We elect to use the escrow account procedure for the deposit of retained funds.
- () We elect not to use the escrow account procedure for the deposit of retained funds.

BIDDER MUST RETURN THIS FORM WITH THEIR BID

BID BOND

BOND NO. _____

AMOUNT: \$ _____

KNOW ALL MEN BY THESE MEN PRESENTS, that _____ hereinafter called the PRINCIPAL, and _____ a corporation duly organized under the laws of the State of _____ having its principal place of business at _____ in the State of _____ and authorized to do business in the Commonwealth of Virginia, as SURETY, are held and firmly bound unto _____, as OWNER, hereinafter called the OBLIGEE, in the sum of _____ DOLLARS (\$ _____) for the payment for which we bind ourselves, our heirs, executors, administrators, successors, and assigns, jointly and severally, firmly by these presents.

THE CONDITION OF THIS BOND IS SUCH THAT:

WHEREAS, the PRINCIPAL is herewith submitting his or its Bid Proposal for _____ said Bid Proposal, by reference thereto, being hereby made a part hereof.

NOW THEREFORE,

- (A) If the bid shall remain open for a period of not less than 60 days following opening of the bids and be rejected, or in the alternate,
- (B) If the bid shall remain open for a period of not less than 60 days following opening of the bids and be accepted and the PRINCIPAL shall execute and deliver a Contract in the form of Contract attached hereto (properly completed in accordance with the bid) and shall furnish a performance and payment deposit or surety bond for his faithful performance of the Contract, and for the payment of all persons performing labor or furnishing materials in connection therewith,
- (C) THEN, this obligation shall be void; otherwise the same shall remain in force and effect, it being expressly understood and agreed that the liability of the SURETY for any and all claims hereunder shall, in no event, exceed the said amount of this obligation as herein stated. Provided, however, that in addition to the amount of this obligation as herein stated, the SURETY shall be liable for all costs and attorney's fees incurred by the OBLIGEE in enforcing the obligations hereunder.

The SURETY, for value received, hereby stipulates and agrees that the obligation of the SURETY and its bond shall be in no way impaired or affected by any extension of the time

within which the OWNER may accept such bid; and the SURETY does hereby waive notice of such extension.

IN WITNESS WHEREOF, the PRINCIPAL and the SURETY have hereunto set their hands and seals, and have executed this instrument and such of them as are corporations have caused their corporate seals to be hereto affixed and these presents to be signed by their proper officers, the day and year first set forth above.

Signed and sealed this _____ day of _____, 20_____ .

PRINCIPAL

By _____

SURETY

By _____

Attorney-In-Fact

IMPORTANT: The SURETY executing bonds must appear on the Treasury Department's most current list (Circular 570 as amended) and be authorized to transact business in the Commonwealth of Virginia.

BIDDER MUST RETURN THIS FORM WITH THEIR BID

QUALIFICATION FORM

Note: Please refer to the QUALIFICATIONS OF THE LOWEST BIDDER SECTION of the Bid Documents. The following information is required as part of your response to this solicitation. Failure to complete and provide this form with your bid response may result in the Town deeming your bid as non-responsive.

1. Qualification: Bidder must have the capability and capacity in all respects to satisfy fully all of the contractual requirements.

2. Years in Business: Indicate the length of time you have been in business providing this type of good or service:

Years: _____ Months: _____

3. Contractor’s Primary Contact(s) for this project:

Project Manager: _____ Email: _____ Phone: _____

Superintendent: _____ Email: _____ Phone: _____

Other (list title): _____ Email: _____ Phone: _____

4. Indicate below a listing of at least three (3) projects of similar size and scope within the past ten (10) years for which both the Project Manager and Superintendent specified and assigned for this project have successfully worked. Include reference contact information (name, email, and phone number), a description of work performed, the dates of service, and the contract value of the referenced project.

Company (Owner): _____ Contact: _____

Phone: (____) _____ Email Address: _____

Project Description: _____

Dates of Service: _____ Value (\$): _____

Company (Owner): _____ Contact: _____

Phone: (____) _____ Email Address: _____

Project Description: _____

Dates of Service: _____ Value (\$): _____

Company (Owner): _____ Contact: _____

Phone: (____) _____ Email Address: _____

Project Description: _____

Dates of Service: _____ Value (\$): _____

BIDDER MUST RETURN THIS FORM WITH THEIR BID

REFERENCE FORM

Note: Please refer to the *QUALIFICATIONS OF THE LOWEST BIDDER SECTION* of the Bid Documents. Indicate below a listing of at least three (3) current or recent municipal clients for whom the Contractor has performed and completed this type of work. Include reference contact information (email and phone number), a short description of work performed, the dates of service, and the name, email address, and telephone number of the point of contact.

Reference No. 1 (Required):

Customer (Owner) Representative's Name

Description of Work Performed & Dates of Service

Representative's Name

Phone Number

Email Address

Reference No. 2 (Required):

Customer (Owner) Representative's Name

Description of Work Performed & Dates of Service

Representative's Name

Phone Number

Email Address

Reference No. 3 (Required):

Customer (Owner) Representative's Name

Description of Work Performed & Dates of Service

Representative's Name

Phone Number

Email Address

Reference No. 4 (Optional):

Customer (Owner) Representative's Name

Description of Work Performed & Dates of Service

Representative's Name

Phone Number

Email Address

Reference No. 5 (Optional):

Customer (Owner) Representative's Name

Description of Work Performed & Dates of Service

Representative's Name

Phone Number

Email Address

BIDDER MUST RETURN THIS FORM WITH THEIR BID

SUBCONTRACTOR FORM

Note: Please note QUALIFICATIONS OF THE LOWEST BIDDER SECTION of the Bid Documents. The following information is required as part of your response to this solicitation. Failure to complete and provide this form with your bid response may result in the Town deeming your bid as non-responsive.

If you are NOT using any subcontractor(s), please initial here _____

If you are using subcontractor(s), please list them in the following table:

<i>Subcontractor(s) Name & Address</i>	<i>Contact Name, Email Address, & Phone Number</i>	<i>Type of Work to Be Performed</i>	<i>Percentage of Work</i>

I/We agree that the information provided herein is accurate, current, and complete to the best of my/our knowledge.

Signature: _____

Title of Company Official: _____

Date: _____

BIDDER MUST RETURN THIS FORM WITH THEIR BID

INSTRUCTIONS TO BIDDERS

BACKGROUND

This project replaces a portion of the existing roof at the Ida Lee Recreation Center. The roof will be replaced over the main indoor pool and the men's and women's locker rooms. Work will also include the rehabilitation and/or replacement of existing skylights, including the skylight over the facility's main entrance hallway.

Work is anticipated to begin in late August when the pool is closed for annual maintenance. Completion will be determined based on long lead items and installation will be scheduled at times that will have minimal impact to use of the facility.

SCOPE OF WORK

The Town of Leesburg, Virginia (Town) is requesting sealed bids from qualified Bidders to provide roofing services for the Ida Lee Roof Replacement project.

The Bidder shall provide roofing services, including, but not limited to demolition of existing roof substrate, installation of new roofing system, insulation, removal and installation of skylight materials, and all incidentals related thereto to complete all of the work as shown in the attached plans and specifications.

The Town reserves the right to perform all, part, or none of the work.

COMMENTS CONCERNING SPECIFICATIONS (VPPA 2.2-4316)

General and Technical questions relating to this solicitation shall be submitted in writing to the Office of Capital Projects by email at CapitalBidQuestions@leesburgva.gov. Please put the title of this IFB in the subject line of the email.

If any questions or responses require revisions to the solicitation as originally published, such revisions will be by formal addendum only. Bidders are cautioned that any written or oral representations made by any Town representative or other person that appear to change materially any portion of the solicitation shall not be relied upon unless subsequently ratified by a written addendum to this solicitation issued by the Office of Capital Projects. For determination as to whether an oral or written representation of any Town representative or other person requires that an addendum be issued, contact the Manager, Office of Capital Projects in writing via email at CapitalBidQuestions@leesburgva.gov.

INCOMPLETE DOCUMENTS

The Contractor, as a bidder, is responsible for having determined the accuracy and completeness of bid documents upon which it relied in making its bid, and having notified the Manager, Office of Capital Projects immediately upon discovery of an apparent inaccuracy, error in, or omission of any pages, drawings, sections, or addenda whose omission from the documents was apparent

from a reference or page numbering in the bidding documents.

If the Contractor proceeds with any activity that may be affected by an inaccuracy, error in, or omission described above, of which it has not notified the Manager, Office of Capital Projects, the Contractor hereby agrees to perform any work described in such missing or incomplete documents at no additional cost to the Town.

TOWN OF LEESBURG BUSINESS PROFESSIONAL AND OCCUPATION LICENSE (BPOL)

Bidders do not have to obtain a BPOL license in order to submit a bid to the Town; however, the successful bidder must obtain a license, if applicable, prior to award of the contract.

The successful bidder must comply with the provisions of Section 20-233 (License requirement) of the Town of Leesburg Code, if applicable. For information on the provisions of this chapter and its applicability to this Contract, contact the Town of Leesburg Accounting Associate, Finance Department, Town of Leesburg, Virginia, at telephone number 703-771-2753 or email BusinessLic@leesburgva.gov.

FORM AND STYLE OF BIDS

NOTE: THIS SECTION CONTAINS REVISED PROCUREMENT PROCEDURES

Bids shall be submitted electronically via the Commonwealth's electronic procurement website (eVA). Unless otherwise specified or permitted herein, prices shall be submitted on all line items shown in eVA. In addition to submitting bid pricing electronically via eVA, bidder shall also upload all completed bid response forms as required by the Town with their Bid.

Bids shall include the legal name of the Bidder and a statement that the Bidder is a sole proprietor, partnership, corporation, or other legal entity. Bids shall be signed by the person or persons legally authorized to bind the Bidder to a contract. During the COVID-19 State of Emergency, and for the duration of the Emergency or until further notice, electronic signatures will be accepted by the Town; submission of a bid through the eVa system constitutes your representation that your firm authorizes the use of electronic signatures. A Bid by a corporation shall further give the state of incorporation and have the corporate seal affixed. All names shall be typed or printed in ink below the signatures. The address, phone number and email address for communication regarding the bid shall be shown.

Bids shall contain evidence of the Bidder's authority to do business in the Commonwealth of Virginia. Bidder's Virginia State Contractor license number shall also be shown on the Bid Response Form.

BID BOND

NOTE: THIS SECTION CONTAINS REVISED PROCUREMENT PROCEDURES

Each bid shall be accompanied with a copy of the bid security (on enclosed form or cashier's check), in the amount of five percent (5%) of the bidder's Total Bid Price, pledging that the Bidder will enter into a Contract with the TOWN on the terms stated in the Bid. Should the Bidder refuse to enter into such Contract the amount of the bid security shall be forfeited to the TOWN as liquidated damages, not as a penalty. The amount of the bid security shall not be forfeited to the TOWN in the event the TOWN fails to prove financial capability if requested in writing by the successful bidder. Pursuant to VPPA Section 2.2-4336.

The original bid security shall be delivered to the Town within two (2) business days after the bids are due to the Town. The original bid security shall be mailed to: Town of Leesburg, Virginia, Attn: Procurement Office, 25 W. Market Street, Leesburg, VA 20176. The Town reserves the right to deem bidders non-responsive for failure to provide the original bid security within the timeframe specified.

The TOWN will have the right to retain the bid security of Bidders to whom an award is being considered until either (a) the Contract has been executed or (b) the specified time has elapsed so that Bids may be withdrawn, or (c) all Bids have been rejected.

SUBMISSION OF BIDS

NOTE: THIS SECTION CONTAINS REVISED PROCUREMENT PROCEDURES

In order to be considered for a contract award, bidders must complete and submit a response to this IFB via the Commonwealth's electronic procurement website eVA (www.eva.virginia.gov). eVA 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. Bidders desiring to provide goods and/or services to the Town must be a registered vendor in eVA. eVA Vendor Registration is free.

On the eVA website, www.eva.virginia.gov, applicants must login as a vendor using their eVA username and password. Please contact eVA Customer Care for instructions and/or assistance in registering to become a vendor, login, and/or uploading documents. eVA Customer Care:

Hours: 8:00 AM to 4:45 PM, Monday through Friday
Phone Toll Free: 866-289-7367
Email: eVACustomerCare@DGS.Virginia.gov

Guides for registering as a new vendor and submitting bids on eVA are included at the end of this bid document.

Bids shall be submitted electronically to the Town via the Commonwealth's eVA website **prior** to the bid submission deadline stipulated for this IFB or as amended via any subsequent addenda issued by the Town. Bidders assume full responsibility for the electronic delivery of the completed proposal

to www.eva.virginia.gov on or before the deadline for submission. The Town is not responsible for any loss or delay with respect to the submission of bids. Late bids will **not** be accepted. Bids submitted by any method other than via the eVA website will **not** be accepted.

All required forms and documentation submitted in response to this IFB must be uploaded as one (1) pdf attachment to eVA (www.eva.virginia.gov). The attachment should use the following naming convention: the IFB number and the name of the bidder (i.e. IFB No. _____ - Your Company's Name).

NOTE: eVA will not allow a bidder to upload documents after the deadline set for receipt of bids. Any submission partially uploaded at the deadline date and time will be considered incomplete and will not be accepted. ANY PROPOSAL RECEIVED BY THE TOWN AFTER THE DEADLINE FOR SUBMISSION WILL NOT BE ACCEPTED.

MODIFICATION/WITHDRAWAL OF BID

NOTE: THIS SECTION CONTAINS REVISED PROCUREMENT PROCEDURES

A Bid may not be modified, withdrawn, or cancelled by the Bidder during the stipulated time period following the time and date designated for the receipt of Bids, and each Bidder so agrees in submitting a Bid.

Prior to the time and date designated for receipt of Bids, a Bid submitted electronically to the Town via the Commonwealth's eVA website may be modified or withdrawn.

Withdrawn Bids may be resubmitted up to the date and time designated for the receipt of Bids, provided that they are then fully in conformance with these Instructions to Bidders.

Bid security, if required, shall be in an amount sufficient for the Bid as modified or resubmitted.

If within two (2) business days after Bids are opened and Bidder files a duly signed written notice, accompanied by original work papers, with the TOWN that there was a material and substantial mistake in the preparation of its Bid, that Bidder may withdraw its Bid, and the Bid security will be returned. Withdrawal of bids submitted to the TOWN is governed by Section 2.2-4330 of the Virginia Public Procurement Act (VPPA).

BID ADDITIVES

This IFB includes bid additives. Bid additives represent an additional cost to the Town to incorporate additional work not included in the Total Base Bid. Each bid additive shall be independent of the other bid additives and is intended to stand on its own and be priced as such. The additives are listed sequentially with the most essential bid additive listed first and in the order in which they shall be added to the contract up to but not exceeding the Town's available funding for the project. Decision to include each bid additive in whole or in part shall be at the sole discretion of the Town. No variance in the contract completion time(s) will be given for the inclusion of bid additives.

CONSIDERATION OF BIDS & BID OPENING

NOTE: THIS SECTION CONTAINS REVISED PROCUREMENT PROCEDURES

The TOWN shall have the right to reject any or all Bids, reject a Bid not accompanied by a required bid security or by other data required by the Bidding Documents, or reject a Bid, which is in any way incomplete or irregular. Though the eVA website does not reject multiple bid submissions, the TOWN permits only one bid to be submitted by the same firm in response to this IFB. Accordingly, the Town reserves the right to reject multiple bids submitted by the same firm in eVA. If a bidder submits more than one bid in response to this IFB, only the most recent submission will be considered, and previously submitted bids will be rejected.

All bids received will be opened publicly and read aloud utilizing the Commonwealth's eVA website. The bid opening for this project will be held at date and time specified in the Advertisement for Bid. The bid opening will be livestreamed via Cisco Webex for accessibility to the public.

After the bids are opened and publicly read aloud, the Town will recalculate the arithmetic of all bids. The recalculation will consist of the following:

1. The Extended Price will be the Quantity x Unit Price. The accuracy of this calculation will be verified for all unit price items of work. All mathematical errors will be corrected to arrive at the correct extended price. If no price is shown for the Unit Price, it is assumed to be zero.
2. The sum of all extensions will be calculated and any mathematical errors will be corrected.
3. If there are multiple sections to the bid, for example the Total Base Bid = Section 'A' + 'B', the sum of the sections will be calculated. All mathematical errors will be corrected.

The corrected price and correct sum thereof will be used to determine the lowest responsive, responsible bidder and will become the value of the recommended contract award.

AWARD

It is the intent of the TOWN to award a Contract to the lowest responsive and responsible Bidder, provided the low bid does not exceed the funds available. The Town reserves the right to accept or to reject any or all bids in whole or in part, to make multiple awards, and to waive informalities in the process of awarding this contract. The Notice of Intent to Award a contract resulting from this Invitation for Bid will be posted on the Public Notice Board at 25 W. Market Street, Leesburg, VA and on the Town's Bid Board (<https://www.leesburgva.gov/bidboard>).

NEGOTIATIONS WITH THE LOWEST RESPONSIVE BIDDER

Unless all bids are cancelled or rejected, the Town reserves the right granted by 2.2-4318 of the

Code of Virginia to negotiate with the lowest responsive, responsible bidder to obtain a contract price within the funds available. Funds available shall mean those funds, which were budgeted for this contract prior to the issuance of the written Invitation for Bids. Negotiations with the low bidder may include both modifications of the bid price and the Scope of Work/Specifications to be performed. The Town shall initiate such negotiations by written notice to the lowest responsive, responsible bidder that its bid exceeds the available funds and the Town wishes to negotiate a lower contract price. The times, places, and manner of negotiating shall be agreed to by the Town and the lowest responsive, responsible bidder.

QUALIFICATIONS OF THE LOWEST RESPONSIVE BIDDER

This project requires specialized knowledge and expertise. The Contractor shall be well versed in the scope of work for this project. If the Contractor does not have specific experience with regards to projects similar in complexity they will not be considered for the award of this project. The Contractor must submit written information demonstrating experience by having completed a minimum of three (3) similar projects within the last ten (10) years and commit to the availability of key, skilled personnel necessary to complete the entire scope of work required for the project.

All qualification documentation shall be submitted as part of the bidder's bid package. Bids received without the required documentation shall be deemed non-responsive.

1. Project descriptions (3 similar projects, maximum of three (3) pages per project) indicating client, project scope, location, time frame).
2. The Superintendent and the Project Manager specified by the Contractor and assigned to this contract shall each have successfully worked on three (3) projects, similar in both size and scope, within the past ten (10) years. For work to be considered similar, work must be comparable to that shown in the scope of work.
3. Provide a reference list of three (3) municipal clients for whom the Contractor has performed and completed this type of work. Include reference contact information (email and phone number), and a description of work.
4. The Contractor shall self-perform a majority of the work. At the time of the bid, the Contractor shall name any anticipated subcontractors and define the work expected to be performed on the contract by each subcontractor.

PROTEST

Any bidder or offeror who desires to protest the award or decision to award a contract shall submit such protest in writing to the TOWN, no later than 10 days after public notice of award or the announcement of the decision to award, whichever occurs first, pursuant to Section 2.2-4360 of the VPPA.

ACCEPTANCE OF BID (VPPA 2.2-4337)

The bids received shall be open to acceptance and is irrevocable for **sixty (60) days** from the Bid Closing date.

If the bid is accepted by the Town within the period specified above, the Contractor shall provide a certificate of insurance, Payment bond, and Performance Bond within 10 days of the Notice of Award or Notice of Intent to Award. Each bond, the Performance Bond and the Payment Bond, shall be in the amount of 100% of the Contract Amount. The bonds shall be corporate surety bonds issued by a surety company authorized to do business in the Commonwealth of Virginia and acceptable to the Town. The Performance Bond will be conditioned upon the faithful performance of all of the work shown, described and required in the Contract Documents. The Payment Bond will be conditioned upon the payment of all persons who have and fulfill contracts for the Contractor for providing labor, equipment of material in the performance of the work provided for in the Contract Documents.

If this bid is accepted within the time stated, and the Contractor fails to provide the required Bonds, or commence the project as directed, the security deposit shall be forfeited as damages to the Town by reason or failure, limited in amount to the lesser of the face value of the security deposit or the difference between this Bid and the Bid upon which the Contract is signed.

SCC IDENTIFICATION NUMBER (VPPA SECTION 2.2-4311.2)

Every Bidder must include their State Corporation Commission (SCC) Identification Number or reason for exemption with his/her bid. If this information is not included, the Bid may be rejected.

VIRGINIA CONTRACTOR'S LICENSE NUMBER (CODE OF VIRGINIA §54.1-1115, A1 AND A6)

Bidder certifies that he/she is properly registered as a licensed Contractor under Title 54 of the Code of Virginia. Bidder shall provide his/her Virginia Contractor's License Number in the designated location on the Bid Response Form or the Bid may be rejected.

STIPULATED PRICES

The term "STIPULATED PRICE ITEM" means and includes an item of Work, unanticipated at the time of issuance of the solicitation for a Bid and determined to be executed, based on the actual field conditions during the progress of Work under the contract, mutually by the Engineer and the Contractor. The Unit Price for the "STIPULATED PRICE ITEM", as identified in the "Stipulated Price Items" section of the Bid Form, is predetermined by the Town as the current reasonably workable rate for the Item inclusive of all necessary labor, equipment, materials, overhead (provision and installation), and the Contractor's profit. Work on the "STIPULATED PRICE ITEM" shall be carried out either at the written request of the Contractor followed by a written approval by the Engineer or at the written order by the ENGINEER to the Contractor. The payment for a "STIPULATED PRICE ITEM" shall be made by the Town to the Contractor

at the related Unit Price specified in the ‘Stipulated Price Items’ section of the Bid Form on the same basis as the payment for any other regular Bid Item.

COMPENSATION AND PAYMENT

Payments are due and payable forty-five (45) days from the date of the Contractor’s invoice. Amounts unpaid sixty (60) days after the invoice date shall bear interest at 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.

COORDINATION WITH UTILITIES

The Contractor shall coordinate the work of his forces with the utility companies during the contract to ensure the continuing progress of all work to be performed within the project area.

The Contractor shall notify “MISS UTILITY” at 1-800-552-7001, 72 hours prior to beginning construction.

It shall be the responsibility of the Contractor to notify operators who maintain underground utility lines in the area of proposed excavation or blasting at least five (5) business days prior to any construction, subsequent maintenance or repair.

The Contractor shall dig test holes over all existing utilities prior to construction to determine their exact location and shall notify the construction manager of any necessity for redesign.

COORDINATION WITH FACILITY STAFF AND OTHER CONTRACTORS

The Contractor shall coordinate the work of his forces with the Town’s staff and other contractors who will be performing work inside the building during the contract to ensure the continuing and safe progress of all work to be performed within the project area.

CONTRACT TIME

Substantial Completion:	120 calendar days from Notice to Proceed
Final Completion:	30 calendar days from Substantial Completion

Liquidated Damages:

Liquidated damages in the amount of \$3,500 per day applies to Substantial Completion and Final Completion with the exception of September 15th through October 15th. During the time frame of September 15th through October 15th, the amount will be \$8,500 per day due to class schedules.

CONTRACT SPECIFIC ITEMS

This is a lump sum contract and the Contractor will be paid based on the contract value for work installed per plan and specifications.

CONTRACT ITEMS OF WORK

Work Hour Restrictions: Work for skylight demolition and replacement and any work where hoisting or lifting material or equipment requires that the building to be unoccupied must occur Monday through Sunday, between the hours of 10:00pm and 4:30am. Work hours for all other work that can be done with the building occupied will be 5:00 a.m. to 5:00 p.m. Monday through Friday. Work outside these days and hours may only occur with written Town approval.

The Contractor will not be permitted to work on the following holidays:

- Annual Flower and Garden Show
- Memorial Day
- Independence Day
- Labor Day
- Thanksgiving
- Day after Thanksgiving
- Christmas Day
- Day after Christmas
- New Year's Day

Roof and Skylight Work Restrictions: At no time shall the contractor hoist materials, equipment, trash or other large or heavy items over occupied areas of the building which would require evacuation to safely perform the work. Refer to the work hour restrictions above for times when the building will not be occupied. Prior to beginning any work, the Contractor shall meet on site with the Town and any other Contractors who may be occupying the building to discuss schedule and progress of the work. The Contractor is required to work with the Town and other contractors when scheduling the work. The Contractor shall coordinate demolition and new work with the Town to ensure that, at any given time, no more than 20% of the pool ceiling wood planks are exposed to the work above, such that dirt, dust or small debris could fall inside the building below. Exposed in this case means that there are no materials separating the pool ceiling planks to the atmosphere above. Areas where existing or new vapor barrier or insulation cover the planks will not be considered exposed. The Contractor shall ensure that air temperatures in the pool area remain within 5 degrees of 85 degrees Fahrenheit and other areas of the building within 5 degrees of 70 degrees Fahrenheit when the facility is open to the public.

Material Storage: The contractor shall not store large quantities of material, trash, equipment or other items on the roof which may exceed the capacity of the structure. If the contractor wishes to store palettes of material, equipment, or other heavy items during the course of this work the Contractor shall submit to the Town for information engineering calculations showing that the proposed loads will not exceed the capacity of the structure, including but not limited to the roof framing, decking, columns, walls, foundations or their respective components. The Contractor shall submit a plan with the calculations showing the proposed location of these additional loads.

The Contractor shall ensure that all material, trash, debris, equipment or other items, whether on the roof or stored at ground-level, are secured to avoid falling or becoming airborne.

Private Entrances and Driveways: The Contractor shall minimize the duration of any blockage to the facility's entrances, driveways and parking areas. The Town shall be notified a minimum of 24 hours in advance of such activities and the Contractor shall make all entrances and driveways accessible at the conclusion of the work and each work day.

Damage to Existing Town Property: in the event that the site, facility equipment or other Town-owned property is damaged, the Contractor shall replace in kind at no additional cost to the Town.

As-Built Drawings: As per Article 4.13 and DCSM requirements

Dust Control: The Contractor shall make every effort to control dust on site and shall either use water or a dust control agent.

Project Sign: The Contractor shall be responsible for procuring and installing a project sign near the main entrance of the facility as approved by the Owner. The sign shall be installed the first day the contractor mobilizes to the site and shall remain until Substantial completion or as directed by the Town. The Contractor is responsible for securing and maintaining the sign and if damaged, stolen or otherwise made unreadable shall replace the sign at no cost to the Town. The Sign shall be suitable for outdoor installation and meet the specifications of the following:

60"

Leesburg *Respectful of the Past*
Mindful of the Future

TOWN OF LEESBURG
Public Works & Capital Projects

IDA LEE PARK RECREATION CENTER
Roof Replacement Project
Completion: Fall 2019
For more information, call 703-737-7073

Contractor:
XYZ Company
Anytown, Virginia

48"

Burgundy: PMS 188
C: 0
M: 97
Y: 100
K: 50
R: 17
G: 6
B: 0

Gold: PMS 130
C: 0
M: 30
Y: 100
K: 0
R: 255
G: 179
B: 0

Dark Blue: PMS 2767
C: 100
M: 78
Y: 0
K: 54
R: 6
G: 16
B: 65

MAINTENANCE OF TRAFFIC

The Contractor shall conduct its operations in a manner that will ensure that vehicle and pedestrian traffic will be uninterrupted except as approved by the Town. At the close of each workday, the Contractor shall make all entrances, driveways and parking facilities accessible excluding work zone areas designated on the Contract Documents. The Contractor shall make provisions to maintain a safe area for pedestrian traffic at all times during the project. The Contractor shall ensure that areas outside the work zones are barricaded and warning signs shall be posted notifying the public and Town Staff of the work and work areas.

At all times the Contractor shall use the personnel and traffic control signs and devices necessary to comply with Part VI of the Manual on Uniform Traffic Control Devices (MUTCD) and the VDOT Virginia Work Area Protection Manual. During the progress of the work when the street may be obstructed to any extent by construction equipment or construction operations, in addition to the signs and barricades, special workers, equipped with VDOT required "STOP\SLOW" double-sided traffic control paddles, shall be designated by the Contractor to direct traffic. These workers so designated shall not be assigned to any other duties while engaged in directing traffic. The workers assigned to the flagging duties shall be VDOT-certified. The Contractor has sole responsibility for ensuring that its operations are conducted in a safe manner and notwithstanding any other provision to the contrary, shall fully indemnify the Town of Leesburg, its officers, agents and employees for any damage or injury related to traffic operations which is caused by negligent or otherwise improper or deficient performance under the Contract or nonperformance of the terms of the Contract.

- i. All personnel, signs, barricades and any other items necessary for the maintenance of traffic and safety shall be provided by the Contractor. This item is to be considered incidental to all other items of work.
- ii. The Contractor is required to submit a Maintenance of Traffic Plan for review and approval. Approval of the Maintenance of Traffic Plan is required prior to beginning any construction activities on the project.

Bathrooms: The Contractor is responsible for providing a portable restroom for the Contractor's staff to use during the execution of work. This portable restroom shall be stored within the fenced-in work zone shown on the Contract Documents. At no time shall the Contractor's staff or those of Subcontractors use the facility restrooms.

Trash and Recycling: The contractor is responsible for proper disposal of generated waste, trash, debris or excess soil or other materials generated by the work. At no time shall the Contractor use the Owner's dumpsters to dispose of trash or debris or other materials associated with this scope of work. The Contractor shall be responsible to clean up all work areas at the end of each day and shall ensure all trash and construction debris is removed off site and properly disposed of. The Contractor shall reimburse the Owner for cleanup of any trash, materials or debris left on site by the Contractor after the work is complete.

END OF SECTION

SAMPLE AGREEMENT

THIS AGREEMENT, dated this _____ day of _____, 20____ is between the Town of Leesburg (hereinafter called "TOWN" or "Owner") and _____ (hereinafter called "CONTRACTOR"). TOWN AND CONTRACTOR, in consideration of the mutual covenants hereinafter set forth, agree as follows:

1. **WORK**

1.1 The project's name is _____, project # _____.

1.2 CONTRACTOR shall complete all Work as specified or indicated in the Contract Documents. The Work is generally described as follows:

The project includes _____
_____.

2. **OWNER'S REPRESENTATIVES**

2.1 All references to the Owner's Chief Procurement Officer shall mean: _____.

2.2 All references to the Owner's Project Manager or ENGINEER shall mean: _____, who shall have the sole responsibility for clarifying any ambiguities.

3. **CONTRACT TIME AND LIQUIDATED DAMAGES**

3.1 Time of the Essence

B. All time limits for Interim Completion, Milestones, Substantial Completion, and Final Completion as stated in the Contract Documents are of the essence of the Contract.

C. Contract Time:

a. The Work to be performed under this Contract shall be commenced after issuance of the Notice to Proceed and Substantial Completion shall be achieved within _____ calendar days.

b. Final Completion shall be achieved within _____ calendar days.

c. [Insert Interim or Milestone dates as appropriate.]

3.2 Liquidated Damages

A. TOWN and CONTRACTOR recognize that time is of the essence of this Agreement and the TOWN will suffer financial loss if the Work is not completed within the time specified in Paragraph 3.1 above, plus any extensions thereof allowed in accordance with the General Conditions, Article 8, "TIME." Contractor recognizes the delays, expense, and difficulties involved in proving in a legal or other dispute resolution proceeding the actual loss suffered by TOWN if the Work is not completed on time. Accordingly, instead of requiring any such proof, TOWN and CONTRACTOR agree that as liquidated damages for delay, but not as a penalty, CONTRACTOR shall pay the TOWN as follows:

- a. For each day that expires after the time established to achieve Substantial Completion as specified above, CONTRACTOR shall pay TOWN liquidated damages in the amount of \$_____.
- b. For each day that expires after the time established to achieve Final Completion as specified above, CONTRACTOR shall pay TOWN liquidated damages in the amount of \$_____.
- c. [Insert liquidated damage rate for and Interim or Milestone dates.]

B. CONTRACTOR hereby waives any defense as to the validity of any liquidated damages stated in this Agreement as they may appear on the ground that such liquidated damages are void as penalties or are not reasonably related to actual damages.

C. TOWN may recover liquidated damages by deducting the amount owed from progress payments, final payment or retainage.

4. **CONTRACT PRICE**

4.1. ***[If Fixed Price]*** In consideration of the Performance of the Contract, the Owner agrees to pay the Contractor as compensation for his services the firm, fixed price of: _____ Dollars and _____ Cents (\$_____).

4.2. ***[If Unit Price]*** In consideration of the Performance of the Contract, the Owner agrees to pay the Contractor as compensation for his services in accordance with the Bid Form and Contract Documents, which are included as Exhibits to this Agreement, an amount equal to the sum of the itemized prices as shown for each item of work multiplied by the actual quantity of each item completed:

A. Total Computed Price used for Comparison and Award:

(Words)

\$ _____
(Figures)

All specific cash allowances are included in the above price and have been computed to include the Contractors profit, overhead, all furnishing and installation charges.

This is a unit price contract and the estimated quantities are not guaranteed and are given only as a basis of calculation for comparing and awarding the project. The determinations of actual quantities and classifications are to be made by Project Manager, as provided in the General Conditions, Article 9. The Total Computed Price used for Comparison and Award will be deemed to include for all Unit Price Work an amount equal to the sum of the unit price for each separately defined item times the estimated quantity for each item as indicated on the bid form. Notwithstanding the language of this paragraph, the contract price shall not exceed \$ _____ without further authorization.

5. **INTEREST**

- 5.1 The TOWN will pay on all amounts owed to the CONTRACTOR accordance with Sections 2.2-4354 and 2.2-4355 of the Virginia Public Procurement Act.
- 5.2 The rate of interest charged 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.

6. **CONTRACT DOCUMENTS**

- 6.1 The Contract Documents which comprise the entire Agreement between TOWN and CONTRACTOR concerning the Work are defined as follows:
 - A. This Agreement;
 - B. Payment Bond (attached);
 - C. Performance Bond (attached);
 - D. Insurance Certificate (attached);
 - E. CONTRACTOR'S Bid (attached);
 - F. Bidding Documents (by reference) including:
 - 1. Advertisement for Bids;

2. Instructions to Bidders;
3. General Conditions;
4. Specifications;
5. Supplemental Specifications;
6. Construction Drawings prepared by _____ bearing the following title:
 - _____(Sheets ____ through ____) approved _____
7. Addenda

G. Deliverables issued on or after the effective date of the Agreement and are not attached hereto:

1. Notice to Proceed
2. Written Amendments
3. Work Change Directives
4. Change Orders

7. **Notice**

The term "Notice" as used herein shall mean and include written notice. Any legal notice by any party shall be deemed to have been duly given if either delivered personally or enclosed in a registered, postage paid envelope addressed to:

The Owner:

The Owner's Project Manager:

The Contractor:

IN WITNESS WHEREOF, TOWN and CONTRACTOR have signed two copies of this Agreement. All portions of the Contract Documents have been signed or identified by TOWN and CONTRACTOR.

OWNER
TOWN OF LEESBURG
25 West Market Street
Leesburg, VA 20176

CONTRACTOR

By _____
Town Manager

By _____
President

Date _____

Date _____

License No: _____

[CORPORATE SEAL]

Approved as to Form:

Town Attorney

Resolution authorizing execution of Agreement is attached hereto.

Agent for service of process:

(If CONTRACTOR is a corporation attach evidence of authority to sign.)

VIRGINIA PAYMENT BOND

BOND NO. _____

AMOUNT: \$ _____

KNOW ALL MEN BY THESE PRESENTS, that _____
of _____ hereinafter called the CONTRACTOR
(Principal), and _____

a corporation duly organized and existing under and by virtue of the laws of the State
of _____, hereinafter called the SURETY, and authorized to
transact business within the Commonwealth of Virginia, as SURETY, are held and firmly bound
unto The Town of Leesburg as OWNER (Obligee), in the sum of:

_____ DOLLARS (\$ _____), lawful money
of the United States of America, for the payment of which, well and truly be made to the
OWNER. The CONTRACTOR and the SURETY bind themselves and each of their heirs,
executors, administrators, successors, and assigns, jointly and severally, firmly by these presents
as follows:

THE CONDITION OF THE ABOVE OBLIGATION IS SUCH THAT:

WHEREAS, the CONTRACTOR has executed and entered into a certain Contract hereto
attached with _____, naming the OWNER as beneficiary, dated this
_____ day of _____, 20 _____,
for: _____

NOW, THEREFORE, the CONTRACTOR shall promptly make payment to all persons, firms,
subcontractors, and corporations furnishing materials for or performing labor in the prosecution
of the work provided for in the Contract, and any authorized extension or modification thereof,
including all amounts due for materials, lubricants, oil, gasoline, coal and coke, repairs on
machinery, equipment, and tools consumed or used in connection with the construction of the
work, and all insurance premiums on the work, and for all labor performed in the work, whether
by subcontractor or otherwise, then this obligation shall be void; otherwise to remain in full force
and effect.

Furthermore, the SURETY, for value received, hereby stipulates and agrees that no change,
extension of time, alteration, or addition to the terms of the Contract Documents or to the work to
be performed there under, or the Specifications accompanying the same, shall in any way affect
its obligation on this bond, and it does hereby waive notice of any such change, extension of
time, alteration, or addition to the terms of the Contract Documents.

PROVIDED, FURTHER that no final settlement between the OWNER and the CONTRACTOR shall abridge the right of any beneficiary hereunder, whose claim may be unsatisfied.

IN WITNESS WHEREOF, the above parties bounded together have executed this instrument this _____ day of _____, 20____, the name and corporate seal of each corporate party being hereto affixed and those presents duly signed by its undersigned representative, pursuant to authority of its governing body.

CONTRACTOR

By _____(Seal)

Attest

SURETY

By _____(Seal)

Attest

NOTE: Date of bond must not be prior to date of Contract. If CONTRACTOR is a partnership, all partners should execute bond.

IMPORTANT: The SURETY named on this bond shall be one who is licensed to conduct business in the Commonwealth of Virginia, and named in the current list of Companies Holding Certificates of Authority as Acceptable Sureties on Federal Bonds and as Acceptable Reinsuring Companies, as published in Circular 570 (amended) by the Audit Staff Bureau of Accounts, U.S. Treasury Department. All bonds signed by an agent must be accompanied by a certified copy of the authority to act for the SURETY at the time of the signing of this bond.

VIRGINIA PERFORMANCE BOND

BOND NO. _____

AMOUNT: \$_____

KNOW ALL MEN BY THESE PRESENTS, that _____

of _____

hereinafter called the CONTRACTOR (Principal), and _____

_____ a corporation duly organized and existing under and by virtue of the laws of the State of _____, hereinafter called the SURETY, and authorized to transact business within the Commonwealth of Virginia, as SURETY, are held and firmly bound unto The Town of Leesburg as OWNER (Obligee), in the sum of:

_____ DOLLARS (\$ _____), lawful money of the United States of America, for the payment of which, well and truly be made to the OWNER. The CONTRACTOR and the SURETY bind themselves and each of their heirs, executors, administrators, successors, and assigns, jointly and severally, firmly by these presents as follows:

THE CONDITION OF THE ABOVE OBLIGATION IS SUCH THAT:

WHEREAS, the CONTRACTOR has executed and entered into a certain Contract hereto attached with _____, naming the OWNER as beneficiary, dated this _____ day of _____, 20 _____,

for: _____

NOW, THEREFORE, the CONTRACTOR shall at all times duly, promptly, and faithfully perform the Contract and any alteration in or addition to the obligations of the CONTRACTOR arising there under, including the matter of infringement, if any, of patents or other proprietary rights, and shall assure all guarantees against defective workmanship and materials, including the guarantee period following final completion by the CONTRACTOR and final acceptance by the OWNER and comply with all covenants therein contained in the Specifications, Drawings, and other Documents constituting a part of the Contract required to be performed by the CONTRACTOR, in the manner and within the times provided in the Contract, and shall fully indemnify and save harmless the OWNER from all cost and damage which it may suffer by reason or failure so to do, and shall fully reimburse and repay it all outlay and expenses which it may incur in making good any default, and reasonable counsel fees incurred in the prosecution of

or defense of any action arising out of or in connection with any such default, then this obligation shall be void; otherwise to remain in full force and effect.

Furthermore, the SURETY, for value received, hereby stipulates and agrees that no change, extension of time, alteration, or addition to the terms of the Contract Documents or to the work to be performed there under, shall in any way affect its obligation on this bond, and it does hereby waive notice of any such change, extension of time, alteration, or addition to the terms of the Contract Documents.

PROVIDED, FURTHER that no final settlement between the OWNER and the CONTRACTOR shall abridge the right of any beneficiary hereunder, whose claim may be unsatisfied.

IN WITNESS WHEREOF, the above parties bounded together have executed this instrument this _____ day of _____, 20____, the name and corporate seal of each corporate party being hereto affixed and those presents duly signed by its undersigned representative, pursuant to authority of its governing body.

CONTRACTOR

By _____(Seal)

Attest

SURETY

By _____(Seal)

Attest

NOTE: Date of bond must not be prior to date of Contract. If CONTRACTOR is a partnership, all partners should execute bond.

IMPORTANT: The SURETY named on this bond shall be one who is licensed to conduct business in the Commonwealth of Virginia, and named in the current list of Companies Holding Certificates of Authority as Acceptable Sureties on Federal Bonds and as Acceptable Reinsuring Companies, as published in Circular 570 (amended) by the Audit Staff Bureau of Accounts, U.S. Treasury Department. All bonds signed by an agent must be accompanied by a certified copy of the authority to act for the SURETY at the time of the signing of this bond.

THE TOWN OF LEESBURG

GENERAL CONDITIONS

Project Name:
IDA LEE ROOF REPLACEMENT
IFB NO. 100314-FY21-32

GENERAL CONDITIONS

THE TOWN OF LEESBURG

GENERAL CONDITIONS

ARTICLE 1: CONTRACT DOCUMENTS

1.1 DEFINITIONS

1.1.1 The Contract Documents

The Contract Documents consist of the Advertisement or Invitation for Bids, Request for Proposals, Information for Bidders, Insurance Certificates, Official Bid Form, Offeror's Bid or Proposal, Bonds, the Notice of Award, the Project Manual, the Owner/Contractor Agreement, the General and Special Conditions, the Drawings, the Specifications, all Addenda issued prior to and all Modifications issued after execution of the Agreement. A Modification is either a written Change Order issued pursuant to the provisions of Article 12.5, or a Field Order issued pursuant to Article 12.2.

1.1.2 The Contract

The Contract is the sum of all the Contract Documents. This Contract represents the entire and integrated agreement between the Owner and the Contractor and supersedes all prior negotiations, representations, or agreements, either written or oral. The Contract may be changed only by a Modification as defined in Article 1.1.1.

1.1.3 The Work

The Work comprises the completed construction required by the Contract Documents and includes all labor, material, equipment, supplies and other facilities or things necessary to produce such construction, and all materials, equipment and supplies incorporated or to be incorporated in such construction.

1.1.4 The Project

The Project is the total construction of which the Work performed under the Contract Documents may be the whole or a part.

1.1.5 Furnish, Install, Provide

The terms "Furnish", "Install" or "Provide," unless specifically limited in context, mean: furnishing and incorporating a specified item, product or material in the Work, including all labor, materials, and equipment necessary to perform the Work required, ready for intended use.

1.1.6 Firm, Fixed Price or Lump Sum

The terms "Firm, Fixed Price" or "Lump Sum" mean that the Contract Work shall be performed for the price stated in the Contract without any adjustment based on

GENERAL CONDITIONS

the Contractor's actual costs unless such adjustment is made by a properly executed Contract Change or Modification.

1.1.7 Schedule of Values

The term "Schedule of Values" means the unit prices for portions of the Work submitted by the Contractor and approved by the Owner's Project Manager for use in preparing Applications for Payment and pricing Contract Changes in accordance with Article 9.2. The Schedule of Values shall not alter the Firm, Fixed Price or Lump Sum value of the Contract.

1.1.8 Miscellaneous Words or Terms

Whenever they refer to the Work or its performance, "Directed," "Required," "Permitted," "Ordered," "Designated," "Prescribed," and words of like import shall imply the direction, requirements, permission, order, designation or prescription of the Owner and/or the Owner's Project Manager, and "Approved," "Acceptable," "Satisfactory," "in the judgment of," and words of like import shall mean approved by or acceptable to or satisfactory to or in the judgment of the Owner and/or the Owner's Project Manager. "Approved" means approved in writing, including subsequent written confirmation of prior oral approval and "Approval" means approval in writing, including all aforesaid.

1.2 EXECUTION, CORRELATION AND INTENT

1.2.1 The Contract Documents may be signed in duplicate originals by the Owner and the Contractor and each set shall be deemed an original, but all sets shall constitute one and the same instrument.

1.2.2 By executing the Contract, the Contractor represents that he has familiarized himself with, and assumes full responsibility for having familiarized himself with, the nature and extent of the Contract Documents, Work, locality, and with all local conditions and federal, state and local laws, ordinances, rules and regulations that may in any manner affect performance of the Work, and represents that his study and observations have been correlated with the requirements of the Contract Documents. The Contractor also represents that he has studied all surveys and investigation reports of subsurface and latent physical conditions referred to in the Contract Documents and made such additional surveys and investigations as he deems necessary for the performance of the Work at the Contract Price in accordance with the requirements of the Contract Documents and that he has correlated the results of all such data with the requirements of the Contract Documents. Failure to make an examination necessary for this determination shall not release the Contractor from the obligations of this Contract nor be grounds for any claim based upon unforeseen conditions.

GENERAL CONDITIONS

The Owner assumes no responsibility for any conclusions or interpretations made by the Contractor based on the information made available by the Owner. The Owner assumes no responsibility for any understanding reached or representation made concerning conditions that can affect the Work by any of its officers or agents before the execution of this contract, unless that understanding or representation is expressly stated in this contract.

- 1.2.3** The intent of the Contract Documents is to include all items necessary for the proper execution and completion of the Work. The Contract Documents are complementary, and what is required by any one shall be as binding as if required by all. Should any work or material be required which is not denoted in the drawings and specifications either directly or indirectly, but which is nevertheless necessary for the proper carrying out of the intent thereof, it is understood and agreed that the same is implied and required and that the Contractor shall perform such work and furnish such materials as fully as if they were completely delineated and prescribed.

Words and abbreviations which have well-known technical or trade meanings are used in the Contract Documents in accordance with such recognized meanings unless otherwise specifically defined herein. The Table of Articles, titles, headings, and running headlines are solely to facilitate reference to various provisions of the Contract Documents and in no way affect, limit or cast light upon the interpretation of the provisions to which they refer.

- 1.2.4** The organization of the specifications into divisions, sections and articles, and the arrangement of drawings are for clarity only, and shall not control the Contractor in dividing the Work among Subcontractors or in establishing the extent of Work to be performed by any trade. The Contractor may subcontract the Work in such divisions as he sees fit and he is ultimately responsible for furnishing all work shown on the drawings and/or in the specifications.

- 1.2.5** Unless otherwise provided for or amended herein, work shall be performed in accordance with the VDOT Road and Bridge Specifications, current edition; the Town of Leesburg Design and Construction Standards Manual (DCSM), current edition; the Virginia Erosion and Sediment Control Handbook; and the Special Provisions, Special Conditions, and Special Designs as may be described on the plans for the project or in this solicitation. Where there is a conflict between the VDOT Road and Bridge Specifications and the DCSM, the most stringent shall take precedence. A copy of the DCSM may be purchased from the Department of Plan Review at the current standard rate.

Anything shown on the drawings and not mentioned in the specifications or mentioned in the specifications and not shown on the drawings shall have the same effect as if shown or mentioned respectively in both. Technical specifications take priority over general specifications and detail drawings take

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precedence over general drawings. Any work shown on one drawing shall be construed to be shown in all drawings and the Contractor will coordinate the Work and the drawings. If any portion of the Contract Documents shall be in conflict with any other portion, the various documents comprising the Contract Documents shall govern in the following order of precedence: The Owner/Contractor Agreement; Modifications; Changes; Addenda; the Supplementary Conditions; the General Conditions; the Specifications; the drawings; the Town DCSM; other published construction standards and specifications; the bonds; the advertisement for bids or invitation or request for proposal; information for bidders; bids; the notice of award. As between schedules and information given on drawings and the scaled measurements, the figures shall govern. As between large-scale drawings and small-scale drawings, the larger scale shall govern. Any such conflict or inconsistency between or in the drawings shall be submitted to the Project Manager whose decision thereon shall be final and conclusive.

1.2.6 This Contract is not intended to create, nor shall any provision be interpreted as creating, any contractual relationship between the Owner and any third parties including all Subcontractors.

1.2.7 The Provisions of this Contract cannot be changed, varied or waived in any respect except by a written Modification or Change Order. No person has authority to orally waive, or to release the Contractor from any of the Contractor's duties or obligations under or arising out of this Contract. Any waiver, approval or consent granted by Changes to the Contractor shall be limited to those matters specifically and expressly stated thereby to be waived, approved or consented to and shall not relieve the Contractor of the obligation to obtain any future waiver, approval or consent.

1.3 OWNERSHIP AND USE OF DOCUMENTS

1.3.1 All drawings, specifications, and copies thereof furnished by or to the Owner under this Contract are and shall remain the property of the Owner. They are to be used only with respect to this Project and are not to be used in whole or in part for any other purpose.

1.3.2 The Contractor shall be provided five sets of the Contract Documents by the Owner's Project Manager. Additional sets of Drawings and Specifications may be obtained from the Owner's Project Manager by paying the then current and regular printing, mailing and handling charges.

END OF ARTICLE 1

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ARTICLE 2: OWNER'S PROJECT MANAGER

2.1 DEFINITIONS

2.1.1 The term "Project Manager" as used in the Contract Documents, shall mean the entity so identified in the Owner/Contractor Agreement or its duly authorized representatives.

2.1.2 The Project Manager is referred to throughout the Contract Documents as if singular in number and masculine in gender.

2.2 SERVICES OF THE OWNER'S PROJECT MANAGER

2.2.1 The Owner's Project Manager will serve during construction and until the end of the warranty period. The Owner's Project Manager will advise and consult with the Owner and will have the authority to act on behalf of the Owner only to the extent provided in the Contract Documents. The Owner may identify a substitute Owner's Project Manager at any time by providing written notice to the Contractor.

2.2.2 The Owner's Project Manager will inform the Owner and the Contractor whenever in his reasonable opinion any of the Work is proceeding contrary to the requirements of the Contract Documents and will be unacceptable. Failure of the Contractor to take corrective action to make the Work conform to the Contract Documents will subject the Contractor to any and all remedies available to the Owner, including, without limitation, termination pursuant to Article 14. Such notification by the Owner's Project Manager will not be a cause for the Contractor to claim either delay of the Work or any increase in the Contract Price.

2.2.3 The Owner, the Owner's Project Manager and other government representatives shall at all times have access to the Work wherever it is in preparation or progress, to include off-site facilities of Subcontractors and suppliers at any tier. The Contractor shall provide safe facilities for such access so the Owner's Project Manager may perform his functions under the Contract Documents.

2.2.4 All communications, correspondence, submittals and documents exchanged between the Owner's Project Manager and the Contractor in connection with the Project shall be through or in the manner prescribed by the Owner and consistent with the Owner/Contractor Agreement.

2.2.5 The Owner's Project Manager shall make decisions on all matters relating to aesthetic effect, which decision shall be final.

END OF ARTICLE 2

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ARTICLE 3: OWNER

3.1 DEFINITIONS

- 3.1.1** "Owner" means the Town of Leesburg, Virginia, unless the Owner/Contractor Agreement provides otherwise. The Owner shall be referred to as the "Town," or as the "Owner."
- 3.1.2** The term "Owner" or "Owner's Project Manager" specifically excludes any and all inspectors having building code or Town ordinance responsibilities or jurisdiction under the requirements of the Building Permit, unless the Owner designates such person to serve as the Owner's Representative.
- 3.1.3** "Contractor" means the person or persons, firm or company whose bid or proposal has been accepted by the Owner and includes the Contractor's representatives, successors and assigns as permitted by the Owner.

3.2 INFORMATION, SERVICES AND RIGHTS OF THE OWNER

- 3.2.1** The Project Manager will provide administration of the Contract as described below.
- 3.2.2** The Owner or, at the Owner's sole discretion, the Owner's Project Manager or Project Manager, will review and process all Progress Payments, including the Final Payment.
- 3.2.3** The Project/Manager shall have the authority to reject the Work when, in his opinion, the Work does not conform to the Contract Documents.
- 3.2.4** Whenever in the Project Manager's reasonable opinion it is necessary or advisable for the implementation of the Contract Documents, the Project Manager will have authority to require special inspection or testing of the Work in accordance with the provisions of the Contract Documents, whether or not such Work is then fabricated, installed or completed.
- 3.2.5** The Owner or the Owner's Project Manager shall at all times have access to the Work wherever it is in preparation or progress. The Contractor shall provide safe facilities for such access.
- 3.2.6** The Owner, the Owner's Project Manager and the Engineer shall not be responsible for or have control or charge of the construction means, methods, techniques, sequences, or procedures, or for the safety precautions and programs in connection with the Work, and will not be responsible for the Contractor's failure to carry out the Work in accordance with the Contract Documents.

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- 3.2.7** The Owner or the Owner's Project Manager shall not be responsible or liable to the Contractor for the acts, errors or omissions of the Contractor, any separate Subcontractor, any separate Contractor or any Contractor's or Subcontractor's agents or employees, or any other persons performing any of the Work.
- 3.2.8** The Owner assumes no responsibility for any conclusions or interpretations made by the Contractor based on the information made available by the Owner. The Owner assumes no responsibility for any understanding reached or representation made concerning conditions that can affect the Work by any of its officers or agents before the execution of this Contract, unless that understanding or representation is expressly set forth in this Contract.
- 3.2.9** The Owner shall not be held responsible for failure to perform the duties and responsibilities imposed by the Contract if such failure is due to strikes, fires, riots, rebellions, or Force Majeure, beyond the control of the Owner, that make performance impossible or illegal, unless otherwise specified in the Contract.
- 3.2.10** The Owner will, throughout the Contract Time and any extension thereof have the right of reasonable rejection and approval of staff assigned to the project by the Contractor. If the Owner reasonably rejects staff or Subcontractors, the Contractor must provide replacement staff or Subcontractors satisfactory to the Owner in a timely manner and at no additional cost to the Owner.
- 3.2.11** The foregoing rights are in addition to other rights of the Owner enumerated herein and those provided by law.

3.3 OWNER'S RIGHT TO STOP OR TO SUSPEND WORK

- 3.3.1** If the Contractor fails to correct defective Work as required by Article 13.2 "CORRECTION OF WORK," or fails to carry out the Work or supply labor and materials in accordance with the Contract Documents, the Owner by written order may order the Contractor to stop the Work, or any portion thereof, without monetary compensation to the Contractor until the cause for such order has been eliminated.
- 3.3.2** The Owner may order the Contractor in writing to suspend, delay, or interrupt all or any part of the Work for such period of time as he may determine to be appropriate for the convenience of the Owner.
- 3.3.3** If the performance of all or any part of the Work is suspended, delayed, or interrupted by the Owner or the Owner's Project Manager for an unreasonable period of time, or by failure of either of them to act within the time specified (or if no time is specified, within a reasonable time), an adjustment increasing the time of performance of the Work shall be made. Such adjustments will be made solely for unreasonable suspension, delay, or interruption. The Contract shall be

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modified in writing accordingly. However, no claim for an extension of time shall be made under this Article 3.3.3 for any suspension, delay, or interruption pursuant to Article 3.4.1, or for which claim is provided or excluded under any other provision of this Contract.

No claim under this Article 3.3.3 shall be allowed for any claim for an extension of time required for performance, unless within twenty days after the act or failure to act involved, the Contractor submits to the Owner's Project Manager a written statement setting forth, as then practicable, the extent of such claimed time extension and unless the claim for an extension of time is submitted with supporting data within thirty days after the termination of such suspension, delay, or interruption.

3.3.4 In the event of a suspension of work or delay or interruption of work, the Contractor will and will cause his Subcontractors to protect carefully his, and their, materials and work against damage from the weather and maintain completed and uncompleted portions of the work as required by the Contract Documents. If, in the opinion of the Owner's Project Manager, any work or material shall have been damaged by reason of failure on the part of the Contractor or any of his Subcontractors to protect same, such work and materials shall be removed and replaced at the expense of the Contractor.

3.3.5 No claim by the Contractor under Article 3.3.3 shall be allowed if asserted after Final Payment under this Contract.

3.4 OWNER'S RIGHT TO CARRY OUT THE WORK

3.4.1 If the Contractor defaults or neglects to carry out the Work in accordance with the Contract Documents and fails within a seven day period after receipt of written notice from the Owner to commence and continue correction of such default or neglect with diligence and promptness, the Owner may after the seven day period give the Contractor a second written notice to correct the deficiencies within a three day period. If the Contractor fails to commence and continue to correct any deficiencies within the second notice's three day period, the Owner may, without prejudice to other remedies the Owner may have, correct such deficiencies. In such a case an appropriate Change Order shall be issued pursuant to Article 12 deducting from the payments then or thereafter due the Contractor the cost of correcting such deficiencies, including compensation for services of the Owner's Project Manager, the Engineer and any other additional services made necessary by such default, neglect or failure. If the payments then or thereafter due the Contractor are not sufficient to cover such amount, the Contractor shall pay on demand the difference to the Owner.

3.4.2 The Owner will not be liable or accountable to the Contractor for the method by which the Work, or any portion thereof, performed by the Owner or by separate

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contractors pursuant to Article 3.4 is accomplished or for the price paid therefor. Notwithstanding the Owner's right to carry out a portion of the Work, maintenance and protection of the Work remains the Contractor's responsibility.

3.5 EXAMINATION OF RECORDS

3.5.1 The Owner, or any duly authorized representative, shall, until the expiration of five years after final payment hereunder, have access to and the right to examine, audit and copy any directly pertinent books, documents, as-builts, papers and records of the Contractor involving transactions related to this Contract. Any audit or examination shall occur during regular business hours and not exceed a reasonable period of time under the circumstances.

3.5.2 The Contractor further agrees to include in any subcontract for more than \$10,000 entered into as a result of this Contract, a provision to the effect that the Subcontractor agrees that the Owner or any duly authorized representative shall, until the expiration of three years after final payment under the Contract, have access to and the right to examine, audit and copy, without charge, any directly pertinent books, documents, papers and records of such contractor involved in transactions related to such subcontract, or this Contract. The term subcontract shall exclude subcontracts or purchase orders for public utility services at rates established for uniform applicability to the general public.

3.5.3 The period of access provided in Subparagraphs 3.5.1 and 3.5.2 above shall continue for all contracts and subcontracts until any appeals, litigation, or claims have been finally concluded.

3.5.4 Nothing in these General Conditions shall be deemed to modify in any manner any applicable statute of limitations.

END OF ARTICLE 3

GENERAL CONDITIONS

ARTICLE 4: CONTRACTOR

4.1 DEFINITION

4.1.1 The Contractor is the person or organization identified as such in the Owner/Contractor Agreement. The term Contractor means the Contractor or his authorized representative, who shall have authority to bind the Contractor in all matters pertinent to this Contract.

4.1.2 The Contractor is not an agent for the Owner but is an independent contractor engaged in the business of providing the services and performing the Work described in the Contract Documents.

4.2 REVIEW OF CONTRACT DOCUMENTS

4.2.1 Before submitting his bid or proposal to the Owner, and continuously after execution of the Contract, the Contractor shall carefully study and compare the Contract Documents and shall at once report to the Owner any error, inconsistency or omission he may discover, including any requirement that may be contrary to any law, ordinance, rule, regulation or order of any public authority bearing on the performance of the Work. By submitting his bid or proposal for the Contract and the Work under it, the Contractor agrees that the Contract Documents are accurate, consistent and complete. The Contractor shall perform no portion of the Work at any time without Contract Documents and, where required, approved Shop Drawings, product data, samples, mock ups or other submittals for such portion of the Work

4.3 SUPERVISION AND CONSTRUCTION PROCEDURES

4.3.1 The Contractor shall supervise and direct the Work, using his best skill and attention. He shall be solely responsible for and have control over all construction means, uses, sequences, procedures, safety precautions and programs, and coordination of all portions of the Work under the Contract.

4.3.2 The Contractor shall be responsible to the Owner for the acts and omissions of his employees, Subcontractors, Suppliers, their agents and employees, and other persons performing any of the Work and for their compliance with each and every requirement of the Contract Documents, in the same manner as if they were fully employed by the Contractor.

4.3.3 The Contractor shall not be relieved from his obligations to perform the Work in accordance with the Contract Documents either by acts, failures to act or duties of the Owner or the Owner's Project Manager in their administration of the Contract, or by inspections, tests, or approvals (or the lack thereof) required or

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performed under Article 4.4 "INSPECTION OF CONSTRUCTION" or Article 7.5 "TESTS" by persons other than the Contractor.

4.3.4 The Contractor shall employ no plant, equipment, materials, methods or persons to which the Owner or Owner's Project Manager reasonably objects.

4.3.5 The Contractor shall not remove any portion of the Work or stored materials from the site of the Work, if payment for such was requested or received from the Owner.

4.3.6 The Contractor shall at all times so conduct its work as to ensure the least possible obstruction to traffic and inconvenience to the general public and the residents in the vicinity of the Work. No road or street shall be closed to the public except with the permission of the Town Traffic Engineer and proper governmental authority. Fire hydrants on or adjacent to the Work shall be kept accessible to fire fighting equipment at all times. Temporary provisions shall be made by the Contractor to ensure the use of sidewalks and the proper functioning of all gutters, drainage inlets, drainage ditches, and irrigation ditches, which shall not be obstructed except as approved by the Owner's Project Manager.

4.3.7 When construction crosses highways, railroads, streets, or utilities under the jurisdiction of State, County, Town, or other public agency, public utility, or private entity, the Contractor shall secure written permission where necessary from the proper authority before executing such new construction. A copy of such written permission must be filed with the Owner before any work is started. The Contractor shall be required to furnish a release from the proper authority before final acceptance of the Work.

4.3.8 The Contractor shall provide and maintain such sanitary accommodations for the use of the Contractor's employees and those of its Subcontractors as may be necessary to comply with the requirements and regulations of the local and State departments of health and where additional accommodations are necessary for a reasonably sanitary activity, then such additional accommodations shall be made by the Contractor.

4.4 INSPECTION OF CONSTRUCTION

4.4.1 The Contractor shall maintain an adequate inspection system and perform such inspections as will ensure that the Work called for by this Contract conforms to Contract requirements. The Contractor shall maintain complete inspection records and make them available to the Owner and Owner's Project Manager. All work is subject to inspection and testing at all places and at all reasonable times before acceptance to ensure strict compliance with the terms of the Contract.

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4.5 CONTRACTOR'S REPRESENTATIONS

4.5.1 By entering into this Contract with the Owner, the Contractor represents and warrants the following, together with all other representations and warranties in the Contract Documents:

- .1 That he is experienced in and competent to perform the type of work required and to furnish the plant, materials, supplies or equipment to be so performed or furnished by him;
- .2 That he is financially solvent, able to pay his debts as they mature, and possessed of sufficient working capital to initiate and complete the Work and Changes required under the Contract;
- .3 That he is familiar with all laws, ordinances, permits, regulations and resolutions that may in any way affect the Work or those employed therein, including but not limited to any special laws or regulations related to contractor licenses and/or registrations for the Work or any part thereof;
- .4 That such temporary and permanent work required by the Contract Documents that is to be done by him will be satisfactorily constructed and fit for use for its intended purpose and that such construction will not injure any person, or damage any property;
- .5 That he will fully comply with all requirements of the Contract Documents;
- .6 That he will perform the Work in a skillful manner consistent with good workmanship, sound business practice, and in the most expeditious and economical manner consistent with the best interests of the Owner;
- .7 That he will furnish efficient business administration and experienced superintendence and an adequate supply of workers, equipment, tools, and materials at all times;
- .8 That he has carefully reviewed the Work required and that the Work can be planned and executed in a normal and orderly sequence and be reasonably scheduled so as to insure completion of the Work in accordance with the Contract Documents, allowing for normal and reasonably foreseeable weather, labor

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and other delays, interruptions and disruptions of the Work at the site designated;

- .9 That he will complete the Work within the Contract Time and all portions thereof within any required Contract milestones;
- .10 That his Contract Price is based upon the labor, materials, systems and equipment required by the Contract Documents, without exception;
- .11 That he does not and will not during the performance of the Contract violate the provisions of the Federal Immigration Reform and Control Act of 1986, as amended, which prohibits the employment of illegal aliens, and Federal and State employment and wage hour laws;
- .12 That he has taken steps reasonably necessary to ascertain the nature and locations of the Work of the Contract, has investigated and satisfied himself as to the general and local conditions which can affect the Work or its cost, including but not limited to: conditions bearing upon transportation, disposal, handling, and storage of materials; the availability of labor, water, electric power, and roads; uncertainties of weather, river stages, tides, or similar physical conditions at the site; the conformation and conditions of the ground; and the character of equipment and facilities needed before and during work performance;
- .13 That no employee of the Owner shall be admitted to any share or part of this Contract or to any benefit that may arise therefrom which is not available to the general public; and
- .14 That Contractor's bid or offer was made without collusion or fraud and that it has not offered or received any kickbacks or inducements from any other offeror, supplier, manufacturer, or Subcontractor and that it has not conferred on any public employee having official responsibility for this purchase any payment, loan, subscription, advance, deposit of money, services, or anything of more than nominal value, present or promised unless consideration of substantially equal or greater value was exchanged. Contractor acknowledges that this Contract incorporates by reference the Virginia Public Procurement Act, VA Code Sect. 2.2-4300 *et seq.* (VPPA), as well as any state or federal law related to ethics, conflicts of interest, or bribery, including by way of illustration and not limitation, the Virginia State and Local Government Conflict of Interests Act, the

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Virginia Governmental Frauds Act, and Articles 2 and 3 of Chapter 10 of Title 18.2 of the Virginia Code, as amended.

4.6 LABOR AND MATERIALS

4.6.1 Unless otherwise provided in the Contract Documents, the Contractor shall provide and pay for all labor, materials, equipment, supplies, tools, construction equipment and machinery, heat, utilities, transportation, and other facilities and services necessary or proper for or incidental to the execution and completion of the Work required by and in accordance with the Contract Documents and any applicable code or statute, whether specifically required by the Contract Documents, or whether their provision may reasonably be inferred as necessary to produce the intended results, whether temporary or permanent and whether or not incorporated or to be incorporated in the Work. Unless otherwise specified, all materials and equipment incorporated in the Work under the Contract shall be new. All work performed, shall be accomplished by persons qualified in the respective trades. Final Payment will not be made until the Work is so completed.

4.6.2 Whenever materials or equipment are specified or described in the Drawings or Specifications by using the name of a proprietary item or the name of a particular manufacturer, fabricator, supplier, or distributor, the naming of the item is intended to establish the type, function, and quality required. Unless the name is followed by words indicating that no substitution is permitted, materials or equipment of other manufacturers, fabricators, suppliers or distributors may be accepted by the Owner's Project Manager if sufficient information is submitted by the Contractor to allow the Owner's Project Manager to determine that the material or equipment proposed is equivalent to that name.

4.6.3 Requests for review of substitute items of material and equipment will not be accepted by the Owner's Project Manager from anyone other than the Contractor. If the Contractor wishes to furnish or use a substitute item of material or equipment, the Contractor shall make written application to the Owner's Project Manager for acceptance thereof, certifying that the proposed substitute will perform adequately the functions called for by the general design, be similar and of equal or better substance to that specified, and be suited to the same use and capable of performing the same or better function as that specified. The application shall state whether or not acceptance of the substitute for use in the Work will require a change in the drawings or specifications to adapt the design to the substitute and whether or not incorporation or use of the substitute in connection with the Work is subject to payment of a license fee or royalty. All variations of the proposed substitute from that specified shall be identified in the application and available maintenance, repair, and replacement service shall be indicated.

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4.6.4 The Contractor shall submit complete data substantiating compliance of the proposed substitution with the Contract Documents, including:

- .1 Product identification including manufacturer's name, address and phone number;
- .2 Manufacturer's literature showing complete product description, performance and test data, and all reference standards;
- .3 Samples and colors in the case of articles or products;
- .4 Name and address of similar projects on which the product was used and date of installation;
- .5 For construction methods, include a detailed description for the proposed method and drawings illustrating same;
- .6 Itemized comparison of proposed substitution with product or method specified and any cost reduction which shall benefit the Owner;
- .7 Accurate cost data on proposed substitution with product or method specified and any cost reduction which shall benefit the Owner;
- .8 All directions, specifications and recommendations by manufacturers for installation, handling, storing, adjustment and operation; and
- .9 A mock up if determined necessary by the Project Manager.

4.6.5 The Contractor shall also submit with his request for approval a sworn and notarized statement that shall include the following representations:

- .1 That he has investigated the proposed product or method and determined that it is equal or better in all respects to that specified and that it fully complies with all requirements of the Contract Documents;
- .2 That he will meet all Contract obligations with regard to the substitution;
- .3 That he will coordinate installation of accepted substitutions into the Work, making all such changes and any required schedule

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adjustment, at no additional cost to the Owner, as may be required for the Work to be complete in all respects;

- .4 He waives all claims for additional costs and additional time related to substitutions which consequently become apparent. He also agrees to hold the Owner harmless from claims for extra costs and time incurred by other Subcontractors and suppliers, or additional services which may have to be performed by the Owner's Project Manager, for changes or extra work that may, at some later date, be determined to be necessary in order for Work to function in the manner intended in the Contract Documents;
- .5 He will provide the same warranty and guarantee, and perform any work required in accordance therewith, for the substitution that is applicable to the specified item for which the substitution is requested;
- .6 Material will be installed, handled, stored, adjusted, tested, and operated in accordance with the manufacturers' recommendations and as specified in the Contract Documents;
- .7 In all cases new materials will be used unless this provision is waived by notice from the Owner or the Owner's Project Manager or unless otherwise specified in the Contract Documents;
- .8 All material and workmanship will be in every respect in accordance with that which, in the opinion of the Owner or the Owner's Project Manager, is in conformity with approved current practice;
- .9 He has provided accurate cost data on the proposed substitution in comparison with the product or method specified; and
- .10 He has taken into consideration the necessary adjustment, relocation and/or installation of public utilities in areas within the limits of this Contract. No additional compensation will be paid to the Contractor for delays to the project schedule, work interruptions, changes in construction sequences, changes in handling excavation, drainage or paving, or for changes in types of equipment used, etc., caused by complying with the provisions of this statement. The Contractor shall include activities in its initial schedule indicating the utility relocation necessary to complete the Work. Delays to the project schedule caused by untimely relocations of utilities will not be considered a compensable delay, but if supported in accordance with the

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provisions of Article 8.3, may entitle the Contractor to a non-compensable time extension. The Contractor shall assume all responsibility for coordinating with the various utility companies to verify their relocation schedules, determine the anticipated duration to complete the respective utility relocations, and to facilitate utility relocations to minimize the impact to the project schedule upon notification of being named the apparent low bidder.

- 4.6.6** The application shall also contain an itemized estimate of all costs that will result directly or indirectly from acceptance of such substitute, including costs of redesign and claims of other contractors affected by the resulting change. All of the foregoing shall be considered by the Owner's Project Manager in evaluating the proposed substitute. The Owner's Project Manager may require the Contractor to furnish at the Contractor's expense additional data about the proposed substitute. The Owner shall be the sole judge of acceptability, and no substitute shall be ordered or installed without the Owner's prior written acceptance. The Owner may require the Contractor to furnish at the Contractor's expense a special performance guarantee or other surety with respect to any substitute.
- 4.6.7** If a substitution is approved, no additional change in brand or make will be permitted unless satisfactory written evidence is presented to and approved by the Owner showing that the manufacturer cannot make scheduled delivery of the approved substituted item. Substitutions will not be considered by the Owner if:
- .1 The proposed substitution is indicated or implied on the Contractor's shop drawing or product data submittals and has not been formally submitted for approval by the Contractor in accordance with the above-stated requirement; or
 - .2 Acceptance of the proposed substitution will require substantial revisions to the Contract Document or is otherwise not acceptable to the Owner or his authorized representative.
- 4.6.8** The Contractor shall not have any right of appeal from the decision of the Project Manager rejecting any materials submittal.
- 4.6.9** Manufactured articles, material and equipment shall be applied, installed, connected, erected, used, cleaned, and conditioned as directed by the manufacturer unless herein specified to the contrary.
- 4.6.10** Any material specified by reference to the number, symbol or title of a specific standard, such as a Commercial Standard, a Federal Specification, a Trade Association Standard, or other similar standard, shall comply with the

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requirements in the latest revision of the standards or specification and any amendment or supplement, except as limited to type, class or grade, or as modified in such reference. The standard referred to, except as modified in the Specifications, shall have full force and effect as though printed in the Specifications.

- .1 Reference in the Specifications or on the Drawings to any article, device, product, material, fixture, form or type of construction by name, make or catalog number shall be interpreted as establishing a standard of quality and shall not be construed as eliminating from competition other products of equal or better quality by other manufacturers where fully suitable, as approved by the Owner's Project Manager. Applications for approval of substitutions for the specified items will be considered only upon request of the Contractor, not of individuals, trades or suppliers, and only for a specific purpose; no blanket approvals will be granted. No approval of a substitution shall be valid unless it is in written form and signed by the Owner's Project Manager.
- .2 If any proposed substitution will affect a correlated function, adjacent construction or the work of other contractors, then the necessary changes and modifications to the affected work shall be considered as an essential part of the proposed substitution, to be accomplished by the Contractor without additional expense to the Owner, if and when approved. Detail drawings and other information necessary to show and explain the proposed modifications shall be submitted with the request for approval of the substitution.

4.6.11 All equipment, apparatus, or devices of any kind to be incorporated into the Work that are shown or indicated on the drawings or called for in the specifications or required for the completion of the Work shall be entirely satisfactory to the Owner's Project Manager as regards operations, capacity, or performance. No approval, either written or oral, of any drawings, descriptive data, or samples of such equipment, apparatus, or device shall relieve the Contractor of his responsibility to turn over the same in good working order for its intended purpose at the completion of the Work in complete accordance with the Contract Documents. Any equipment, apparatus and/or device not fulfilling these requirements shall be removed and replaced by proper and acceptable equipment, or put in good working order satisfactory to the Owner's Project Manager without additional cost to the Owner.

4.6.12 The Contractor shall at all times enforce strict discipline and good order among his employees and shall not employ on the Work any unfit person or anyone not skilled in the task assigned to him. The Owner may, by written notice, require

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the Contractor to remove from the Work any employee the Owner deems incompetent, careless or otherwise objectionable.

4.7 WARRANTY

4.7.1 The Contractor guarantees and warrants to the Owner all work as follows:

- .1 That all materials and equipment furnished under this Contract will be new and the best of its respective kind unless otherwise specified;
- .2 That all Work will comply with or exceed industry standards and be free of omissions and faulty, poor quality, imperfect or defective materials or workmanship;
- .3 That where no standard is specified for such workmanship or materials, they shall be the best of their respective kinds;
- .4 That all applicable Work shall be entirely watertight and leakproof in accordance with all applicable industry customs and practices, and shall be free of shrinkage and settlement;
- .5 That the Work, including but not limited to, mechanical and electrical machines, devices and equipment shall be fit and fully usable for its intended and specified purpose and shall operate satisfactorily with ordinary care;
- .6 That consistent with requirements of the Contract Documents, the Work shall be installed and oriented in such a manner as to facilitate unrestricted access for the operation and maintenance of fixed equipment; and
- .7 That the Work will be free of abnormal or unusual deterioration that occurs because of poor quality materials, workmanship or unsuitable storage.

4.7.2 All work not conforming to guarantees and warranties specified in the Contract Documents, including substitutions not properly approved and authorized, may be considered defective. If required by the Owner's Project Manager, the Contractor shall furnish satisfactory evidence as to the kind and quality of materials and equipment. This warranty is not limited by the provisions of Article 13 "UNCOVERING AND CORRECTION OF WORK."

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- 4.7.3** The warranties set forth in this Article 4.7 and elsewhere in the Contract Documents shall survive Final Completion of the Work under Article 9.8 "FINAL COMPLETION AND FINAL PAYMENT."
- 4.7.4** If, within one year after the Date of Final Acceptance of the Work or designated portion thereof or within one year after acceptance by the Owner of designated equipment or within such longer period as may be prescribed by law or by the terms of the applicable special warranty required by the Contract Documents, any of the Work is found to be defective, not in accordance with the Contract Documents, or not in accordance with the guarantees and warranties specified in the Contract Documents, the Contractor shall correct it within five working days, or such other period as agreed, after receipt of written notice from the Owner or Owner's Project Manager to do so.
- 4.7.5** If at any time deficiencies in the Work are discovered that are found to have resulted from latent defects, gross mistakes, fraud or misrepresentation by the Contractor, any Subcontractor or Supplier, the Contractor will be liable for replacement or correction of such Work or any damage that the Owner has incurred, or will incur, related thereto, regardless of the time limit of any guarantees or warranty.
- 4.7.6** Any materials or other portions of the Work, installed, furnished, or stored on site that are not of the character or quality required by the specifications, or are otherwise not acceptable to the Owner's Project Manager shall be immediately removed and replaced by the Contractor to the satisfaction of the Owner's Project Manager when notified to do so by the Owner's Project Manager.
- 4.7.7** If the Contractor fails to correct defective or nonconforming Work as required by Article 4.7.4 or Article 4.7.5 or, if the Contractor fails to remove defective or nonconforming Work from the site, as required by Article 4.7.6, the Owner may elect to either correct such Work in accordance with Article 3.4 "OWNER'S RIGHT TO CARRY OUT THE WORK" or remove and store materials and equipment at the expense of the Contractor.
- 4.7.8** The Contractor shall bear the cost of making good all work of the Owner, separate contractors or others, destroyed or damaged by such correction or removal required under this Article, Article 13 "UNCOVERING AND CORRECTION OF WORK" or elsewhere in the Contract Documents.

4.8 TAXES

- 4.8.1** The Contractor shall pay all applicable Federal, State, and local taxes and duties for the Work or portions thereof provided by the Contractor that are legally enacted at the time the Contract is awarded, whether or not yet effective.

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Increases in the rates of such taxes and duties during performance of the Contract shall be the responsibility of the Contractor.

4.9 PERMITS, FEES AND NOTICES

4.9.1 The Contractor shall secure and pay for all permits, fees, licenses and inspections necessary for the proper execution and completion of the Work that are legally required at the time the proposals are received.

4.9.2 The Contractor shall give all notices and comply with all laws, ordinances, rules, regulations and lawful orders of any public authority bearing on the performance of the Work.

4.9.3 The Contractor shall have personnel on site that are qualified and have the proper certifications for Erosion and Sedimentation Control, Best Management Practice (BMP), and Storm Water Management (SWM), or any other Department of Environmental Quality (DEQ) certifications as required for any and all permits issued and/or required by the Work.

4.10 SUPERINTENDENT

4.10.1 The Contractor shall employ a competent Superintendent and necessary assistants who shall be in attendance at the Project site during the progress of the Work. The Superintendent shall be an authorized representative of the Contractor and all communications given to the Superintendent shall be as binding as if given to the Contractor.

4.10.2 The Superintendent shall be in attendance at the Project site not less than eight hours per day, five days per week, unless the job is closed down due to a general strike or conditions beyond the control of the Contractor or until termination of the Contract in accordance with the Contract Documents. It is understood that such Superintendent shall be approved in writing by the Owner and shall be the one who will continue in that capacity for the duration of the Project, unless the Superintendent ceases to be on the Contractor's payroll or his withdrawal is required or approved by the Owner. The Superintendent shall not be employed on any other project for or by the Contractor or any other entity during the course of the Work.

4.10.3 Such Superintendent shall be fluent in English and in such other languages as may be necessary to communicate effectively with all owner's representatives, employees and Subcontractors of the Contractor. This requirement may be satisfied by the on-site presence of a competent foreign language interpreter to English interpreter. Any costs associated with foreign language interpretation shall be borne by the Contractor.

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4.10.4 Any and all project documents, including but not limited to daily reports and logs, maintained by the Superintendent or the Contractor's employees or Subcontractors shall be in English. Any costs of foreign language translation shall be borne solely by the Contractor and shall not be a basis for any additional compensation or time extension from the Owner.

4.11 PROJECT SCHEDULES

4.11.1 The Schedule of Completion shall consist of the Contractor planning, scheduling, and constructing this project by using a Critical Path Method Project Schedule (CPM). The CPM shall be used for coordinating and monitoring all the Work specified in the Contract Documents including all activities of subcontractors, vendors, suppliers, utilities, and all other parties associated with the construction of the project. The CPM shall be based upon the entirety of the Contract Documents. All physical work and major procurement activities shall be included. The CPM shall be the Activity-On-Arrow type. The Contractor shall use either Primavera or SureTrak scheduling software.

The CPM utilized float: Float is defined as the amount of time between when an activity "can start" (the early start) and when an activity "must start" (the late start). Float is a shared commodity for the Owner and the Contractor and is not for the exclusive use or financial benefit of either party. Either party has the full use of the float until it is depleted.

4.11.2 Initial Critical Path Method Project Schedule (ICPM) shall consist of the following:

- a. Activity-On-Arrow Time Scale Diagram
- b. Total Float Computer sort
- c. Written Narrative (WN)
- d. Printed calendars. The printed calendars shall include a listing, description, and calendar form tabulation of all calendars used in the ICPM. The calendars shall contain the total number of anticipated work days required to complete all the Work required in the Contract. The calendars shall delineate the holidays, anticipated nonwork days, and bad weather days. An explanation of the Contractor's basis for determining nonwork and bad weather days shall be included with the calendars.
- e. Data disc containing all of the information for (a) thru (d). The format shall be compatible with the Owner's computer software.

The ICPM diagram shall be drafted to a scale that allows the I node and J node numbers of each activity to be printed adjacent to that activity. The activities shall be clearly defined. All restraints between activities shall be shown.

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The Contractor shall expend the entire Contract time specified in this Invitation for Bids. On Contracts with calendar date completions or calendar day durations, all planned activities shall have durations not exceeding 14 calendar days, except the activities required for the Owner's review and approval of the working drawings and material sources which shall be given a duration of not less than 30 calendar days. On Contracts with working day durations, these time periods shall be 10 working days and 25 working days.

All activities in the Contract Documents along with a written narrative explanation shall be identified in the ICPM. The Project Manager reserves the right to specify the number of activities, and to require at any time additional breakdown of the activities.

The Contractor shall provide a written narrative as part of the ICPM describing the original critical path, the sequence of work, number of shifts per day, number of hours per shift, composition and number of crews, and the equipment to be utilized on each activity. Subcontracting activities shall be listed and identified by activity number. Each activity shall be identified by physical location and phase of work. Abbreviations used in preparing the ICPM shall be explained in the written narrative.

The Contractor shall complete the proposed ICPM within 14 calendar days after receiving the Notice of Award and submit 5 sets to the Project Manager for review and approval. The Project Manager will review the Contractor's ICPM within 5 calendar days after the submittal. If required, the Project Manager will convene a Joint Review Conference at which time the Project Manager and Contractor may make corrections and adjustments to the proposed ICPM. If a revision is necessary due to the Project Manager's review or the Joint Review Conference, the proposed revisions shall be submitted, by the Contractor, within 7 calendar days after the initial review date to the Project Manager for another review. Revisions shall conform to the format used in the ICPM. The Project Manager will respond to the revised ICPM within seven calendar days after its receipt.

No construction work shall begin until the Project Manager has accepted the ICPM. Time charges shall begin no later than the on or before date of the Notice to Proceed. Any delay in starting work caused by the acceptance of the ICPM by the Project Manager will not be a basis for any monetary claim.

- 4.11.3** When the Project Manager notifies the Contractor that the ICPM has been accepted, that document will become the CPM of Record (CPMR). The Contractor shall be responsible for implementing and executing the Work specified in the Contract in strict conformance with the CPMR. The CPMR shall be the Contractor's work plan for completing the entire Contract as specified in the Contract Documents.

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Failure of the Contractor to adhere to the latest approved CPMR will be cause for the Owner to deny any and all requests for additional compensation or extensions of the Contract duration.

4.11.4 Revisions to the CPMR shall consist of one or more of the following:

- a. A change in duration of an activity.
- b. A change in the logic of the schedule.
- c. A change in the calendars.
- d. The deletion or addition of one or more activities.

The Contractor may submit a proposed revision to the CPMR at any time during the life of the Contract.

The Contractor shall submit a proposed revision to the CPMR whenever the activities differ from the accepted CPMR. Proposed revisions shall be submitted by the Contractor within 30-calendar days from the date on which the Contractor's activities deviated from the accepted CPMR. The revisions shall be submitted to the Project Manager in the same format used for the ICPM. The revisions shall include data from all CPMR Updates, which have been accepted by the Administration. The Written Narrative accompanying the revision shall describe the reason for the revisions, the critical path, and all logic and duration modifications to the CPMR. These shall include, but not be limited to, changes in the method or manner of the Work, changes in Specifications, extra work, addition or deletion of work, increased or decreased quantities, defective work and acceleration of the Work.

The Project Manager will review the CPMR and respond to the Contractor's proposed revision within 5 calendar days after its receipt. The Project Manager reserves the right to deny any proposed revision which adversely impacts the Owner, utilities, or other interested parties.

4.11.5 Any written request for an extension of time or change in incentive/disincentive date (if applicable) shall be accompanied by a revised CPMR, which documents the actual delay to the Contract completion date or incentive/disincentive date. The request shall include a written narrative of the events which would require an extension of the Contract time or incentive/disincentive date.

Only delays to activities, which affect the Contract completion date or incentive/disincentive date will be considered for a time extension. The extension of the specified Contract completion date or incentive/disincentive date will be based upon the actual number of calendar days the Contract completion date or incentive/disincentive date is adjusted. No extensions of the specified Contract completion date will be issued for work performed on activities with float.

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- 4.11.6 Monthly updates of the CPMR are required.** CPMR update submissions shall contain the activity data as specified in (a) thru (e) of the ICPM. The update shall describe the progress of the project to date. It shall include a description of the current critical path, the amount of float on the critical path, any delays or disruptions experienced by the Contractor during the period of the update, any change in manpower or equipment, the inclusion of any schedule revisions, and any potential delays or disruptions.

When a delay or a disruption to the Work is identified in the Written Narrative, which the Contractor believes to be the responsibility of the Owner, the Contractor shall submit a revision to the CPMR within 30 calendar days after the submittal of the updates.

- 4.11.7** The Owner and the Contractor will hold monthly job site progress meetings to discuss the progress of the project and update the CPMR. The Contractor shall arrange to have a representative of each subcontractor currently working on the project in attendance. The Contractor shall submit to the Project Manager the CPMR updates within 14 calendar days from the date of the monthly meeting. The Project Manager will review the update and advise the Contractor of its acceptability prior to the next monthly meeting.

4.12 RESPONSIBILITY FOR COMPLETION

- 4.12.1** The Contractor shall furnish such labor, materials, tools, equipment, and professional services and shall work such hours, including night shifts, overtime operations and Sundays and holidays, as may be necessary to ensure the performance of the Work within Milestone and Completion dates specified in the Owner/Contractor Agreement. If it becomes apparent to the Owner's Project Manager that the Work will not be completed within required Milestone or Completion dates, the Contractor agrees to undertake some or all of the following actions, at no additional cost to the Owner, in order to ensure, in the opinion of the Owner's Project Manager, that the Contractor will comply with all Milestone and Completion date requirements:

- .1 Increase labor, materials, tools, equipment and professional services;
- .2 Increase the number of working hours per shift, shifts per working day, working days per week, or any combination of the foregoing; and
- .3 Reschedule activities to achieve maximum practical concurrency of accomplishment of activities.

- 4.12.2** If the actions taken by the Contractor are not satisfactory, the Owner or the Owner's Project Manager may direct the Contractor to take any and all actions

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necessary to ensure completion within the required completion dates, without additional cost to the Owner. In such event, the Contractor shall continue to assume responsibility for his performance and for completion within the required dates.

4.12.3 If, in the opinion of the Project Manager, the actions taken by the Contractor pursuant to this Agreement or the progress or sequence of work are not accurately reflected on the Construction schedule, the Contractor shall revise such schedule to accurately reflect the actual progress and sequence of work.

4.12.4 This provision does not eliminate the Contractor's responsibility to comply with the Town noise ordinances, all Town permit requirements and all other applicable laws, regulations, rules, ordinances, resolutions, and permit requirements.

4.13 DOCUMENTS, OTHER SUBMITTALS AT THE SITE; AS-BUILT DRAWINGS

4.13.1 The Contractor and his Subcontractors shall maintain at the site, and at all times make available to the Owner and the Owner's Project Manager one record copy of all Drawings, Specifications, Addenda, Change Orders, and other Modifications, in good order and marked currently to record all changes made during construction, and approved Shop Drawings, Product Data, Samples, Mock Ups and other Submittals ("as-built drawings").

4.13.2 The Contractor shall prepare the as-built drawings by marking up two sets of prints and one electronic copy of the applicable Contract Drawings to portray as-built construction, in conformance with the DCSM. The prints shall be neatly and clearly marked to show all variations between the Work actually provided and that indicated on the Contract Drawings, and all utilities encountered in the Work. All drafting shall conform to good drafting practice and shall include such supplementary notes, legends and details as may be necessary for legibility and clear portrayal of the as-built construction. These drawings shall be marked promptly at the completion of the project and shall be turned over the Owner prior to Final Payment.

4.14 SHOP DRAWINGS, PRODUCT DATA, SAMPLES AND OTHER SUBMITTALS

4.14.1 The term "Shop Drawings" shall mean all drawings, diagrams, illustrations, brochures, schedules and other data which are prepared by Contractor, a Subcontractor, manufacturer, supplier or distributor and which illustrate the equipment, material or some portion of the Work.

4.14.2 The Contractor shall submit with reasonable promptness and in such sequence as to cause no delay in the Work or in the work of the Owner or any separate

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Contractor, all Shop Drawings, Product Data, Manuals, Samples, and Submittals required by the Contract Documents. All such submissions shall be made so as to cause no delay in the project, allowing the Owner or his designated representative fourteen (14) working days for review and checking.

- 4.14.3** By approving and submitting Shop Drawings, Product Data, Manuals, Samples and Submittals, the Contractor represents that he has determined and verified all materials, field measurements, and field construction criteria related thereto, and that he has checked and coordinated the information contained within such submittals with the requirements of the Work and of the Contract Documents. The Contractor shall adhere to any supplementary processing and scheduling instructions pertaining to any submittals that may be issued by the Owner's Project Manager.
- 4.14.4** Parts and details not fully indicated on the Contract Drawings shall be detailed by the Contractor in accordance with standard engineering practice. Dimensions on the Contract Drawings, as well as detailed drawings themselves, are subject in every case to measurements of existing, adjacent, incorporated and completed work that shall be taken by the Contractor before undertaking any work dependent on such data.
- 4.14.5** Where the Contract Documents call for the submittal of manufacturer's data to the Owner or the Owner's Project Manager for information only, such submittals shall be made before the commencement of any portion of the Work requiring such submission.
- 4.14.6** The Contractor shall not be relieved of responsibility for any deviation from the requirements of the Contract Documents by virtue of the review by the Owner or the Owner's Project Manager of Shop Drawings, Product Data, Samples or Manuals unless the Contractor has specifically informed the Owner's Project Manager in writing of such deviation at the time of submission and the Owner's Project Manager has given written approval to the specific deviation. The Contractor shall not be relieved from responsibility for errors or omissions in the Shop Drawings, Product Data, Samples or Manuals by the Owner or Owner's Project Manager's review thereof.
- 4.14.7** Shop drawings shall be submitted in such number of copies that three copies may be retained by the Project Manager or his designee after approval. Each submission shall be accompanied by a letter of transmittal in duplicate, listing the contents of the submission and identifying each item by reference to specification section or drawing. All Shop Drawings shall be clearly labeled with the name of the project and such information as may be necessary to enable their complete review by the Project Manager or his designee. Catalog plates and other similar material that cannot be so labeled conveniently shall be bound in suitable covers bearing the identifying data.

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- 4.14.8** Shop drawings shall be accompanied by all required certifications and other such supporting material, and shall be submitted in such sequence or in such groups that all related items may be checked together. When Shop Drawings cannot be checked because a submission is not complete, or because Shop Drawings on related items have not been received by the Project Manager or his designee, such Shop Drawings will be returned without action, and marked 'rejected' with the reason for rejection clearly stated. Incomplete or defective submittals shall also be returned without action, and marked 'rejected' with the reason for rejection clearly stated.
- 4.14.9** Shop Drawings shall have been reviewed by the Contractor and coordinated with all other related or affected work before they are submitted for approval and shall bear the Contractor's certification that the Contractor has checked and approved them as complying with all relevant information in the Contract Documents. Shop Drawings submitted without such certification and coordination will be returned to the Contractor without action and will be considered not a formal submission.
- 4.14.10** SAMPLES required by the specifications or requested by the Project Manager or his designee shall be submitted for approval. Samples shall be submitted in single units only, unless the Contractor desires additional units for the Contractor's own use. Each sample shall bear a label indicating the material represented, the name of the producer and the title of the Project. Approval of a sample shall be only for conformance with the design concept of the Project and compliance with the information given in the Contract Documents, and only for the characteristics or use named in such approval. Such approval shall not be construed to change or modify any Contract requirements or the Contract Price. Materials and equipment incorporated in the Work shall match the approved samples.
- 4.14.11** All TESTS of materials and finished articles shall be made by bureaus, laboratories or agencies approved by the Project Manager or his designee, and the certified reports of such tests shall be submitted to the Project Manager. All costs in connection with the testing shall be borne by the Contractor. Failure of any material to pass the specified tests or any test performed by the Project Manager or his designee will be sufficient cause for refusal to consider, under this Contract, any further materials of the same brand or make of that material. Samples of various materials delivered on the site or in place may be taken by the Project Manager or his designee for testing. Samples failing to meet the requirements of the Contract Documents will automatically void previous approvals of the items tested. See Article 7.5 for additional test requirements.

Unless otherwise specified, testing for soil compaction, soil suitability, concrete testing, etc. will be performed by or on behalf of the Contractor at the

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Contractor's expense. The Contractor shall furnish copies of all test results or related reports or documents to the Project Manager.

4.15 CUTTING AND PATCHING OF WORK

4.15.1 The Contractor shall be responsible for all cutting, fitting or patching that may be required to complete the Work and to make its several parts fit properly and in accordance with the Contract Documents.

4.15.2 The Contractor shall not damage or endanger any portion of the Work or the work of the Owner or any separate Contractors by cutting, patching or otherwise altering any work, or by excavation. The Contractor shall not cut or otherwise alter the work of the Owner or any separate Contractor except with the written consent of the Owner and of such separate Contractor. The Contractor shall not unreasonably withhold from the Owner or any separate Contractor his consent to cutting or otherwise altering the Work. The Owner shall not be required to accept work with a cut, a splice, or patch when such cut, splice or patch is not generally accepted practice for the particular work involved or is otherwise unworkmanlike in the opinion of the Owner or the Owner's Project Manager.

4.16 DRUG-FREE WORKPLACE

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

- .1 The Contractor will provide a drug-free workplace for the Contractor's employees. The Contractor agrees to 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.
- .2 The Contractor shall state in all solicitations or advertisements for employees placed by or on behalf of the Contractor that the Contractor maintains a drug-free workplace.
- .3 The Contractor will 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 the VPPA Section 2.2-4312, the employees of

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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.

4.17 NON-DISCRIMINATION IN EMPLOYMENT

During the performance of this Contract, the Contractor agrees to comply fully with VPPA § 2.2-4201 and § 2.2-4343.1 as follows:

- .1 The Contractor will not discriminate against any employee or applicant for employment because of race, religion, disability, color, sex or national origin, except where religion, sex or national origin is a bona fide occupational qualification reasonably necessary to the normal operation of the Contractor and the Contractor agrees to post in conspicuous places, available to employees and applicants for employment, notices setting forth the provisions of this nondiscrimination clause;
- .2 The Contractor, in all solicitations or advertisements for employees placed by or on behalf of the Contractor, will state that such Contractor is an equal opportunity employer;
- .3 Notices, advertisements and solicitations placed in accordance with Federal law, rule or regulation, shall be deemed sufficient for the purpose of meeting the requirements of this provision; and
- .4 The Contractor will include the provisions of paragraphs .1, .2, .3 above in every subcontract or purchase order of over \$10,000 so that the provisions will be binding upon every Subcontractor or vendor.
- .5 The Contractor will comply with the requirements VPPA Section 2.2-4343.1, Permitted Contracts with Certain Religious Organizations, as applicable.

4.18 SIGNS

The Contractor may at his option and without cost to the Owner, erect signs acceptable to the Owner on the site of the Contract 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.

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4.19 CLEANING UP

4.19.1 The Contractor at all times shall keep the project site and all surrounding public streets and neighboring property free from accumulation of waste materials or rubbish caused by his operations. At the completion of the Work and before Final Payment is made, he shall remove all his waste materials and rubbish from and about the Project as well as all his tools, equipment and surplus materials. The Contractor shall also thoroughly clean and leave reasonably dust free all interior of all buildings included in the Contract, and thoroughly clean all glass installed under the Contract including the removal of all paint and mortar splatters and other defacements.

4.19.2 If the Contractor fails to clean up during or at the completion of the Work, the Owner may do so as provided in Article 6.3 "OWNER'S RIGHT TO PERFORM DISPUTED WORK" and the cost thereof shall be charged to the Contractor.

4.19.3 The Contractor shall take all reasonable steps, including but not limited to providing a wash down area, to prevent mud, dirt, and other material from accumulating upon the public streets.

4.19.4 During and at the completion of the Work, the Contractor shall prevent site soil erosion, the runoff of silt 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 Virginia Erosion and Sediment Control Handbook, latest edition, and the Contract Documents.

4.20 ROYALTIES AND PATENTS

4.20.1 Contractor shall pay all license fees and royalties and assume all costs incident to the use in the performance of the Work of any invention, design, process, product or device which is the subject of patent rights or copyrights held by others. If a particular invention, design, process, product or device is specified in the Contract Documents for use in the performance of the Work and if to the actual knowledge of the Owner or Owner's Project Manager its use is subject to patent rights or copyrights calling for the payment of any license fee or royalty to others, the existence of such rights shall be disclosed by Owner in the Contract Documents. Contractor shall indemnify, defend and hold harmless Owner and Owner's Project Manager and anyone directly or indirectly employed by either of them from and against all claims, damages, losses and expenses (including attorneys' fees) arising out of any infringement of patent rights or copyrights incident to the use in the performance of the Work of any invention, design, process, product or device not specified in the Contract Documents, and shall defend all such claims in connection with any alleged infringement of such rights.

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4.21 ANTITRUST

By entering into a contract Contractor conveys sells assigns and transfers to the Owner all rights, title and interest in and to all causes of the action it now may have or hereafter acquire under the antitrust laws of the United States and the Commonwealth of Virginia, relating to the particular good(s) or service(s) purchased or acquired by the Owner under this contract.

4.22 INDEMNIFICATION

4.22.1 To the fullest extent permitted by law, the Contractor shall, at his sole cost and expense, indemnify, defend, and hold harmless the Owner, the Owner's Project Manager, their agents, representatives, employees, successors and assigns from and against all claims, actions, judgments, costs, liabilities, penalties, damages, losses and expenses, including but not limited to, attorneys' fees, arising out of or resulting from the performance of the Work, provided that any such claim, action, judgment, cost, liability, penalty, damage, loss or expense:

- .1 Is attributable to bodily injury, sickness, disease or death, or to injury to or destruction of tangible property (other than the Work itself) including loss of use resulting therefrom; and
- .2 Is caused in whole or in part by any negligent act or omission of the Contractor, any Subcontractor or supplier, anyone directly or indirectly employed by any of them or anyone for whose acts any of them may be liable, regardless of whether or not it is caused in part by a party indemnified hereunder.

The Contractor shall not be obligated to indemnify the Owner or the Owner's Project Manager hereunder for any damages or injuries, including death, the proximate cause of which is the sole negligence of the Owner or the Owner's Project Manager, consistent with Va. Code § 11-4.1.

Such obligation shall not be construed to negate, abridge, or otherwise reduce any other right or obligation of indemnity that would otherwise exist as to any party or person described in this Article 4.22

4.22.2 In any and all claims against the Owner and the Owner's Project Manager or any of their agents, representatives, or employees by any employee of the Contractor, any Subcontractor, anyone directly or indirectly employed by any of them, or anyone for whose acts any of them may be liable, the indemnification obligation under this Article 4.22 shall not be limited in any way by any limitation on the amount or type of damages, compensation or benefits payable by or for the Contractor or any Subcontractor under workers' compensation acts, disability benefit acts or other employee benefit acts.

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4.22.3 No provision of Article 4.22 shall give rise to any duties on the part of the Owner or the Owner's Project Manager, or any of their agents, representatives or employees.

4.22.4 The obligations of the Contractor under Article 4.22 shall not extend to the liability of the Owner's Project Manager, or the Owner's design architect or engineers, their agents or employees arising out of (a) the preparation or approval of maps, drawings, opinions, reports, surveys, Change Orders, designs or specifications, or (b) the giving of or the failure to give directions or instructions by Owner's Project Manager, his agents or employees provided such giving or failure to give is the primary cause of injury or damage.

4.23 PERSONS AUTHORIZED TO SIGN DOCUMENTS

The Contractor, within five days after the earlier of the date of a Notice to Proceed or the date of the Owner/Contractor Agreement shall file with the Owner's Project Manager a list of all persons who are authorized to sign documents such as contracts, certificates and affidavits on behalf of the Contractor and to fully bind the Contractor to all the conditions and provisions of such documents.

4.24 ASBESTOS AND OTHER HAZARDOUS SUBSTANCES

4.24.1 Whenever and wherever during the course of performing any work under this contract, the Contractor discovers the presence of asbestos or other hazardous substances or suspects the presence of any hazardous substances, he shall stop the work immediately, secure the area, notify the Owner and await positive identification of the suspect material. During the downtime in such a case, the Contractor shall not disturb any surrounding surfaces but shall protect the area with suitable dust covers. In the event the Contractor is delayed due to the discovery of asbestos, suspected asbestos or any other hazardous or suspected hazardous substances, then a mutually agreed extension of time to perform the Work shall be allowed the Contractor.

4.24.2 Any claims for extension of time shall be subject to the provisions of Article 8.

4.24.3 If the items/products to be purchased are "Hazardous Substances" as defined by 15 U.S.C. § 1261, then the Contractor certifies and warrants that the items or products to be delivered under the Contract shall be properly labeled as required by the foregoing sections and that by delivering the items/products, the Bidder does not violate any of the prohibitions of 15 U.S.C. § 1263.

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4.24.4 Material Safety Data Sheets (MSDS) and descriptive literature shall be provided with the submittal or delivery of each chemical and/or compound subject to Article 4.24.3. Failure on the part of the Contractor to submit such data may be cause for termination in accordance with Article 14.3.

4.25 RIGHT TO PUBLISH

The Contractor otherwise agrees that he will not publish, cause to be published, or otherwise disseminate any information of any nature relating to the Work performed under this Contract, except as may be approved by the Owner in writing.

4.26 MATERIALS AND EQUIPMENT LIST

4.26.1 At least ten (10) working days before the start of construction the Contractor shall submit to the Project Manager for approval a complete list of materials and equipment proposed for use in connection with the project. Partial lists submitted from time to time will not be considered.

4.26.2 After any material or piece of equipment has been approved, no change in brand or make will be permitted unless satisfactory written evidence is presented to prove that the manufacturer cannot make scheduled delivery of the approved material, or that material delivered has been rejected and the substitution of a suitable material is an urgent necessity, or that other conditions have become apparent which indicate that approval of such other material is in the best interest of the Owner.

END OF ARTICLE 4

GENERAL CONDITIONS

ARTICLE 5: SUBCONTRACTORS

5.1 DEFINITIONS

5.1.1 A Subcontractor is any firm, supplier, distributor or vendor that performs work for or furnishes services, equipment or supplies to or for the Contractor or another Subcontractor in conjunction with the Contract. The term Subcontractor is referred to throughout the Contract Documents as if singular in number and masculine in gender and means a Subcontractor or his authorized representative. Although the term Sub-subcontractor may appear within the Contract Documents, the term Subcontractor includes any person or entity that has a direct or indirect contract with the Contractor to perform any of the Work.

5.1.2 The Contractor shall be fully responsible to the Owner for all acts and omissions of his Subcontractors, and of persons and organizations directly or indirectly employed by them, and of persons and organizations for whose acts any of them may be liable, to the same extent that he is responsible for the acts and omissions of persons directly employed by him.

5.1.3 Nothing contained in the Contract Documents is intended to, nor shall it create, any contractual relationship between the Owner, the Owner's Project Manager, or any of their agents, consultants, employees, independent contractors, or representatives and any Subcontractor, but the Owner shall be entitled to performance of all obligations intended for its benefit, and to enforcement thereof.

5.1.4 The Owner's Project Manager will not deal directly with any Subcontractor. Communication will be made only through the Contractor. Subcontractors shall route requests for information or clarification through the Contractor to the Owner's Project Manager.

5.2 AWARD OF SUBCONTRACTS AND OTHER CONTRACTS FOR PORTIONS OF THE WORK

5.2.1 The Contractor shall within fourteen days after award of the Contract furnish to the Owner's Project Manager in writing the names of the persons or entities (including those who are to furnish materials or equipment fabricated to a special design) proposed for each of the principal portions of the Work. The Owner's Project Manager will promptly reply to the Contractor in writing stating whether the Owner has objection to any such proposed person or entity.

5.2.2 The Contractor shall not contract with any such proposed Subcontractor to whom the Owner has made objection under the provisions of Article 5.2.1. The Contractor shall not be required to contract with anyone to whom he has an objection.

GENERAL CONDITIONS

5.2.3 If the Owner objects to any proposed Subcontractor under Article 5.2.1, the Contractor shall name a substitute to whom the Owner has no objection within fifteen days.

5.2.4 The Contractor shall make no substitution for any Subcontractor previously proposed by the Contractor and not objected to by the Owner's Project Manager if the Owner makes objection to such substitution.

5.3 SUBCONTRACTUAL RELATIONS

5.3.1 By an appropriate agreement, written where legally required for validity, the Contractor shall require each Subcontractor, to the extent of the Work to be performed by the Subcontractor, to be bound to the Contractor by the terms of the Contract Documents, and to assume toward the Contractor all the obligations and responsibilities that the Contractor, by these Documents, assumes toward the Owner.

This agreement shall preserve and protect the rights of the Owner under the Contract Documents with respect to the Work to be performed by the Subcontractor. The subcontracting will not prejudice such rights, and shall allow to the Subcontractor, unless specifically provided otherwise in the Contractor-Subcontractor Agreements, the benefit of all rights, remedies and redress against the Contractor that the Contractor, by these Contract Documents, has against the Owner. Where appropriate, the Contractor shall require each Subcontractor to enter into similar agreements with his Subcontractors.

The Contractor shall make available to each proposed Subcontractor, prior to the execution of the Subcontract, copies of the Contract Documents to which the Subcontractor will be bound by this Article 5.3, and identify to the Subcontractor any terms and conditions of the proposed Subcontract that may be at variance with the Contract Documents. Each Subcontractor shall similarly make copies of such Contract Documents available to his Sub-subcontractors or Suppliers.

5.3.2 The Contractor shall be liable to and indemnify, defend and hold the Owner harmless from all costs, expenses, fees, attorney's fees, accountant's fees, damages and claims arising because of the Contractor's failure to comply with the provisions of this Article 5.3.

5.4 QUALIFICATION SUBMITTALS

5.4.1 Specific qualification submittals may be required of Subcontractors for certain critical items of the Work. Required qualification submittals are set forth in detail in the Contract Documents and shall be collected and submitted by the Contractor to the Owner's Project Manager for review and approval by the

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Owner and Owner's Project Manager. All information required of a single Subcontractor shall be contained in a single, complete submittal. The Contractor shall submit the required qualification information within ten days after receipt of the Owner's Project Manager's request.

5.4.2 The Owner may reject any proposed Subcontractor, or any qualification submittals related thereto, for the following reasons:

- .1 The Contractor's failure to submit requested information within the specified time; or
- .2 The Contractor's failure to provide all of the requested information; or
- .3 The Contractor's submission of a Subcontractor, or its qualifications, that are unacceptable to the Owner.

5.4.3 Should the Owner have objection to any proposed Subcontractor, the Contractor shall submit another firm for approval within fifteen days.

END OF ARTICLE 5

GENERAL CONDITIONS

ARTICLE 6: WORK BY OWNER OR BY SEPARATE CONTRACTORS

6.1 OWNER'S RIGHT TO PERFORM WORK AND TO AWARD SEPARATE CONTRACTS

6.1.1 The Owner reserves the right to perform work related to the Project with its own forces, and to award separate contracts in connection with other portions of the Project or other work on the site.

6.1.2 When separate contracts are awarded for different portions of the Project or other work on the site, the term Contractor in the Contract Documents in each case shall mean the Contractor who executes each separate Owner/Contractor Agreement.

6.2 MUTUAL RESPONSIBILITY

6.2.1 The Contractor shall afford other Contractors and the Owner reasonable opportunity for the introduction and storage of their materials and equipment and the execution of their work and shall properly connect and coordinate the Work with that of the Owner and other Contractors, to store his tools, materials and equipment in such orderly fashion at the site of the Work as will not unduly or unreasonably interfere with the progress of the Work or the work of any other Contractors.

6.2.2 If the execution or result of any part of the Work depends upon any work of the Owner or of any separate Contractor, the Contractor shall, prior to proceeding with the Work, inspect and promptly report in writing to the Owner's Project Manager any apparent discrepancies or defects in such work of the Owner or of any separate Contractor that render it unsuitable for such proper execution or result of any part of the Work under this Contract.

6.2.3 Failure of the Contractor to so inspect and report shall constitute an acceptance of the Owner or separate Contractor's work as fit and proper to receive the Work, except as to defects that may develop in the Owner's or separate Contractor's work after completion of the Work, and that the Contractor could not have discovered by its inspection prior to completion of the Work under this Contract.

6.2.4 Should the Contractor cause damage to the Work or property of the Owner or of any separate Contractor on the Project, or to other work on the site, or delay or interfere with the Owner's work on ongoing operations or facilities or adjacent facilities of the Contractor's work, the Contractor shall be liable for the same and, in the case of another Contractor, the Contractor shall attempt to settle such claim with such Contractor prior to such other Contractor's institution of litigation.

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6.3 OWNER'S RIGHT TO PERFORM DISPUTED WORK

6.3.1 If a dispute arises between the Contractor and separate Contractors as to their responsibility for cleaning up as required by Article 4.19 "CLEANING UP" or for accomplishing coordination as required by Article 6.4 "COORDINATION OF THE WORK," the Owner may carry out such Work and charge the cost thereof to the Contractors responsible therefor as the Owner's Project Manager shall determine.

6.4 COORDINATION OF THE WORK

6.4.1 By entering into this Contract, Contractor acknowledges that there may be separate Contractors on the Site whose work will be coordinated with that of his own. Contractor warrants and guarantees that he will cooperate with separate Contractors, and will do nothing to delay, hinder or interfere with the Work of other separate Contractors, the Owner or the Owner's Project Manager.

END OF ARTICLE 6

GENERAL CONDITIONS

ARTICLE 7: MISCELLANEOUS PROVISIONS

7.1 GOVERNING LAW

7.1.1 The Contract shall be governed by the law of the Commonwealth of Virginia, and shall be performed in accordance with the laws, ordinances, regulations, permits and resolutions of the Town of Leesburg. The sole venue for any litigation under this Contract shall be the Circuit Court of Loudoun County, Virginia. The conflicts of law provisions shall not be employed to apply the laws of any state other than those of the Commonwealth of Virginia to this Contract.

7.1.2 Each provision of law required to be inserted in this Contract shall be deemed inserted. If through mistake or otherwise, any provision is not properly inserted, the Contract shall be modified to include such provision upon the application of either party.

7.1.3 Where applicable, the Contractor shall meet or exceed all requirements of the Town of Leesburg Design and Construction Standards Manual and all other local, state and federal building codes.

7.2 SUCCESSORS AND ASSIGNS

7.2.1 The Contractor binds himself, his partners, successors, assigns and legal representatives to the Owner, its partners, successors, assigns and legal representatives in respect to all covenants, agreements and obligations contained in the Contract Documents. The Contractor shall not assign the Contract or sublet it as a whole without the written consent of the Owner, nor shall the Contractor assign any monies due or to become due to him under the Contract, without the previous written consent of the Owner and the Contractor's Surety. Nor shall any contract be entered into or assigned to any party that is debarred from doing business with or in the Commonwealth of Virginia.

7.2.2 In the event the Contractor desires to make an assignment of all or part of the contract or any monies due or to become due under this Contract, the Contractor shall file a written consent of Surety, together with a copy of the proposed Assignment with the Owner or the Owner's Project Manager. In the event the Contractor assigns all or any part of the monies due or to become due under this Contract, the instrument or assignment shall state that the right of assignees in and to any monies due to or to become due to the Contractor shall be subject to prior liens and claims of all persons, firms and corporations that provided labor, services, or furnished material and equipment during the performance of the Work. The rights of assignees shall further be subject to the payment of any liens, claims or amounts due to Federal or State governments, and to all rights of retention and set-off granted to the Owner by the Contract Documents.

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7.3 CLAIMS FOR DAMAGES

7.3.1 Should the Contractor suffer injury or damage to person or property because of any act or omission of the Owner or of any of its employees, agents or others for whose acts either is legally liable, claim shall be made in writing to the Owner within thirty days after the first observance of such injury or damage; otherwise, the Contractor shall have waived any and all rights he may have against the Owner, or its employees, representatives and agents.

7.4 DISPUTES

7.4.1 A claim, if any, shall be made in writing and submitted by the Contractor to the Owner, the Project Manager and the Leesburg Town Attorney within ten calendar days after the occurrence of events giving rise to the claim. A claim is limited to events rising out of or relating to the Contract. Failure to file a written claim as required herein shall constitute an absolute waiver of any claim of any sort.

7.4.2 The parties shall first endeavor to resolve any disputes, claims or other matters in question between them through direct negotiations, and if such direct negotiations fail, by non-binding mediation, with the site of the mediation being the Town of Leesburg, Virginia.

7.4.3 If the procedures of subparagraph 7.4.2 have been followed, but more than 90 days have passed since a party has requested mediation, and the dispute, claim or matter in question remains unresolved, then either party may institute a lawsuit in the Circuit Court of Loudoun County, Virginia, which is agreed to be the sole and exclusive venue, and may pursue all available appeals in Virginia state courts, to the extent they have jurisdiction.

7.4.4 Nothing in paragraphs 7.4.1 or 7.4.2 shall prevent a party from seeking temporary injunctive or other temporary equitable relief in the Loudoun County Circuit Court if circumstances so warrant.

7.4.5 In the event of any dispute, claim, or other matter in question arising, Contractor shall continue its performance diligently during its pendency as if no dispute, claim or other matter in question had arisen. During the pendency of any dispute in connection with the payment of moneys, Contractor shall be entitled to receive payments for non-disputed items.

7.4.6 Notwithstanding any other provision hereof, the Contractor expressly waives all claims against the Owner for consequential damages arising out of or relating to this Contract. This waiver includes losses of financing, business and reputation, bonding capacity, and loss of profit other than profit arising directly from the Work where otherwise permitted in the Contract.

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7.5 TESTS

7.5.1 If the Contract Documents, laws, ordinances, rules, regulations or orders of any public authority having jurisdiction require any portion of the Work to be inspected, tested, or approved, the Contractor shall give the Owner's Project Manager five days notice of its readiness so the Owner's Project Manager may observe such inspection, testing, or approval. The Contractor shall bear all costs of such inspections, tests or approvals conducted by public authorities.

7.5.2 If the Owner's Project Manager determines that any Work requires special inspection, testing, or approval that Article 7.5.1 does not include, the Owner's Project Manager will order the Contractor to make arrangements for such special inspection, testing or approval, and the Contractor shall give the Owner's Project Manager five days notice of such inspection. If such special inspection or testing reveals a failure of the Work to comply with:

- .1 The requirements of the Contract Documents, or
- .2 The conformance of the Work with laws, ordinances, rules, regulations, or orders of any public authority having jurisdiction.

The Contractor shall bear all costs of the Work, including compensation for the Owner's Project Manager and any additional services made necessary by such failure.

7.5.3 Inspections and tests required under Article 7.5.2 to establish compliance with the Contract Documents will be made by a testing agency employed by the Owner. If the initial tests indicate non-compliance with the Contract Documents, the Contractor shall bear the costs thereof and any subsequent testing occasioned by non-compliance shall be performed by the same agency and the cost thereof shall be borne by the Contractor. Representatives of the testing agency shall have access to the Work at all times. The Contractor shall provide facilities for such access in order that the agency may properly perform its functions.

7.5.4 Certificates of inspection, testing or approval required by public authorities shall be secured by the Contractor and promptly delivered by him to the Owner's Project Manager, in adequate time to avoid delays in the Work or Final Payment.

7.5.5 The Contractor shall pay for and have sole responsibility for inspection or testing performed exclusively for his own convenience and for tests necessary because of Contractor's or Subcontractor's errors, omission, or noncompliance with Contract Documents.

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7.5.6 All materials and workmanship (if not otherwise designated by the specifications) shall be subject to inspection, examination and test by the Owner or the Owner's Project Manager, at any time during the manufacture or construction and at any place where such manufacture or construction are carried on. Special, full-sized and performance tests shall be described in the specifications. Without additional charge, the Contractor shall furnish promptly all reasonable facilities, labor and materials necessary to make tests safe and convenient.

7.5.7 It is specifically understood and agreed that an inspection and approval of the materials or work by the Owner or the Owner's Project Manager shall not in any way subject the Owner to pay for the said materials or work or any portion thereof, even though incorporated in the Work, if said materials or work shall in fact turn out to be not in compliance with the Contract Documents or otherwise defective.

7.6 UNENFORCEABILITY OF ANY PROVISION

7.6.1 If any provision of this Contract is held as a matter of law to be unenforceable or unconscionable, the remainder of the Contract shall be enforceable without such provision.

7.7 AVAILABILITY OF LANDS

7.7.1 Owner shall furnish, as indicated in the Contract Documents, the lands upon which the Work is to be done, rights-of-way or easements for access thereto. The Owner reserves the right to delay the notice to proceed with the Contract Work in order to secure rights of way, easements or to relocate utilities, such as sewer, water, gas, electricity, cable television and other services.

7.7.2 If the Contractor requires additional land for temporary construction facilities and for storage of materials and equipment other than the areas available on the site or right-of-way, or as otherwise furnished by the Owner, the Contractor shall provide such other lands and access thereto entirely at the Contractor's own expense and without liability to the Owner. The Contractor shall not enter upon private property for any purpose without written permission. The contractor shall provide to the Owner evidence of written permission for entry onto private property for the purpose of temporary construction facilities and/or storage of materials and equipment.

7.8 NONEXCLUSIVITY OF REMEDIES

All remedies available to the Owner under the Contract are cumulative and no such remedy shall be exclusive of any other remedy available to the Owner.

END OF ARTICLE 7

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ARTICLE 8: TIME

8.1 DEFINITIONS

8.1.1 The Contract Time is the period set forth in the Owner/Contractor Agreement for Final Completion of the Work as defined in Article 8.1.4, including authorized extensions thereto.

8.1.2 The date of commencement of the Work is the date established in the Notice to Proceed issued by the Owner.

Submission by the Contractor of all Certificates of Insurance, Performance and Payment Bonds and their approval by the Owner are conditions precedent to the issuance of the Notice to Proceed. Availability of lands under Article 7.7 is also a condition precedent to the issuance of the Notice to Proceed. The Contractor shall not commence the Work or store materials or equipment on site until written Notice to Proceed is issued or until the Contractor otherwise receives the written consent of the Owner.

8.1.3 The date of Substantial Completion of the Work or designated portion thereof is the date certified by the Owner's Project Manager that the Work or a designated portion thereof is sufficiently complete, in accordance with the Contract Documents, so the Owner can fully occupy or utilize the Work or designated portion thereof for the use for which it is intended, with all of the Project's parts and systems operable as required by the Contract Documents. Only punch list work and any final cleaning beyond that needed for the Owner's full use may remain for Final Completion.

8.1.4 The date of Final Completion of the Work is the date certified by the Owner's Project Manager when the Work is complete, to include punch list work and final clean up, in accordance with the Contract Documents and the Owner may fully occupy or fully utilize the Work for the use for which it is intended.

8.1.5 If the date or time of completion is included in the Contract, it shall be the Date of Final Completion as defined in Article 8.1.4, including authorized extensions thereto, unless otherwise provided.

8.1.6 The term Day as used in the Contract Documents shall mean calendar day unless otherwise specifically designated. All dates shall mean midnight of the indicated day unless otherwise stipulated.

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8.2 PROGRESS AND COMPLETION

8.2.1 All time limits stated in the Contract Documents are of the essence of this Contract.

8.2.2 The Contractor shall prosecute the Work diligently to Final Completion.

8.3 DELAYS AND EXTENSIONS OF TIME

8.3.1 The time during which the Contractor is delayed in the performance of the Work, by the acts or omissions of the Owner, the Owner's Project Manager or their employees or agents, acts of God, unusually severe and abnormal climatic conditions, fires, floods, epidemics, quarantine restrictions, strikes (not to exceed the actual duration of the strike), riots, terrorism, civil commotions, war or freight embargoes, or other conditions beyond the Contractor's control and that the Contractor could not reasonably have foreseen and provided against, shall be added to the Contract Time; provided, however, that no claim by the Contractor for an extension of time for delays will be considered unless made in compliance with the requirements of this Article and other provisions of the Contract Documents.

8.3.2 The Contract Time shall be adjusted only for Change Orders pursuant to Article 12, "CHANGES IN THE WORK," Article 3.3, "OWNER'S RIGHT TO STOP OR SUSPEND THE WORK," and Article 8.3, "DELAYS AND EXTENSIONS OF TIME." If the Contractor requests an extension of the Contract Time, he shall furnish such justification and supporting evidence as the Owner's Project Manager may deem necessary for a determination of whether the Contractor is entitled to an extension of time under the provisions of the Contract.

8.3.3 The burden of proof to substantiate a claim for an extension of the Contract Time shall rest with the Contractor, including evidence that the cause was beyond his control. The Owner's Project Manager shall base his findings of fact and decision on such justification and supporting evidence and shall advise the Contractor in writing thereof.

8.3.4 The Contractor shall not be entitled to and hereby expressly waives any extension of time resulting from any condition or cause unless the request for an extension of time is made in writing to the Owner's Project Manager within seven days of the first instance of delay.

8.3.5 Any claim for an extension of time for a delay for any cause shall be made by filing a written notice of claim with the Owner and the Owner's Project Manager at the beginning of the occurrence or within seven days thereafter if the resulting delay was not reasonably foreseeable. If the asserted cause of delay is weather,

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such notice shall be given within seven days after asserted commencement of the claim delayed. The notice of claim shall state the circumstances of the occurrence, the justification for the delay and for the extension of time, and the estimated duration of the delay and of the extension requested. The claim for an extension of time for weather delays shall be further substantiated by weather data collected during the period of delay at the construction site. Said data must demonstrate that an actual departure from normal weather occurred at the work site during the dates in question. Within seven days after the cause of delay has been remedied, the Contractor shall give written notice to the Owner and the Owner's Project Manager of the actual time extension requested as a result of the claimed delay. Failure to file either of the notices as required herein shall constitute an absolute waiver of any claims resulting from a delay or any sort.

The anticipated adverse weather days per month are shown in the chart below.

<u>Jan</u>	<u>Feb</u>	<u>Mar</u>	<u>Apr</u>	<u>May</u>	<u>June</u>	<u>July</u>	<u>Aug</u>	<u>Sept</u>	<u>Oct</u>	<u>Nov</u>	<u>Dec</u>
8	7	7	8	8	7	5	6	4	6	5	5

The above chart will constitute the base line for monthly weather time evaluations. Actual adverse weather days will be recorded on a calendar day basis (including holidays and weekends), and compared to the anticipated monthly adverse monthly days based on the above chart. The number of actual adverse weather days shall be calculated chronologically from the first day to the last day in each month.

- 8.3.6** Any extension of time beyond the date of completion fixed by the Contract shall not be effective unless granted in writing, signed by the Owner.
- 8.3.7** The Contractor shall be entitled to an extension of time for delay which in the opinion of the Owner is entirely beyond the expectation and control of the Contractor by suspension of work pursuant to Article 3, or by strikes, lockouts, fire, insurrection, war, lightning, hurricane, and tornado. The Contractor shall be entitled to an extension of time for such causes only for the number of days of delay that the Owner may determine to be due solely to such causes and only to the extent that such occurrences actually delay the completion of the Project. Any request for extension of time shall be accompanied by detailed documentation of which specific schedule activities were affected, when they were affected and for what duration.
- 8.3.8** No extension of time will be granted to the Contractor for delays occurring to parts of the Work that have no measurable impact on the competition of the total Work under this Contract; nor will extension of time be granted for delays to

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parts of the Work that are not located on the Critical Path as reflected on the approved construction schedule at the time of such delay.

- 8.3.9** Delays in the delivery of equipment or material purchased by the Contractor or his Subcontractors (including Owner-selected equipment), or in the submission of required drawings or specifications by the Contractor's or its Subcontractor's materialmen, manufacturers or dealers, or in the performance of any of the Contractor's Subcontractors or caused by the performance of any of the Contractor's Subcontractors, shall not be considered as a just cause for delay. The Contractor shall be fully responsible for the timely submission, ordering, scheduling, expediting, delivery and installation of all equipment, materials and drawings.
- 8.3.10** Within sixty days after the Contractor files the notice of the actual duration of the extension of time as required herein, the Owner's Project Manager shall present his written opinion to the Owner as to whether an extension of time is justified, and, if so, his recommendation as to the number of days for time extension. The Owner will make the final decision on all requests for extension of time. The Owner's written decision shall be presented to the Contractor within thirty days from receipt of the Owner's Project Manager's recommendation. All such decisions made by the Owner shall be binding and conclusive upon the Contractor.
- 8.3.11** With respect to suspensions of work under Article 3, the Contractor may be entitled to an extension of time if the claim for such extension is submitted in accordance with the requirements of this Article, and if the suspension is not due to any act or omission of the Contractor, any Subcontractor or Sub-subcontractor or any other person or organization for whose acts or omission the Contractor may be liable.
- 8.3.12** An extension of time shall be the sole remedy under this Contract for any reasonable delay caused by any reason or occurrence. The Contractor acknowledges such extension of time to be its sole remedy hereunder, and agrees to make no claim for monetary damages of any sort for delay in the performance of this Contract occasioned by or in any way related to or arising from any act or omission to act of the Owner or the Owner's Project Manager or any representatives of the Owner or any representatives of the Owner's Project Manager, or because of any injunction which may be brought against the Owner or the Owner's Project Manager.
- 8.3.13** As a condition precedent to such additional compensation for unreasonable delay, the Contractor shall satisfy all notice and submission requirements set forth in the Contract Documents for approval of any extension of Contract Time or any change in the Contract Price.

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8.3.14 If the Contractor asserts an unwarranted claim for additional compensation for unreasonable delay, the Contractor shall be liable to the Owner and shall pay the Owner all costs incurred by the Owner in investigating, analyzing, negotiating, and litigating the claim.

8.3.15 This Article shall be construed to be included where applicable in every portion of the Contract Documents regardless of whether or not it is specifically referenced therein.

END OF ARTICLE 8

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ARTICLE 9: PAYMENTS AND COMPLETION

9.1 CONTRACT PRICE

9.1.1 Unless all or a part of the Contract is based on unit prices, the Contract Price is stated in the Contract and, including authorized adjustments thereto, is the firm, fixed price amount payable by the Owner to the Contractor for the performance of the Work under the Contract Documents. The Contract Price includes, but is not limited to, the Contractor's profits and general overhead and all costs and expenses of any nature whatsoever (including without limitation taxes, labor and materials), foreseen or unforeseen, and any increases in said costs and expenses, foreseen and unforeseen, incurred by the Contractor on this project. The Contractor agrees to assume all increases in costs of any nature whatsoever that may develop during the performance of the Work. The Contract Price includes all applicable Federal, State and local taxes and duties.

9.2 SCHEDULE OF VALUES

9.2.1 Within ten days after the Notice to Proceed is issued, the Contractor shall submit to the Owner's Project Manager a Schedule of Values, allocated to the various portions of the Work including mobilization and demobilization. This schedule, supported by data from the approved Progress Schedule, shall be used as a basis for the Contractor's Applications for Payment upon approval by the Owner's Project Manager. The Schedule of Values shall not alter in any way the firm, fixed price or lump sum contract price. The Contractor shall not front-end load or otherwise assign disproportionate amounts to the Schedule of Values.

9.2.2 If at any time the Contractor expects to receive an amount for a monthly progress payment larger than that indicated by the Schedule of Values and the approved Construction Schedule, the Contractor shall notify the Owner at least thirty days in advance of that payment so that the necessary allocation of funds can be processed. If the Contractor fails to give such notice, the Owner may defer such excess payment to the following progress payment.

9.2.3 With respect to any portion of the Contract subject to unit prices, the schedule of unit prices in the accepted bid shall be used as the basis for preparing Applications for Payment, and each partial payment shall represent the total value of all units of work completed, computed at the unit prices stated in the Contract, less the aggregate of previous payments and retainage. Final payment will be based on the actual quantities performed and justified on as-built drawings.

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9.3 APPLICATIONS FOR PAYMENT

- 9.3.1** The Owner shall make progress payments monthly as the Work proceeds on Applications for Payment approved by the Owner's Project Manager.
- 9.3.2** Prior to the date for each progress payment established in the Contract, the Contractor, in accordance with any Supplementary Conditions concerning schedules or payments, shall submit to the Owner's Project Manager an itemized Application for Payment, supported by such data substantiating the Contractor's right to payment as the Owner's Project Manager may require, including but not limited to the Contractor's certification that all work for which payment is requested has been completed in full accordance with the Contract Documents, copies of requisitions from Subcontractors and reflecting retainage, if any, as provided elsewhere in the Contract Documents. The Contractor shall certify that he has paid all due and payable amounts for which previous Certificates for Payment were issued and payments received from the Owner.
- 9.3.3** The Owner will retain five percent of the amount of all progress payments until the Work is substantially completed and accepted, whether or not the Owner has occupied any or all of the Project before such time.
- 9.3.4** The Contractor warrants that title to all Work, materials and equipment covered by an Application for Payment will pass to the Owner either by incorporation in the construction or upon the receipt of payment by the Contractor, whichever occurs first, free and clear of all liens, claims, security interests or encumbrances, hereinafter referred to in this Article 9 as "LIENS". The Contractor further warrants that no Work, materials or equipment covered by an Application for Payment will have been acquired by the Contractor, or by any other person performing Work at the site or furnishing materials and equipment for the Project, subject to an agreement under which an interest therein or an encumbrance thereon is retained by the seller or otherwise imposed by the Contractor or such other person.
- 9.3.5** Unless otherwise provided in the specifications the Owner will make partial payments to the Contractor on the basis of a duly certified and approved estimate of the Work performed during the preceding calendar month as certified by the Owner's Project Manager.
- 9.3.6** The Contractor may, in preparing estimates, take into consideration the material delivered on site and preparatory work done, if properly documented as required by this Contract, or as may be required by the Owner or the Owner's Project Manager so that the quantities may be verified.
- 9.3.7** The Contractor may, in preparing estimates, take into consideration material such as large pieces of equipment and items purchased specifically for the project, but

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stored off the site within the Commonwealth of Virginia, and these items may be considered for payment at the sole discretion of the Owner, provided that 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 days prior to the submission of the payment request, through the Owner's Project Manager, that specific items will be stored off site in a designated secure place within the Commonwealth of Virginia. The Schedule of Values must be detailed to separately indicate both the value of the material and of the labor/installation for trades requesting payment for stored materials. The Contractor warrants by giving such notification and by requesting payment for material stored off-site that the storage location is safe and suitable for the type of material stored and agrees that loss of such material shall not relieve him of the obligation to furnish these types and quantities of materials for the project and on a schedule to meet the time completion requirements of the Contract, subject to Article 8.
- .2 Such notification, as well as the payment request, shall:
 - a. itemize the quantity of such materials, and document with invoices the cost of said materials;
 - b. indicate the identification markings used on the materials. Such markings shall clearly reference the materials to the Project;
 - c. State the specific location of the materials. The location must be within reasonable proximity to the job site within the Commonwealth of Virginia;
 - d. State 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 is agreeable to such payment;
 - e. Certify that adequate all-risk insurance has been obtained by the Contractor on the materials. Such insurance shall be in the name of the Owner and the Contractor.
- .3 The Owner's Project Manager shall indicate, in writing, to the Owner that submittals for such materials have been reviewed and meet the requirements of the drawings and specifications of the

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Contract documents, that the stored materials meet the requirement of the drawings and specifications, and that such material conforms to the approved submittals.

- .4 The Owner, through the Owner's Project Manager, shall notify the Contractor in writing of his agreement to prepayment for materials.
- .5 The Contractor shall notify the Owner in writing, through the Owner's Project Manager, when the materials are to be transferred to the site and when the materials are received at the site.
- .6 No partial payment shall be made until the appropriate Certificates of Insurance have been provided.
- .7 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 the restoration of any damaged Work or as a waiver of the right of the Owner to require the fulfillment of all the terms of the Contract.

9.4 CERTIFICATES FOR PAYMENT

9.4.1 The Owner's Project Manager will within ten days after receipt of the Contractor's Application for Payment, either approve the Application for Payment for such amount as he determines is properly due, or notify the Contractor in writing of his reasons for not approving the Application for Payment as provided in Article 9.6 "PAYMENTS WITHHELD."

9.4.2 The submission and approval of the Progress Schedule and monthly updates thereof, as required by any Supplementary Conditions concerning Schedules, shall be part of the application upon which progress payment shall be made. The Contractor shall be entitled to progress payments only as determined from the currently Approved and Updated Progress Schedule.

9.5 PROGRESS PAYMENTS

9.5.1 After an Application for Payment has been approved by the Owner's Project Manager, the Owner shall make payment in the manner and within the time provided in the Contract Documents.

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9.5.2 In accordance with Title 2.2-4354, Va. Code. Ann., Contractor is obligated to take one of the two following actions within seven (7) days after receipt of amounts paid to the Contractor by the Owner for work performed by any Subcontractor under this Contract:

- .1 Pay the subcontractor for the proportionate share of the total payment received from the Owner attributable to the Work performed by the Subcontractor under this Contract; or
- .2. Notify the Owner and the Subcontractor, in writing, of the Contractor's intention to withhold all or a part of the Subcontractor's payment with the reason for nonpayment.

The Contractor is obligated to provide its social security numbers and if a proprietorship, partnership, or corporation, they must provide its federal employer identification number.

The Contractor is obligated to pay interest to Subcontractors 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 under this Contract, except for amounts withheld as allowed in Article 9.5.2.2, above. It is herewith provided that interest shall accrue at 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.

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 with respect to each lower-tier Subcontractor.

The Contractor's obligation to pay an interest charge to a Subcontractor pursuant to the above provisions shall not be construed to be an obligation of the Owner. A Contract modification may not be made for the purpose of providing reimbursement for such interest charge. A cost reimbursement claim may not include any amount for reimbursement for such interest charge.

9.5.3 The Owner's Project Manager may, on request and at his discretion, furnish to any Subcontractor, if practicable, information regarding the percentages of completion or the amounts applied for by the Contractor, and the action taken thereon by the Owner's Project Manager on account of Work done by such Subcontractor.

9.5.4 The Owner has no obligation to pay or to see to the payment of any monies to any Subcontractor except as may otherwise be required by law.

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9.5.5 No Application for Payment, nor any progress payment, nor any partial or entire use or occupancy of the Project by the Owner, shall constitute an acceptance of any Work that is not in accordance with the Contract Documents.

9.5.6 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; except in instances where further appropriations are required by the Owner or where the issuance of further bonds is required, in which case, payment shall be made within thirty days after the effective date of such appropriation or within thirty days after receipt of bond proceeds by the Owner.

9.6 PAYMENTS WITHHELD

9.6.1 The Owner's Project Manager may decline to approve the Application for Payment or reduce payment or because of subsequently discovered evidence or subsequent observations, he may nullify the whole or any part of any Application for Payment previously approved to such extent as may be necessary in his opinion to protect the Owner from loss, because of:

- .1 Defective Work not remedied;
- .2 Third party claims filed, whether in court, in arbitration or otherwise, or reasonable evidence indicating probable filing of such claims;
- .3 Failure of the Contractor to make payments properly to Subcontractors;
- .4 Reasonable evidence that the Work cannot be completed for the unpaid balance of the Contract Price;
- .5 Damage to the Owner or to a separate contractor;
- .6 Reasonable evidence that the Work will not be completed within the Contract Time, or within any Contract Milestones as established in the Contract Documents;
- .7 Failure or refusal of the Contractor to carry out the Work in accordance with or to otherwise substantially or materially comply with the Contract Documents;
- .8 Failure or refusal of the Contractor to properly schedule and coordinate the Work, or to provide Progress Schedules, reports and updates; and

GENERAL CONDITIONS

.9 Failure or refusal of the Contractor to fully comply with the provisions of Article 4.13 "DOCUMENTS, OTHER SUBMITTALS AT THE SITE; AS-BUILT DRAWINGS."

9.6.2 When the above grounds in Article 9.6.1 are removed, payment shall be made for amounts withheld because of them.

9.7 SUBSTANTIAL COMPLETION

9.7.1 When the Contractor considers that the Work, or a designated portion thereof which is acceptable to the Owner's Project Manager, is substantially complete as defined in Article 8.1.3, the Contractor shall prepare for submission to the Owner's Project Manager a list of items that in his opinion are to be completed or corrected and shall request in writing that the Owner's Project Manager perform a Substantial Completion inspection. The Owner's Project Manager shall review the Contractor's list and will compile a punch list of items to be corrected and completed. The failure to include any items on such list does not alter the responsibility of the Contractor to complete all Work in accordance with the Contract Documents. When the Owner's Project Manager on the basis of an inspection determines that the Work or designated portion thereof is substantially complete, he will then prepare a Certificate of Substantial Completion that will establish the Date of Substantial Completion, state the responsibilities of the Owner and the Contractor for security, maintenance, heat, utilities, damage to the Work, and insurance, and shall fix the time within which the Contractor shall complete the items listed.

The Certificate of Substantial Completion shall be issued to the Contractor for his written acceptance of the responsibilities assigned to him in such Certificate and returned to the Owner's Project Manager within five days after issuance

9.7.2 The Contractor shall have thirty days from the Date of Substantial Completion to complete all items on the punch list to the satisfaction of the Owner's Project Manager. The Owner's Project Manager shall have the option to correct any and all punch list items not completed by the Contractor within thirty days from the Date of Substantial Completion by utilizing his own forces, those of the Owner, or by a separate Contractor. The cost of such correction of remaining punch list items by the Owner or others shall be deducted from the Final Payment to the Contractor.

9.7.3 The issuance of the Certificate of Substantial Completion does not indicate final acceptance of the Project by the Owner, and the Contractor is not relieved of any responsibility for the Project except as specifically stated in the Certificate of Substantial Completion.

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9.7.4 Should the Owner's Project Manager determine that the Work or a designated portion thereof is not substantially complete, he shall provide the Contractor a written notice stating why the project or designated portion is not substantially complete. The Contractor shall expeditiously complete the Work and shall request in writing that the Owner's Project Manager perform a Substantial Completion reinspection and the costs, if any, associated with such reinspection shall be assessed to the Contractor.

9.8 FINAL COMPLETION AND FINAL PAYMENT

9.8.1 Upon receipt of the documentation required by Article 9.8.3, and of written notice that the Work is ready for final inspection and acceptance, the Owner's Project Manager will promptly make such inspection and, when he finds the Work acceptable under the Contract Documents and the Contract fully performed, he will issue a Certificate of Final Completion to the Contractor. Upon his receipt of the Final Completion Certificate, the Contractor may submit his Application for Final Payment to the Owner's Project Manager for his approval. Final Payment shall be made in full to the Contractor within thirty calendar days after the approval by the Owner's Project Manager of the Application for Final Payment provided that the requirements of Article 9 have been fulfilled, except for an amount agreed upon for any Work remaining uncompleted for which the Owner is entitled a credit under the Contract Documents.

9.8.2 Should the Owner's Project Manager determine that the Work or a designated portion thereof is not complete, he shall provide the Contractor a written notice stating why the Project or designated portion is not complete. The Contractor shall expeditiously complete the Work and shall request in writing that the Owner's Project Manager perform a Final Completion reinspection and the costs, if any, associated with such reinspection shall be assessed to the Contractor.

9.8.3 Neither the Final Payment nor the remaining retained percentage shall become due until the Work is free and clear of any and all Liens and the Contractor submits to the Owner's Project Manager:

- .1 An affidavit that all payrolls, bills for materials and equipment, and other indebtedness connected with the Work for which the Owner or its property might in any way be responsible, have been paid or otherwise satisfied;
- .2 Consent of surety to Final Payment, if necessary;
- .3 As-built drawings, operation and maintenance manuals and other project closeout submittals, as required by the Contract Documents;

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- .4 A fully executed and notarized Release of claims in such form as may be designated by the Owner; and
- .5 A written certification that:
 - a. the Contractor has reviewed the requirements of the Contract Documents;
 - b. the Work has been inspected by the Contractor for compliance with all requirements of the Contract Documents;
 - c. pursuant to this inspection, the Contractor certifies and represents that the Work complies in all respects with the requirements of the Contract Documents;
 - d. the Contractor further certifies and represents that all equipment and systems have been installed and tested in accordance with the Contract Documents and the Owner personnel training in the proper operation and maintenance of equipment is complete; and
 - e. the Contractor provides construction releases as required by the Contract Documents from each property owner on whose property an easement for construction of this project has been obtained by the Owner, such release to be in the forms to be provided by the Owner. This release is for the purpose of releasing the Owner and the Contractor from liability, claims, and damages arising from construction operations on or adjacent to the easement and includes proper restoration of the property after construction. It shall be the Contractor's sole responsibility to obtain all such releases and furnish them to the Owner.

9.8.4 The making of Final Payment shall constitute a waiver of all claims by the Owner against the Contractor except those arising from:

- .1 Unsettled liens and claims against the Owner;
- .2 Faulty, defective or non-conforming Work discovered or appearing after Substantial or Final Completion;
- .3 Failure of Work to comply with the requirements of the Contract Documents; and

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.4 Terms of any warranties contained in or required by the Contract Documents.

9.8.5 The acceptance of Final Payment shall constitute a waiver of all claims by the Contractor except those previously made in writing and identified by the Contractor as unsettled at the time of the Application for Final Payment.

9.8.6 Warranties required by the Contract Documents shall commence on the Date of Final Acceptance of the Work or designated portion thereof unless otherwise provided in writing.

9.9 PARTIAL OCCUPANCY OR USE

9.9.1 The Owner may occupy or use any completed or partially completed portion of the Work at any stage when such portion is designated by separate agreement with the Contractor, provided such occupancy or use is consented to by the insurer as required under Article 11.2.8 and authorized by public authorities having jurisdiction over the Work. Such partial occupancy or use may commence whether or not the portion is substantially complete, provided the Owner and the Contractor have accepted in writing the responsibilities assigned to each of them for payments, retainage, if any, security, maintenance, heat, utilities, damage to the Work and insurance, and have agreed in writing concerning the period for correction of the Work and commencement of warranties required by the Contract Documents. When the Contractor considers a portion substantially complete, the Contractor shall prepare and submit a list to the Owner's Project Manager as provided under Article 9.7. Consent of the Contractor to partial occupancy or use shall not be unreasonably withheld. The stage of the progress of the Work shall be determined by written agreement between the Owner's Project Manager and the Contractor or, if no agreement is reached, by decision of the Owner's Project Manager.

9.9.2 Immediately prior to such partial occupancy or use, the Owner or the Owner's Project Manager, and the Contractor shall jointly inspect the area to be occupied or portion of the Work to be used in order to determine and record the condition of the Work.

9.9.3 Unless otherwise agreed upon, partial occupancy or use of a portion or portions of the Work shall not constitute acceptance of Work not complying with the requirements of the Contract Documents.

END OF ARTICLE 9

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ARTICLE 10: PROTECTION OF PERSONS AND PROPERTY

10.1 SAFETY PRECAUTIONS AND PROGRAMS

10.1.1 The Owner and the Owner's Project Manager are not responsible for the means, methods, techniques, sequences or procedures utilized by the Contractor, or for safety precautions and programs in connection with the Work. The Contractor shall be solely responsible for initiating, maintaining, and supervising all safety precautions and programs in connection with the Work. This requirement applies continuously throughout the Contract performance, until Final Payment is made, and is not limited to regular working hours.

10.2 SAFETY OF PERSONS AND PROPERTY

10.2.1 The Contractor shall take reasonable precautions for safety of, and shall provide reasonable protection to prevent damage, injury or loss, to:

- .1 All employees on the Work and other persons who may be affected thereby;
- .2 All the Work and materials and equipment to be incorporated therein whether in storage off the site, under the care, custody or control of the Contractor or any of his Subcontractors, machinery and equipment. The Contractor shall comply with, and ensure that the Contractor's personnel and subcontracted personnel comply with all current applicable local, state and federal policies, regulations and standards relating to safety and health, including, by way of illustration and not limitation, the standards of the Virginia Occupational Safety and Health Administration for the General Industry and for the Construction Industry, the Federal Environmental Protection Agency Standards, the Manual of Accident Prevention in Construction published by the Associated General Contractors of America and the applicable standards of the Virginia Department of Environmental Quality.
- .3 Other property at or adjacent to the Work, including trees, shrubs, lawns, walks, pavements, roadways, structures and utilities not designated for removal, relocation or replacement in the course of construction.

10.2.2 The Contractor shall give all notices and comply with applicable laws, ordinances, permits, rules, regulations and orders of any public authority bearing on the safety of persons or property or their protection from damage, injury or loss.

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- 10.2.3** The Contractor shall at all times safely guard the Owner's property from injury or losses in connection with this Contract. He shall at all times safely guard and protect his own work and adjacent property as provided by law and the Contract Documents from damage. All security personnel, passageways, guard fences, lights, and other facilities required for protection of the property and the Work described herein shall be provided and maintained at the Contractor's expense.
- 10.2.4** The Contractor shall erect and maintain, as required by existing conditions and progress of the Work, all reasonable safeguards for safety and protection, including danger signs and other warnings against hazards, promulgating safety regulations and notifying owners and users of adjacent utilities.
- 10.2.5** When the use or storage of explosives or other hazardous materials or equipment is necessary for the execution of the Work, the Contractor shall exercise the utmost care and shall carry on such activities under the supervision of properly qualified personnel.
- 10.2.6** The Contractor shall promptly remedy at his own cost and expense all damage or loss to any property referred to in Articles 10.2.1.2 and 10.2.1.3. The Contractor shall perform such restoration by underpinning, repainting, rebuilding, replanting, or otherwise restoring as may be required or directed by the Owner's Project Manager or shall make good such damage in a satisfactory and acceptable manner. In case of failure on the part of the Contractor to promptly restore such property or make good such damage, the Owner may, upon two days written notice, proceed to repair, rebuild or otherwise restore such property as may be necessary, and the cost thereof will be deducted from any monies due or to become due to the Contractor under the Contract.
- 10.2.7** The Contractor shall give notice in writing at least 48 hours before breaking ground, to the Owner, all persons, Public Utility Companies, superintendents, inspectors or those otherwise in charge of property, streets, water pipes, gas pipes, sewer pipes, telephone cables, electric cables, railroads or otherwise, who may be affected by the Contractor's operation, in order that they may remove any obstruction for which they are responsible and have a representative on site to see that their property is properly protected. The Contractor is responsible for any damages or claims resulting from any excavation and shall defend, fully indemnify, and hold harmless the Owner from all actions resulting from such work regardless of whether the Contractor gave proper notice under this clause.
- 10.2.8** The Contractor shall protect all utilities encountered while performing its work, whether indicated on the Contract Documents or not. The Contractor shall maintain utilities in service until moved or abandoned. The Contractor shall exercise due care when excavating around utilities and shall restore any damaged utilities to the same condition or better as existed prior to starting the Work, at no cost to the Owner. The Contractor shall maintain operating utilities or other

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services, even if they are shown to be abandoned on the Contract Drawings, in service until new facilities are provided, tested and ready for use.

- 10.2.9** The Contractor shall return all improvements on or about the site and adjacent property that are not shown to be altered, removed or otherwise changed to conditions that existed prior to starting work.
- 10.2.10** The Contractor shall protect the Work, including but not limited to, the site, stored materials and equipment, excavations, and excavated or stockpiled soil or other material, intended for use in the Work, and shall take all necessary precautions to prevent or minimize damage to same or detrimental effect upon his performance or that of his Subcontractors, caused by or due to rain, run-off, floods, temperature, wind, dust, sand, and flying debris. For example, but not by way of limitation, Contractor shall, when necessary, utilize temporary dikes, channels or pumping to carry-off, divert or drain water, and as necessary tie-down or otherwise secure the Work and employ appropriate covers and screens.
- 10.2.11** The Contractor shall be responsible for the prevention of accidents and the protection of material, equipment and property.
- 10.2.12** The Contractor shall not load or permit any part of the Work to be loaded so as to endanger the safety of the Work, persons or adjacent property.
- 10.2.13** The Contractor has sole and complete responsibility for the correction of any safety violation and sole liability for the consequences of the violation. The Contractor shall give prompt written notice of any safety violation to the Owner's Project Manager.
- 10.2.14** The Contractor shall provide, or cause to be provided, all technical expertise, qualified personnel, equipment, tools and material to safely accomplish the Work, specified to be performed by the Contractor and Subcontractor(s).
- 10.2.15** The Contractor shall be responsible for the preservation of all public and private property, trees, monuments, etc., along and adjacent to the street and/or right-of-way, and shall use every precaution to prevent damage to pipes, conduits and other underground structures, curbs, pavements, etc., except those to be removed or abandoned in place and shall protect carefully from disturbance or damage all monuments and property marks until an authorized agent has witnessed or otherwise referenced their location and shall not remove them until directed. Any damage which occurs by reason of the operations under this Contract shall be completely repaired by the Contractor at the Contractor's expense.
- 10.2.16** The Contractor shall shore, brace, underpin, secure, and protect, as may be necessary, all foundations and other parts of existing structures adjacent to,

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adjoining, and in the vicinity of the site that may be affected in any way by excavations or other operations connected with the Work contained in this Contract. The Contractor shall be responsible for the giving of any and all required notices to any adjoining or adjacent property owned or other party before commencement of any Work. The Contractor shall indemnify and save the Owner harmless from any damages on account of settlements or loss of all damages for which the Owner may become liable in consequence of such injury or damage to adjoining and adjacent structures and their premises.

10.2.17 The Contractor shall identify to the Owner's Project Manager at least one on-site person who is the Contractor's competent, qualified, and authorized person on the worksite and who is, by training or experience, familiar with policies, regulations and standards applicable to the Work being performed. The competent, qualified and authorized person must be capable of identifying existing and predictable hazards in the surroundings or working conditions which are unsanitary, hazardous or dangerous to employees, shall be capable of ensuring that applicable safety regulations are complied with, and shall have the authority and responsibility to take prompt corrective measures, which may include removal of the Contractor's personnel from the work site.

10.2.18 The Contractor shall provide to the Owner's Project Manager, a copy of the Contractor's written safety policies and safety procedures applicable to the Work within seven (7) days of the issuance of the Notice to Proceed.

10.3 EMERGENCIES

10.3.1 In any emergency affecting the safety of persons or property, the Contractor shall act to prevent threatened damage, injury, or loss to the Owner. The Contractor shall notify the Owner's Project Manager of the situation and all actions taken immediately thereafter. If, in the opinion of the Contractor, immediate action is not required, the Contractor shall notify the Owner's Project Manager of the emergency situation and take necessary steps. If any loss, damage, injury or death occurs that could have been prevented by the Contractor's prompt and immediate action or the emergency resulted from acts or omissions of the Contractor or his Subcontractors, or anyone directly or indirectly employed by any of them, or by anyone whose acts any of them may be liable, the Contractor shall defend, fully indemnify and hold harmless the Owner (including attorneys' fees) from all actions resulting from the emergency. Any additional compensation or extension of time claimed by the Contractor on account of emergency work shall be determined as provided in Article 12 "CHANGES IN THE WORK."

10.3.2 Prior to commencing his work and at all times during the performance of the Work, the Contractor shall provide the Owner with two, 24-hour emergency phone numbers where his representatives can be contacted.

END OF ARTICLE 10

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ARTICLE 11: BONDS AND INSURANCE

11.1 BONDS

- 11.1.1** The Contractor shall furnish to the Owner a performance bond in the sum of the contract price executed by a surety authorized to do business in Virginia, payable to the Town of Leesburg, Virginia, or such other entity as may be identified in the Contract, and conditioned upon the faithful performance of the contract in strict conformity with the plans, specifications, and conditions of the Contract Documents.
- 11.1.2** The Contractor shall furnish to the Owner a payment bond in the amount of the contract price payable to the Town of Leesburg or such other entity as may be identified in the Contract, and executed by a surety authorized to do business in Virginia. Such bond shall be conditioned on the prompt payment to all claimants who have and fulfill contracts to supply labor or materials to the Contractor for all material furnished or labor supplied or performed in the prosecution of the Work. "Labor and materials" shall include public utility services and reasonable rentals of equipment, but only for periods when the equipment rented is actually used at the project site.
- 11.1.3** If the amount of all Work subcontracted to any one Subcontractor is in excess of \$10,000, the Contractor may at his option require the Subcontractor to furnish a Labor and Material Payment Bond with surety thereon, in the amount of fifty percent of the amount of the Subcontract.
- 11.1.4** The Contractor shall ensure that all sureties providing bonds for the Project will give written notice to the Owner, at least thirty days prior to expiration or termination of the bond(s).
- 11.1.5** If the surety on any Bond furnished by the Contractor is declared bankrupt or becomes insolvent or its right to do business is terminated in any state where any part of the Project is located, the Contractor shall within five days thereafter substitute another Bond and surety, both of which shall be acceptable to the Owner.
- 11.1.6** If at any time, the Owner shall be or become dissatisfied with any surety or sureties then upon the Performance and Labor and Materials Payment Bonds, or if for any other reason, such bond shall cease to be adequate security to the Owner, the Contractor shall within five days after notice from the Owner to do so, substitute an acceptable bond(s) in such form and sum and signed by such other sureties as may be satisfactory to the Owner. The premium on such bond(s) shall be paid by the Contractor. No further payment shall be deemed due nor shall be made until the new sureties have been qualified and accepted by the Owner.
- 11.1.7** 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.

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11.2 CONTRACTOR'S LIABILITY INSURANCE

11.2.1 The Contractor shall provide to the Owner, a Certificate of Insurance indicating that the Contractor has in force the coverage below prior to the start of any Work under this Contract. The Contractor agrees to maintain such insurance until the completion of this Contract. All required insurance coverages must be acquired from insurers authorized to do business in the Commonwealth of Virginia and acceptable to the Owner. The minimum insurance coverage shall be:

- .1 Workers Compensation Insurance – as required by federal, state, and municipal laws for the protection of all Contractors' employees working on or in connection with the project, shall be in accordance with Title, 2.2-4332, Va. Code Ann.
- .2 Comprehensive General Liability Bodily Injury and Property Damage: \$3,000,000 combined single limit/each occurrence in the primary policy or through the use of Umbrella or Excess Limits.

The General Liability Insurance shall include the following coverages; comprehensive form, premises-operations, explosion and collapse hazard, underground hazard, products/completed operations hazard, contractual liability insurance, broad form property damage including completed operations, contractors protective liability, personal injury (all insuring agreements) deleting the employee exclusion, and owners protective liability.

- .3 Contractor's Automobile Liability (Bodily Injury and Property Damage):

\$3,000,000 combined single limit per occurrence in the primary policy or through the use of Umbrella or Excess Limit

The Automobile Liability Insurance shall include the following coverages; comprehensive form, owned, hired, and non-owned.

- .4 Property insurance written on a builder's risk "all-risk" or equivalent policy form in the amount of the initial Contract Sum, plus value of subsequent Contract modifications and cost of materials supplied or installed by others, comprising total value for the entire Project at the site on a replacement cost basis without optional deductibles. Such property insurance shall be maintained, unless otherwise provided in the Contract Documents or otherwise agreed in writing by all persons and entities who are beneficiaries of such insurance, until final payment has been made as provided in Article 9.8 or until no person or entity other than the Owner has

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an insurable interest in the property required by this Article 11.5 to be covered, whichever is later. This insurance shall include interests of the Owner, the Contractor, Subcontractors and Sub-subcontractors in the Project. The property insurance shall be on an "all-risk" or equivalent policy form and shall include, without limitation, insurance against the perils of fire (with extended coverage) and physical loss or damage including, without duplication of coverage, theft, vandalism, malicious mischief, collapse, earthquake, flood, windstorm, falsework, testing and startup, temporary buildings and debris removal including demolition occasioned by enforcement of any applicable legal requirements.

If the liability insurance purchased by the Corporation has been issued on a "claims made" basis, the Corporation must comply with the following additional conditions. The limits of liability and the extensions to be included as described previously in these provisions, remain the same.

The Corporation must either:

1. Agree to provide certificates of insurance evidencing the above coverage for a period of two (2) years after final payment for the Agreement for General Liability policies. This certificate shall evidence a "retroactive date" no later than the beginning of the Corporation's work under this Agreement, or
2. Purchase the extended reporting period endorsement for the policy or policies in force during the term of this Agreement and evidence the purchase of this extended reporting period endorsement by means of a certificate of insurance or a copy of the endorsement itself.

11.2.2 Additional Insured – The Owner, its officers, elected and appointed officials, and employees shall be named as an additional insured in the Contractor's Commercial General Liability policy; evidence of the Additional Insured endorsement shall be typed on the certificate and a copy of the additional insured endorsement shall be forwarded to the Owner along with the copy of the insurance certificate.

11.2.3 Contract Identification – The insurance certificate shall state this Contract's number and title.

11.2.4 The Contractor shall secure and maintain until all work required under the Contract is accepted, such insurance as will protect the Contractor and the Owner from claims directly or indirectly arising or alleged to arise out of the performance of, or failure to perform the Work, or the condition of the Work or the jobsite, from claims by workers, suppliers, Subcontractors, and the general public; from claims made under safe place laws, or any law with respect to protection of adjacent landowners; and from any other claims for damages to property from operations by the Contractor or any Subcontractor,

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or anyone directly or indirectly employed by either of them.

The Contractor assumes all risks for direct and indirect damage or injury to the property or persons used or employed on or in connection with the Work contracted for, and of all damage or injury to any person or property wherever located, resulting from any action, omission, commission or operation under the Contract, or in connection in any way whatsoever with the contracted Work.

No acceptance or approval of any insurance by the Owner shall be construed as relieving or excusing the Contractor from any liability or obligation imposed upon the Contractor by the provisions of the Contract Documents.

- 11.2.5** These certificates and the insurance policies required by Article 11.2 shall contain a provision that coverages afforded under the policies will not be canceled or allowed to expire until at least thirty days prior written notice has been given to the Owner. If any of the foregoing insurance coverages are required to remain in force after final payment and are reasonably available, an additional certificate evidencing continuation of such coverage shall be submitted with the final Application for Payment as required by Article 9.8. Information concerning reduction of coverage on account of revised limits or claims paid under the General Aggregate, or both, shall be furnished by the Contractor with reasonable promptness in accordance with the Contractor's information and belief.
- 11.2.6** Neither the Owner nor the Owner's Project Manager shall have any obligation to review any Certificates of Insurance provided by the Contractor or to check or verify the Contractor's compliance with any and all requirements regarding insurance imposed by the Contract. The Contractor is fully liable for the amounts and types of insurance required herein and is not excused should any policy or Certificate of Insurance provided by the Contractor not comply with the Contract's insurance requirements.
- 11.2.7** If the Contractor fails to comply with the Contract's insurance requirements, the Owner shall be entitled to recover all amounts payable as a matter of law to the Owner or any other parties, including but not limited to the Owner's Project Manager, had the insurance coverage been in effect. Any recovery shall include but is not limited to interest for the loss of the use of such amounts of money, attorneys' fees, costs and expenses incurred in securing such determination and any other consequential damages.
- 11.2.8** Partial occupancy or use in accordance with Article 9.9 shall not commence until the insurance company or companies providing property insurance have consented to such partial occupancy or use by endorsement or otherwise. The Owner and the Contractor shall take reasonable steps to obtain consent of the insurance company or companies and shall, without mutual written consent, take no action with respect to partial occupancy or use that would cause cancellation, lapse or reduction of insurance.

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11.3 WAIVERS OF SUBROGATION

11.3.1 The Owner and Contractor waive all rights against (1) each other and any of the Subcontractors, Sub-subcontractors, agents and employees, each of the other, and (2) the Owner's Project Manager and Engineer or Architect or their consultants, separate contractors, if any, and any of their Subcontractors, Sub-subcontractors, agents and employees, for damages caused by fire or other causes of loss to the extent covered by property insurance obtained pursuant to this Article 11.5 or other property insurance applicable to the Work, except such rights as they have to proceeds of such insurance held by the Owner as fiduciary. The Owner or Contractor, as appropriate, shall require of his consultants, separate contractors, if any, and the Subcontractors, Sub-subcontractors, agents and employees of any of them, by appropriate agreements, written where legally required for validity, similar waivers each in favor of other parties enumerated herein. The policies shall provide such waivers of subrogation by endorsement or otherwise. A waiver of subrogation shall be effective as to a person or entity even though that person or entity would otherwise have a duty of indemnification, contractual or otherwise, did not pay the insurance premium directly or indirectly, and whether or not the person or entity had an insurable interest in the property damaged.

11.4 ADDITIONAL INSURANCE PROVISIONS

11.4.1 A loss insured under Owner's property insurance shall be adjusted by the Owner as fiduciary and made payable to the Owner as fiduciary for the insureds, as their interests may appear, subject to requirements of any applicable mortgagee clause and of Article 11.5.10. The Contractor shall pay Subcontractors their just shares of insurance proceeds received by the Contractor, and by appropriate agreements, written where legally required for validity, shall require Subcontractors to make payments to their Sub-subcontractors in similar manner.

11.4.2 If required in writing by a party in interest, the Owner as fiduciary shall, upon occurrence of an insured loss, give bond for proper performance of the Owner's duties. The cost of required bonds shall be charged against proceeds received as fiduciary. The Owner shall deposit in a separate account proceeds so received, which the Owner shall distribute in accordance with such agreement as the parties in interest may reach. If after such loss no other special agreement is made and unless the Owner terminates the Contract for convenience, replacement of damaged property shall be performed by the Contractor after notification of a Change in the Work in accordance with Article 12.

11.4.3 The Owner as fiduciary shall have power to adjust and settle a loss with insurers unless one of the parties in interest shall object in writing within five days after occurrence of loss to the Owner's exercise of this power; if such objection is made, the dispute shall be resolved as provided in Article 7.4. The Owner as fiduciary shall, in the case of disputes, make settlement with insurers in accordance with orders of the Court.

END OF ARTICLE 11

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ARTICLE 12: CHANGES IN THE WORK

12.1 CHANGES IN THE WORK

12.1.1 The Owner, without invalidating the Contract and without notice to the surety, may order a Change in the Work consisting of additions, deletions, modifications or other revisions to the general scope of the Contract, or changes in the sequence of the performance of the Work. The Contract Price and the Contract Time shall be adjusted accordingly. All such Changes in the Work shall be authorized by written Change Order, and all Work involved in a Change shall be performed in accordance with the terms and conditions of this Contract. If the Contractor should proceed with a Change in the Work upon an oral order, by whomever given, it shall constitute a waiver by the Contractor of any claim for an increase in the Contract Price or Contract Time, on account thereof.

12.1.2 When the Owner and the Contractor have agreed upon a Change in the Work, but a written Change Order Document has not yet been executed, the Owner may, at its sole discretion and option, direct in writing the Contractor to proceed with the Change in the Work pending the execution of the formal Change Order. Contractor shall proceed in accordance with such direction.

12.1.3 The Contractor shall not begin work on any alteration requiring a modification until such modification has been executed by the Owner and the Contractor. If a satisfactory agreement cannot be agreed to for any item requiring a modification, the Owner reserves the right to terminate the contract as it applies to the items in question and make such arrangements as may be deemed necessary to complete the Work.

12.2 FIELD ORDER

12.2.1 A Field Order is a written order to the Contractor signed by the Owner or the Owner's Project Manager interpreting or clarifying the Contract Documents or directing the Contractor to perform minor changes in the Work. Any work relating to the issuance of a Field Order shall be performed promptly and expeditiously and without additional cost to the Owner and within the Contract Time, unless the Contractor submits a Proposed Change Order, defined below, which is approved by the Owner. Field Orders shall be numbered consecutively by date of issuance by the Owner or the Owner's Project Manager.

12.3 REQUEST FOR PROPOSAL

12.3.1 A Request For Proposal (“RFP”) describes a proposed Change in the Work. In response to a Request for Proposal issued by the Owner or the Owner’s Project Manager, the Contractor is required to submit a complete Proposal for the total cost and additional time, if any, necessary to perform the proposed Change in the

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Work. Requests For Proposals shall be numbered consecutively by date of issuance by the Owner or the Owner's Project Manager.

12.3.2 The Contractor's Proposal in response to an RFP shall be in the form prescribed by the Owner's Project Manager, including all appropriate back-up material.

12.4 PROPOSED CHANGE ORDER

12.4.1 A Proposed Change Order is a written request from the Contractor to the Owner requesting a change in the Contract Price and/or Contract Time. A Proposed Change Order may be submitted as a proposal in response to a Request For Proposal issued by the Owner or as a claim for an increase in the Contract Price and/or Contract Time pursuant to the issuance of a Field Order. A Proposed Change Order must be submitted within twenty days of the issuance of a Request For Proposal or a Field Order. Proposed Change Orders shall be numbered consecutively by date of issuance by the Contractor. The Contractor shall also indicate on the Proposed Change Order the number of the Request For Proposal or the Field Order to which it responds.

12.4.2 If a Request for Proposal provides for an adjustment to the Contract Price, the adjustment shall be based on one of the following methods:

- .1 mutual acceptance of a lump sum properly itemized and supported by sufficient substantiating data to permit evaluation;
- .2 unit prices stated in the Contract Documents or subsequently agreed upon;
- .3 cost to be determined in a manner agreed upon by the parties and a mutually acceptable fixed or percentage fee; or
- .4 as provided in Articles 12.5.3 and 12.5.4.

12.4.3 If it is necessary in this subparagraph to increase the Contract Time to perform the Change in the Work, the Contractor shall provide an estimate of the increase in the Contract Time which shall be negotiated by the parties to the Contract. The Contractor's request for a time extension shall be evaluated in accordance with the criteria described in Article 8.

12.4.4 If the Contractor's Proposed Change Order is rejected by the Owner as being within the scope of the Work required by the Contract Documents the Owner may, at its sole option and discretion, direct the Contractor to perform the Work which is the subject of the Proposed Change Order; the Contractor shall then promptly proceed with the Work. Nothing shall excuse the timely performance by the Contractor of the Work because any Proposed Change Order is pending.

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12.5 CHANGE ORDER

12.5.1 A Change Order is a written order to the Contractor signed by the Contractor and the Owner's Project Manager, issued after execution of the Contract, authorizing a Change in the Work or an adjustment in the Contract Price and/or the Contract Time. The Contract Price and the Contract Time may be changed only by Change Order. A Change Order signed by the Contractor indicates his agreement therein, including the adjustment in the Contract Price and/or the Contract Time. Change Orders shall be numbered consecutively by date of issuance by the Owner or the Owner's Project Manager and shall, if applicable, indicate the number of the Field Order(s), Request For Proposal(s) and/or Proposed Change Order(s) to which it relates.

12.5.2 If the Owner and the Owner's Project Manager determine that the Contractor's Proposed Change Order, submitted pursuant to Article 12.4 for a change in the Contract Price or Contract Time, is acceptable, the Owner's Project Manager shall prepare and issue, or cause to be prepared and issued, a Change Order which will authorize the Contractor to proceed with the Change in the Work for the cost and time stated in the Proposed Change Order, or as otherwise may be agreed upon by the parties. The amounts stated in the Change Order for the cost and time to perform the Change in the Work shall be binding on the parties.

.1 The contractors markup for allowable profit and overhead shall be limited to 10%.

12.5.3 After issuance of the Change Order, the Contractor shall ensure that the amount of the Performance and Payment Bond coverage has been revised to reflect the increase in the Contract Price due to the Change Order.

12.5.4 If the Contractor's Proposed Change Order is not acceptable to the Owner and the Owner's Project Manager or if the parties are unable to otherwise agree as to the cost and time necessary to perform the Change in the Work, the Owner may, at its sole option and discretion, direct the Contractor to perform the Work on a time and material basis. The Contractor shall then promptly proceed with the Work.

12.5.5 If the Owner and the Owner's Project Manager elect to have the Change in the Work performed on a time and material basis, the same shall be performed, whether by the Contractor's forces or the forces of any of his Subcontractors or Sub-subcontractor's, at actual cost to the entity performing the Change in accordance with the time and material provisions included in the Road and Bridge Specifications of the Virginia Department of Transportation, current edition.

12.5.6 Prior to starting the work on a time and material basis, the Contractor shall notify the Owner's Project Manager in writing as to what labor, materials, equipment or

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rentals are to be used for the Change in the Work. During the performance of the Change, the Contractor shall submit to the Owner daily time and material tickets, which shall list the categories and amounts of labor and equipment for which Change Order compensation is to be charged for the previous work day. Such tickets shall be submitted in strict accordance with the time and material provisions included in the Road and Bridge Specifications of the Virginia Department of Transportation.

- 12.5.7** The Contractor shall commence submission of daily time and material tickets immediately upon commencement of the Change Order Work and continue to submit them until completion of the Change Order Work. The Owner may require authentication of all time and material tickets and invoices by persons designated by the Owner for such purpose.
- 12.5.8** The failure of the Contractor to provide any required authentication shall, if the Owner elects to treat it as such, constitute a waiver by the Contractor of any claim for the cost of that portion of the Change in the Work covered by a non-authenticated ticket or invoice; provided, however, that the authentication of any such ticket or invoice by the Owner shall not constitute an acknowledgment by the Owner that the items thereon were reasonably required for the Change in the Work.
- 12.5.9** The Contractor shall submit his complete submission of the reasonable actual cost and time to perform the Change in the Work within twenty days of the request of the Owner's Project Manager to do so. The Owner and the Owner's Project Manager shall review the costs and time submitted by the Contractor on the basis of reasonable expenditures and savings of those performing the Change in the Work. If such costs and time are acceptable to the Owner and the Owner's Project Manager, or if the parties otherwise agree to the actual reasonable cost to perform the Change in the Work, the Owner's Project Manager shall issue a Change Order for the cost and time agreed upon. The amounts stated in the Change Order for the cost and time to perform the Change in the Work shall be binding upon the parties.
- 12.5.10** The Contractor shall be entitled to costs as provided for in Article 12.4 which the Contractor, or his Subcontractors, may incur as a result of delays, interferences, suspensions, changes in sequence or the like, which are unreasonable, arising from the performance of any and all changes in the Work, caused by acts or omissions of the Owner, performed pursuant to this Article 12.
- 12.5.11** If any dispute should arise between the parties with respect to an increase or decrease in the Contract Price or an extension or reduction in the Contract Time or as a result of a Change in the Work, the Contractor shall not suspend performance of a Change in the Work or the Work itself unless otherwise so ordered by the Owner's Project Manager in writing. Disputes must be resolved

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pursuant to Article 7.4 of the Contract. The Owner will, however, pay the Contractor up to the Owner's Project Manager's estimated value of the Change in the Work, regardless of the dispute, if the Change in the Work results in an increase in the Contract Price; and the Owner will have the right to decrease the Contract Price up to the Owner's Project Manager's estimated value of the Change in the Work, regardless of the dispute, if the Change in the Work results in a decrease in the Contract Price.

12.6 UNILATERAL CHANGE ORDER

12.6.1 In the event that the parties are unable to agree as to the reasonable cost and time to perform the Change in the Work and the Owner does not elect to have the Change in the Work performed on a time and material basis, the Owner and the Owner's Project Manager shall make a unilateral determination of the reasonable cost and time to perform the Change in the Work, based upon their own estimates, the Contractor's submission or a combination thereof. A Change Order shall be issued for the amounts of cost and time determined by the Owner and the Owner's Project Manager and shall become binding upon the Contractor unless the Contractor submits his protest in writing to the Owner within ten days of the issuance of the Change Order. The procedure for the resolution of the Contractor's protest shall be as described in Article 12.10. The Owner has the right to direct in writing the Contractor to perform the Change in the Work, which is the subject of such Unilateral Change Order. Failure of the parties to reach an agreement regarding the cost and time of performing the Change in the Work, or any pending protest, shall not relieve the Contractor from performing the Change in the Work promptly and expeditiously.

12.7 DECREASES AND WORK NOT PERFORMED

12.7.1 Should it be deemed expedient by the Owner or the Owner's Project Manager at any time that the Contract Work is in progress to decrease the dimensions, quantity of material or work, or vary in any other way the Work herein contracted for, the Owner or the Owner's Project Manager shall have the full power to do so, and shall order, in writing, such decreases to be made or performed without affecting the enforcement of the Contract. The Contractor shall, in pursuance of such written orders and directions from the Owner or the Owner's Project Manager, execute the work ordered, and the difference in expense occasioned by such decrease so ordered shall be deducted from the amount payable under this Contract.

12.7.2 If Work is not performed, and such deletion of Work is not approved by the Owner, the Owner's Project Manager shall ascertain the amount of the credit due the Owner, based on the reasonable value of the labor and materials so deleted, for the lesser amount of materials and labor required.

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12.7.3 If Work is deleted from the Contract by Change Order, the amounts to be credited to the Owner shall reflect the same current pricing as if the Work were being added to the Contract at the time the deletion is ordered, and documentation will be required for a credit as specified in Article 12.4. If such deleted materials and equipment shall have already been purchased and stored on site and cannot be used in other projects or returned for credit or cannot be returned for credit at the price paid by the Contractor at the time of purchase, the Contractor shall be entitled, upon proper documentation and certification, to an adjustment in the pricing of the credit to avoid hardship to the Contractor. If necessary in order to establish such reasonable value, the Contractor may be required to submit a detailed breakdown of his original bid for the items or Work involved.

12.8 CHANGES IN LINE AND GRADE

12.8.1 The Owner reserves the right through the Owner's Project Manager to make such alterations in the line and grade of various structures or pipelines shown on the drawings, as may be necessitated by conditions found during construction or that in the judgment of the Owner's Project Manager appears advisable. The Contractor shall not claim forfeiture of Contract by reason of such changes by the Owner's Project Manager.

12.8.2 In case of a fixed price contract, the price of the Work shall be negotiated as herein provided. If such alterations or changes diminish the quantity of Work to be done, they shall not constitute a claim for damages or for loss of anticipated profits in the Work which may be dispensed with, and the Work as constructed shall be paid for in accordance with the Contract prices as established for such Work under this Contract. In the case of a unit price, or partial unit price, contract, the altered Work shall be performed at the appropriate unit price.

12.8.3 The Contractor shall employ a certified Land Surveyor to establish a base line and set bench marks for the Contractor's use as necessary to stake the basic layout of the Work. Where new construction connects to existing facilities, it shall be the responsibility of the Contractor to check and establish the location of all existing facilities prior to construction of the new facilities.

12.8.4 All stakes, bench marks, and other base line information provided by the Owner or the Owner's Project Manager shall be carefully preserved by the Contractor, and in case of their removal by any cause without prior written consent from the Owner, such stakes, bench marks, and other base line information will be replaced by the Contractor at the Contractor's sole expense.

12.8.5 The dimensions for lines and elevations for grades of the structures, appurtenances, and utilities are indicated on the Drawings, together with pertinent information required for laying out the Work. Utility locations are approximate and it shall be the Contractor's responsibility to determine the exact location of

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the utilities prior to commencing Work in all areas where conflicts with utility installations are possible. If site conditions vary from those indicated, the Contractor shall notify the Owner immediately, who will promptly direct any adjustment as required. The locations of existing utilities, including underground utilities, which may affect the Work, are indicated on the drawings or in the specifications insofar as their existence and location were known at the time of preparation of the drawings. However, nothing in these drawings or specifications shall be construed as a guarantee that such utilities are in the location indicated or that they actually exist, or that other utilities are not within the area of the operations. The Contractor shall make all necessary investigations to determine the existence and locations of such utilities. The Contractor will be held responsible for any damage to and maintenance and protection of existing utilities and structures, of both public and private ownership. Acceptability of restored utility installation shall be determined by the respective utility Owner. All utilities shall remain in service during the construction of this project unless written authorization of interruption of service is received from the respective utility Owner and the interruption is approved by the Project Manager.

- 12.8.6** Contractor shall notify the Owner immediately upon discovery of any apparent errors in the lines or grades. If Contractor proceeds with knowledge of such apparent error without first receiving written clarification from the Owner's Project Manager, the Contractor does so at his own risk.

12.9 DIFFERING SITE CONDITIONS

- 12.9.1** The Contractor shall promptly, and before the conditions are disturbed, give written notice to the Owner's Project Manager of (a) subsurface or latent physical conditions at the site which differ materially from those indicated in the Contract Documents, or (b) unknown physical conditions at the site, of an unusual nature, which differ materially from those ordinarily encountered and generally recognized as inhering in work of the character provided for in the Contract and which were not reasonably anticipated as a result of the investigation required by Article 1.2.2.
- 12.9.2** The Owner's Project Manager shall investigate the site conditions promptly after receiving the notice. If the conditions do materially so differ and cause an increase or decrease in the cost or time of performance, the provisions of Article 12 "Changes in the Work" shall apply.
- 12.9.3** No request by the Contractor for a Change Order under this Article shall be allowed, unless the Contractor has given the required written notice.
- 12.9.4** No request by the Contractor for a Change Order under this Article shall be allowed if made after final payment under the Contract.

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12.10 CLAIMS FOR ADDITIONAL COST AND/OR TIME

12.10.1 If the Contractor wishes to make a claim for an increase in the Contract Price and/or Contract Time, he shall give the Owner written notice thereof within seven calendar days after the occurrence of the event giving rise to such claim. This notice shall be given by the Contractor before proceeding to execute the Work, except in an emergency endangering life or property in which case the Contractor shall proceed as provided in Article 10. No claim shall be allowed and no amounts shall be paid for any costs incurred more than ten calendar days prior to the time notice is given to the Owner. Any change in the Contract Price or Contract Time resulting from such claim must be authorized by Change Order. The Contractor's complete claim submittal for an increase in the Contract Price shall be submitted no later than twenty calendar days after the Work for which the claim is made has been completed or after the request of the Owner or the Owner's Project Manager, whichever is earlier.

12.10.2 If the Contractor claims that additional cost or time is involved because of, but not limited to, any of the following circumstances, the Contractor shall make such claim as provided in Subparagraph 12.10.1: (1) any written interpretation pursuant to Article 2, (2) any order by the Owner to stop the Work pursuant to Article 3.3 where the Contractor was not at fault, (3) failure of payment by the Owner pursuant to Article 9, or (4) any written order for a minor change in the Work issued pursuant to Article 12.8.1.

12.11 ATTORNEYS' FEES AND OTHER EXPENSES

12.11.1 In recognition of the public monies being administered by the Owner to fund this Contract, the Contractor agrees that he will not submit, assert, litigate or otherwise pursue any frivolous or unsubstantiated delay claims. If the Contractor's delay claim, or any separate item of a delay claim, is determined through litigation or other dispute resolution process to be false or to have no basis in law or fact, the Contractor shall be liable to the Owner and shall pay it for all Investigation Costs incurred by the Owner. These costs include investigating, analyzing, negotiating, appealing, defending, and litigating the false or baseless delay claims, attorneys' fees, audit costs, accountants' fees, expert witness' fees, additional architect/engineer expenses and any other consultant costs. The amount to be paid hereunder to the Owner shall be the percentage of the Owner's total Investigation Costs in an amount equal to the percentage of the Contractor's total delay claim which is determined to be false or to have no basis in fact.

12.11.2 If the Contractor breaches any obligation under the Contract Documents, the Contractor shall reimburse the Owner for all costs and expenses incurred by the Owner relating to such breach, including but not limited to, attorneys' fees, audit

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costs, accountants' fees, expert witness' fees, additional architectural or engineering expenses, and any other consultant costs.

- 12.11.3** If the Owner prevails in a claim brought against the Contractor, including but not limited to, claims for fraud or misrepresentation, overpayment, defective work, delay damages, and recovery of termination expenses, the Contractor shall reimburse the Owner for all costs and expenses incurred by the Owner relating to such claim, including but not limited to, attorneys' fees, audit costs, accountants' fees, expert witness' fees, additional architect or engineering expenses, and any other consultant costs.

END OF ARTICLE 12

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ARTICLE 13: UNCOVERING AND CORRECTION OF WORK

13.1 UNCOVERING OF WORK

13.1.1 If any portion of the Work should be covered contrary to the request of the Owner's Project Manager or to requirements specifically expressed in the Contract Documents or to requirements of applicable Construction Permits, it must, if required in writing by the Owner's Project Manager, be uncovered for its observation and shall be replaced at the Contractor's expense.

13.1.2 If any portion of the Work has been covered that the Owner's Project Manager has not specifically requested to observe prior to being covered, the Owner's Project Manager may request to see such Work and it shall be uncovered by the Contractor. If such Work complies with the Contract Documents, the cost of uncovering and replacement shall, by appropriate Change Order, be charged to the Owner. If such Work does not comply with the Contract Documents, the Contractor shall pay such costs unless the Owner caused this condition, in which event the Owner shall pay such costs.

13.2 CORRECTION OF WORK

13.2.1 The Contractor shall promptly reconstruct, replace or correct all Work rejected by the Owner's Project Manager as defective or as failing to conform to the Contract Documents or as not in accordance with the guarantees and warranties specified in the Contract Documents whether observed before or after Substantial Completion and whether or not fabricated, installed or completed. The Contractor shall bear all costs of correcting such rejected Work, including compensation for the Owner's Project Manager and any other additional services made necessary thereby.

13.2.2 The Contractor, unless removal is waived by the Owner, shall remove from the site all portions of the Work that are defective or non-conforming, or if permitted or required, he shall correct such Work in place at his own expense promptly after receipt of notice, and such rejected Work shall not thereafter be tendered for acceptance unless the former rejection or requirement for correction is disclosed.

13.2.3 If the Contractor does not proceed with the correction of such defective or non-conforming Work within a reasonable time fixed by written notice from the Owner's Project Manager, the Owner may either:

- .1 By separate contract or otherwise replace or correct such Work and charge the Contractor the cost occasioned the Owner thereby and remove and store the materials or equipment at the expense of the Contractor; or

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.2 Terminate this Contract as provided in Article 14.3 "DEFAULT TERMINATION."

13.2.4 The Contractor shall bear the cost of making good all work of the Owner or separate Contractors destroyed or damaged by such correction or removal.

13.2.5 Nothing contained in this Article 13.2 shall be construed to establish a period of limitation with respect to any other obligation that the Contractor might have under the Contract Documents, including Article 4.7 "WARRANTY" hereof. The establishment of the period of one year after the Date of Final Completion or such longer period of time as may be prescribed by law or by the terms of any warranty required by the Contract Documents relates only to the specific obligation of the Contractor to correct the Work, and has no relationship to the time within which his obligation to comply with the Contract Documents may be sought to be enforced, or to the time within which proceedings may be commenced to establish the Contractor's liability with respect to his obligations other than specifically to correct the Work.

13.3 ACCEPTANCE OF DEFECTIVE OR NON-CONFORMING WORK

13.3.1 If the Owner or its Project Manager prefers to accept defective or non-conforming Work, it may do so instead of requiring its removal and correction. In this case, a Change Order will be issued to reflect a reduction in the Contract Price where appropriate and equitable, or the Owner may elect to accept payment in materials or services, in lieu of a reduction in the Contract Price. If the amount of a reduction is determined after Final Payment, it shall be paid on demand to the Owner by the Contractor.

END OF ARTICLE 13

GENERAL CONDITIONS

ARTICLE 14: TERMINATION OF THE CONTRACT

14.1 TERMINATION FOR THE CONVENIENCE OF THE OWNER

14.1.1 The Owner may, at any time upon ten days written notice to the Contractor, terminate, without prejudice to any right or remedy of the Owner, the whole or any portion of the Work for the convenience of the Owner. This Notice of Termination shall specify that portion of the Work to be terminated and the effective date of termination. The Contractor's sole remedy, in the event of such termination, will be the allowable termination costs permitted by Article 14.2 "ALLOWABLE CONVENIENCE TERMINATION COSTS."

14.1.2 The Contractor shall include termination clauses identical to Article 14 in all subcontracts and purchase orders related to the Work. Failure to include these termination clauses in any subcontracts or purchase orders shall preclude recovery of any termination costs related to that subcontract or purchase order.

14.1.3 Non-appropriation Clause

Notwithstanding anything contained herein to the contrary, this contract shall be terminated if all of the following events shall have occurred:

1. Funds are not appropriated for a subsequent fiscal period during the term of this contract for the acquisition of substantially the same functions as provided for herein, and written notice thereof is given to CONTRACTOR at least thirty (30) days prior to the first day of such subsequent fiscal periods or within five (5) days of the approval of the final budget for such fiscal year, whichever occurs later.

2. Town has exhausted all funds legally available for payment under this contract.

Upon such termination, Contractor's only remedy shall be to terminate the contract at the end of the fiscal period during which notice is given. Payment in compliance with the contract for materials, goods, and services rendered hereunder during the fiscal year at the end of which termination occurs, without penalty, termination, profit or overhead expenses of any kind shall constitute full performance on the part of the Town.

14.2 ALLOWABLE CONVENIENCE TERMINATION COSTS

14.2.1 After complying with the provisions of Article 14.4, the Contractor may submit a termination claim, not later than six months after the effective date of its

GENERAL CONDITIONS

termination, unless one or more extensions of three months each are granted by the Owner in response to the Contractor's written request.

14.2.2 The Owner shall pay the Contractor's reasonable costs of termination, plus a mark-up of ten percent for profit and overhead. This amount will not exceed the original contract price, reduced by any payments made prior to Notice of Termination, and further reduced by the price of the supplies not delivered, or the service not provided. This Contract shall be amended accordingly, and the Contractor shall be paid the agreed amount.

14.2.3 If the parties cannot agree on the amount to be paid to the Contractor by reason of termination under this clause, the Owner shall pay to the Contractor the amounts, as determined by the Owner's Project Manager as follows, without duplicating any amounts which may have already been paid under the preceding paragraph of this clause:

.1 With respect to all Contract performance prior to the effective date of Notice of Termination, the total of:

- a. cost of work performed or supplies delivered;
- b. the costs of settling and paying any reasonable claims as provided in Article 14.4; and
- c. a mark-up of ten percent for profit and overhead. Neither the Contractor nor any Subcontractor shall be entitled to profit or overhead associated with the portion of the work not performed, nor to profit associated with costs of demobilization.

.2 The total sum to be paid under .1 above shall not exceed the contract price, as reduced by the amount of payments otherwise made, and as further reduced by the contract price of work not done or supplies not delivered. The Owner may subtract from the amount claimed by the Contractor any claim the Owner has against the Contractor

14.2.4 If the Contractor is not satisfied with any payments that the Owner's Project Manager shall determine to be due under this clause, the Contractor may proceed in accordance with Article 7.4 "DISPUTES."

14.2.5 If the Contractor would have sustained a loss on the entire Contract had it been completed, no profit shall be included or allowed and an appropriate adjustment shall be made reducing the amount of the settlement to reflect the indicated rate of loss.

GENERAL CONDITIONS

14.3 DEFAULT TERMINATION

14.3.1 The Owner may, upon ten days written notice to the Contractor, terminate, without prejudice to any right or remedy of the Owner, the Contract for default, in whole or in part, and may take possession of the Work and complete the Work by contract or otherwise in any of the following circumstances:

- .1 The Contractor refuses or fails to prosecute the Work or any separable part thereof with such diligence as will ensure the Substantial Completion of the Work within the Contract Time, or fails to meet any milestones established in the Contract Documents or fails to substantially complete the Work within this period;
- .2 The Contractor is in default in carrying out any provision of the Contract for a cause within his or his Subcontractors' control;
- .3 The Contractor fails to supply a sufficient number of properly skilled workers or proper equipment or materials;
- .4 The Contractor fails to make prompt payment to Subcontractors or for materials or labor;
- .5 The Contractor disregards laws, permits, ordinances, rules, regulations, or orders of any public authority having jurisdiction;
- .6 The Contractor breaches any provision of the Contract Documents;
- .7 The Contractor voluntarily abandons the Project;
- .8 Upon at least thirty calendar days prior written notice by the Owner to the Contractor, at any time during the term of the Agreement, the Owner determines that maintaining the Agreement in force will harm, bring into disrepute, or affect the integrity of the Owner.

14.3.2 Upon termination of this Agreement under this Article, the Contractor shall remove all of his employees and property from the Project in a smooth, orderly, and cooperative manner.

14.3.3 The right of the Contractor to proceed shall not be terminated under Article 14.2 because of any delays in the completion of the Work due to unforeseeable causes beyond the control and without the fault or negligence of the Contractor or his Subcontractors as specifically set forth in Article 8, "DELAYS AND EXTENSIONS OF TIME."

GENERAL CONDITIONS

14.3.4 If, after the Contractor has been terminated for default pursuant to Article 14.3, it is determined that none of the circumstances set forth in Article 14.3.1 exist, then such termination shall be considered a termination for convenience pursuant to Article 14.1. In such case, the Contractor's sole remedy will be costs permitted by Article 14.2.

14.3.5 If the Owner terminates the Contract, the Contractor shall not be entitled to receive any further payment until the Work is finished. If the unpaid balance of the Contract Price exceeds the cost of completing the Work including compensation for additional managerial, administrative and inspection services and any damages for delay, such excess amount shall be paid to the Contractor. If such expenses exceed the unpaid balance, the Contractor and his sureties shall be liable to the Owner for such excess amount.

14.3.6 If the right of the Contractor to proceed with the Work is partially or fully terminated, the Owner may take possession of and utilize in completing the Work such materials, appliances, supplies, plant and equipment as may be on the site of the terminated portion of the Work and necessary for the completion of the Work. If the Owner does not fully terminate the right of the Contractor to proceed, the Contractor shall continue to perform the part of the Work that is not terminated.

14.4 GENERAL TERMINATION PROVISIONS

14.4.1 After receipt of a Notice of Termination from the Owner, pursuant to Article 14.1 or 14.3, and except as otherwise directed by the Owner, the Contractor shall:

- .1 Stop Work under the Contract on the date and to the extent specified in the Notice of Termination;
- .2 Place no further purchase orders or subcontracts for materials, services, or facilities, except as may be necessary for completion of such portion of the Work under the Contract that is not terminated;
- .3 Terminate all purchase orders and subcontracts to the extent that they relate to the performance of Work terminated by the Notice of Termination;
- .4 At the option of the Owner, assign to the Owner in the manner, at the times and to the extent directed by the Owner, all of the rights in the contracts so terminated, in which case, the Owner shall have the right, at his discretion, to settle or pay any or all claims arising out of the termination of such purchase orders and subcontracts;
- .5 Settle all outstanding liabilities and all claims arising out of such termination of purchase orders and subcontracts, with the approval

GENERAL CONDITIONS

or ratification of the Owner, to the extent he may require, which approval or ratification shall be final for all the purposes of this Article;

- .6 Transfer title and deliver to the entity or entities designated by the Owner, in the manner, at the times and to the extent directed by the Owner to the extent specifically produced or specifically acquired by the Contractor for the performance of such portion of the Work as has been terminated, the following:
 - a. The fabricated or unfabricated parts, Work in progress, partially completed supplies and equipment, materials, parts, tools, dies, jigs, and other fixtures, completed work, supplies and other material produced as part of, or acquired in connection with the performance of, the Work terminated by the Notice of Termination; and
 - b. The completed or partially completed plans, drawings, Shop Drawings, submittals, information, releases, manuals, and other property related to the Work and which, if the Contract had been completed, would have been required to be furnished to the Owner.
- .7 Use his best efforts to sell, in the manner, at the times, to the extent and at the price or prices directed or authorized by the Owner or Owner's Project Manager, any property of the types referred to in Article 14.4.1.6; provided, however, that the Contractor:
 - a. Shall not be required to extend credit to any buyer; and
 - b. May acquire such property under the conditions prescribed by and at a price or prices approved by the Owner; and provided further that the proceeds of any such transfer or disposition shall be applied in reduction of any payments to be made by the Owner to the Contractor under the Contract or shall otherwise be credited to the Contract Price covered by the Contract or paid in such other manner as the Owner may direct;
- .8 Complete performance of such part of the Work as shall not have been terminated by the Notice of Termination; and
- .9 Take such action as may be necessary, or as the Owner or Owner's Project Manager may direct for the protection and preservation of

GENERAL CONDITIONS

the property related to the Contract that is in the possession of the Contractor and in which the Owner has or may acquire an interest.

14.4.2 If the convenience termination, pursuant to Article 14.1, is partial, the Contractor may file with the Owner a claim for an equitable adjustment of the Contract Price relating to the continued portion of the Contract (the portion not terminated by the Notice of Termination) for costs increased because of such partial termination. Such equitable adjustment as may be agreed upon shall be made in the Contract Price. Any claim by the Contractor for an equitable adjustment under this Article must be submitted in writing to the Owner's Project Manager within sixty days from the Notice of Termination.

14.4.3 The Contractor shall refund to the Owner any amounts paid by the Owner to the Contractor in excess of costs reimbursed under Article 14.4 within sixty days of receipt of a written request from the Owner to do so.

END OF ARTICLE 14

SECTION 011000

SUMMARY

PART 1 - GENERAL

1.1 SUMMARY OF WORK

- A. Work of this Contract Comprises of replacement of portions of the Ida Lee Recreation Center Roof.
- B. Work consists of providing labor, materials, equipment, services, and administration required in conjunction with or properly incidental to Project construction.

1.2 WORK UNDER OTHER CONTRACTS (NIC)

- A. Work on Project which may be executed prior to, along with, or after completion of Work of this Contract, and which is excluded from this Contract include:
 - 1. Fixtures and Equipment, including roof top units, electrical outlets, lights, weather monitors misc. roof penetrations and similar items.

1.3 WORK RESTRICTIONS

- A. Limit use of premises for Work, storage, and access to allow:
 - 1. Work by Owner.
 - 2. Work by other contractors.
 - 3. Owner occupancy.
- B. Assume responsibility for protection and safekeeping of products stored on site under this Contract.
- C. Move stored products which interfere with operations of Owner or separate contractors.
- D. Conduct operations to ensure least inconvenience to public and to occupied areas.
- E. Obtain and pay for use of additional storage or staging areas needed for operations.
- F. Do not load structure with weight that would jeopardize its safety.
- G. Should it be necessary to use portions of existing streets, sidewalks or right of ways for operations, obtain approval and pay for use of such areas in accordance with requirements of authorities having jurisdiction.
- H. Owner Occupancy:
 - 1. Owner will occupy specific areas of the premises during entire construction period.
 - 2. Cooperate with Owner during construction operations to minimize conflicts and to facilitate Owner usage.
 - 3. Perform Work to avoid interference and to minimize inconvenience with Owner operations.

PART 2 - PRODUCTS

NOT USED

PART 3 - EXECUTION

NOT USED

END OF SECTION

SECTION 012500
SUBSTITUTION PROCEDURES

PART 1 - GENERAL

1.1 QUALITY ASSURANCE

- A. Contract is based upon products and standards established in Contract Documents without consideration of proposed substitutions.
- B. Products specified define standard of quality, type, function, dimension, appearance and performance required.
- C. Substitution proposals are permitted for specified products, except where specified otherwise.
- D. Do not substitute products unless substitution has been accepted and approved in writing by Architect/Owner.

1.2 TIME OF SUBSTITUTION REQUESTS

- A. Substitution requests must be submitted at time of bid; requests will not be considered if submitted at another time. Refer to Bid Form for provisions of submitting and listing proposed substitutions.
- B. After receipt of bid, 3 lowest bidders will be requested to submit supporting data for each proposed substitution. Submit supporting data to Architect within 7 days of receipt of request; comply with specified substitution procedures and use attached "Substitution Request Form."
- C. Acceptance or rejection of proposed substitutions will be determined prior to award of Contract. Approved substitutions will be identified in Contract.
- D. No additional substitutions will be considered after this initial process unless a substitution is required due to specified product being removed from or unavailable in market place.

1.3 SUBSTITUTION PROCEDURES

- A. Limit each request to one proposed substitution.
- B. Submit substitution requests on attached form complete with attachments necessary to fully document proposed substitution. Submit in number of copies required for Contractor's use and distribution, plus one copy to be retained by Architect.
- C. Copy of required form is bound after last page of this Section. Remove form for making additional copies or request an original copy from Architect.
- D. Document each request with supporting data substantiating compliance of proposed substitution with Contract Documents, including:
 - 1. Manufacturer's name and address, product, trade name, model, or catalog number, performance and test data, and reference standards.
 - 2. Itemized point-by-point comparison of proposed substitution with specified product, listing variations in quality, performance and other pertinent characteristics.
 - 3. Reference to article and paragraph numbers in Specification section.
 - 4. Cost data comparing proposed substitution with specified product and amount of net change to Contract Sum.
 - 5. Changes required in other Work.
 - 6. Availability of maintenance service and source of replacement parts, as applicable.
 - 7. Certified test data to show compliance with performance characteristics specified.
 - 8. Samples, when applicable or requested.
 - 9. Other information as necessary to assist Architect's evaluation.
- E. A request for substitution for an equivalent product constitutes a representation that Contractor:
 - 1. Has investigated proposed product and determined that it is equal or superior in all respects to specified product.
 - 2. Will provide warranty as required for specified product.
 - 3. Will coordinate installation and make changes to other Work which may be required.
 - 4. Waives claims for additional costs or time extension which may subsequently become apparent.

5. Certifies that proposed product will not affect or delay Construction Progress Schedule.
 6. Will pay for changes to building design, including architectural or engineering design, detailing, and construction costs caused by the requested substitution.
- F. Substitutions will not be considered when:
1. Indicated or implied on shop drawings or product data submittals without formal request submitted in accord with this Section.
 2. Submittal for substitution request has not been reviewed and approved by Contractor.
 3. Acceptance will require substantial revision of Contract Documents or other items of the Work, unless substitution is required to bring Project into GMP compliance.
 4. Submittal for substitution request does not include point-by-point comparison of proposed substitution with specified product.

1.4 OWNER AND ARCHITECT'S REVIEW

- A. Architect will review requests for proposed substitutions and make recommendations to Owner on Substitution Request Form with reasonable promptness. Allow 10 working days.
- B. Considerations for acceptance will be based on conformance with Contract Documents, including following as applicable:
 1. Physical dimension and clearance requirements to satisfy space limitations.
 2. Static and dynamic weight limitations; structural properties.
 3. Audible noise levels.
 4. Vibration generation.
 5. Interchangeability of parts or components.
 6. Accessibility for maintenance to allow possible removal or replacement.
 7. Design.
 8. Colors, textures, and finishes.
 9. Compatibility with other materials, products, assemblies, and components.
- C. Owner's decision to approve or reject requested substitution will be indicated on Substitution Request Form. Approval of substitution not valid without Owner's signature.
- D. Rejection of proposed substitution by Owner requires use of specified product.

PART 2 - PRODUCTS

NOT USED

PART 3 - EXECUTION

NOT USED

END OF SECTION

Attachment: Substitution Request Form, 2 pages.

Contractor:

Project:

SUBSTITUTION REQUEST FORM

Note: Limit this Request to one proposed substitution

TO: Architect Date: _____ Request Number _____
FROM: Contractor Subcontractor Supplier Manufacturer _____

Specified Item: _____
Section: _____ Page: _____ Paragraph: _____

Proposed Substitution: _____
Manufacturer: _____ Address: _____ Phone Number: _____
Trade Name: _____ Model Number: _____
Installer: _____ Address: _____ Phone Number: _____
History: New product 2 to 5 years old 5 to 10 years old More than 10 years old

Differences between proposed substitution and specified product: _____

Point by point comparison data attached - **REQUIRED BY ARCHITECT**

Reason for Not Providing Specified Item: _____

Similar Installations:
Project: _____ Architect: _____
Address: _____ Owner: _____
Date Installed: _____
Project: _____ Architect: _____
Address: _____ Owner: _____
Date Installed: _____

Proposed substitution affects other parts of Work: No Yes; explain

Savings to Owner for accepting substitution: (\$ _____)

Proposed substitution changes Contract Time: No Yes; Add/Deduct _____ days.

Supporting Data Attached:
 Product Data Drawings Tests Reports Samples

Undersigned certifies:

- Proposed substitution has been fully investigated and determined to be equal or superior in all respects to specified product.
 - Same warranty will be furnished for proposed substitution as for specified product.
 - Same maintenance service and source of replacement parts, as applicable is available.
 - Proposed substitution will not affect or delay Construction Progress Schedule.
 - Cost data as stated above is complete. Claims for additional costs related to accepted substitution which may subsequently become apparent are to be waived.
 - Proposed substitution does not affect dimensions and functional clearances.
 - Payment will be made for changes to building design, including architectural or engineering design, detailing, and construction costs caused by the requested substitution.
 - Coordination, installation, and changes in the Work as necessary for accepted substitution will be complete in all respects.
-

Submitted by:

Signature: _____

Firm: _____

Address: _____

Telephone: _____

Attachments: _____

ARCHITECT'S REVIEW AND ACTION

- Approve Substitution - Make submittals in accordance with Specification Section 013300.
- Approve Substitution as noted – Make submittals in accordance with Specification Section 013300.
- Reject Substitution - Use specified products. Architect shall not have responsibility for performance of substitution approved by Owner and rejected by Architect.
- Substitution Request received too late - Use specified products.

Signed by: _____

Comments _____

OWNER'S REVIEW AND ACTION (Approval of Substitution not valid without Owner's signature)

- Substitution approved - Make submittals in accordance with Specification Section 013300.
- Substitution approved as noted - Make submittals in accordance with Specification Section 013300.
- Substitution rejected - Use specified products.

Signed by: _____

Comments _____

END OF FORM

SECTION 012600
CONTRACT MODIFICATION PROCEDURES

PART 1 - GENERAL

1.1 SUMMARY

- A. Related Sections:
1. Section 012500 - Substitution Procedures
 2. Section 012900 - Payment Procedures.
 3. Section 013300 - Submittal Procedures.
 4. Section 016000 - Product Requirements.
 5. Section 017700 - Closeout Procedures.

1.2 SUBMITTALS

- A. General:
1. Submit names of individuals authorized to receive Contract modification documents.
 2. Submit names of individuals responsible for informing Contractor's employees and affected subcontractors of Contract clarifications and modifications.

1.3 CHANGE PROCEDURES

- A. General: Change procedures are written instructions issued after execution of Contract Agreement.
- B. Minor Changes in the Work:
1. Form: AIA Document G710, *Architect's Supplemental Instructions*.
 2. Description: Written instructions, clarifications, or interpretations of Contract Documents not involving adjustment to Contract Sum or Contract Time. Instructions or interpretations are binding on Owner and Contractor.
 3. Procedure: Document is prepared and signed by Architect and distributed to Owner and Contractor. Architect's Supplemental Instructions are effective upon receipt.
- C. Proposal Request:
1. Form: AIA Document G709, *Proposal Request*.
 2. Description: Written proposed change of Work within Contract scope consisting of additions, deletions, and other revisions. Proposal Request is for information only and does not authorize changes in Contract Sum or Contract Time. Contractor evaluates proposal for pricing and scheduling impact.
 3. Procedure:
 - a. Document is prepared and signed by Architect. Copies are sent to Owner and Contractor.
 - b. Contractor shall review Proposal Request and submit Change Order Request and Proposal Worksheet Detail and Summary Forms with proposed changes in Contract Sum and Contract Time.
 - c. Prepare and submit Change Order Request and Proposal Worksheet Detail and Summary Forms Architect within 20 days of Proposal Request receipt. Proposed Contract Sum and Contract Time changes quoted by Contractor shall remain valid for 30 days from receipt by Architect.
- D. Change Order Request:
1. Attached Forms:
 - a. Change Order Request: Describes and summarizes Contractor's proposed changes. Indicates changes in Contract Sum and Contract Time.
 - b. Proposal Worksheet Summary: Summarizes labor, materials, overhead and profit, bonds, insurance, and tax of proposed Contract additions and deductions.
 - c. Proposal Worksheet Detail: Summarizes labor and material costs of each subcontractor involved in proposed change.
 2. Description: Written proposed change of Work consisting of additions, deletions, and other revisions. Submit Change Order Request to Architect for conditions which require Contract Document modifications. Include proposed changes in Contract Sum and Contract Time.

3. Procedure:
 - a. Proposed changes are documented by Contractor on Change Order Request, Proposal Worksheet Summary, and Proposal Worksheet Detail forms. Documents include description of proposed changes and summary of changes in Contract Sum and Contract Time are prepared and signed by Contractor. Send copies to Owner and Architect.
 - b. Comply with requirements of Section 012500 - Product Substitution Procedures for proposed changes in Work which include products or systems not contained in Contract Documents.
 - c. Architect and Owner will review Change Order Request and evaluate proposed changes. Architect and Owner may accept or reject Change Order Request. Upon acceptance Architect will prepare Change Order to document Contract change.
- E. Change Order:
 1. Form: AIA Document G701, *Change Order*.
 2. Description: Written change of Work within Contract scope consisting of additions, deletions, product substitutions, and other revisions, including proposed basis for adjustment to Contract Sum and Contract Time. Change Orders are signed by Owner, Contractor, and Architect. Owner's signature authorizes change.
 3. Procedure: Document is prepared and signed by Architect; sent to Contractor for acceptance and signature; approved and signed by Owner; distributed to Architect and Contractor. Contractor shall perform changes upon receipt.
- F. Construction Change Directive:
 1. Form: AIA Document G714, *Construction Change Directive*.
 2. Description: Written change of Work within Contract scope consisting of additions, deletions, and other revisions, including a proposed basis for adjustment to Contract Sum and Contract Time. Document is used in absence of agreement on terms of Change Orders.
 3. Procedure:
 - a. Document is prepared and signed by Architect and Owner. Contractor shall perform changes upon receipt.
 - b. Adjustments to Contract Sum should be one of following:
 - 1) Lump sum.
 - 2) Unit price.
 - 3) Mutually accepted method.
 - 4) As provided in AIA Document A201 Subparagraph 7.3.6; maintain detailed records on time and material basis of Construction Change Directive Work.
 - c. Architect will determine proposed method, time, and amount of Contract adjustment based on reasonable expenditures, and allowance for overhead, profit, and time.
 - d. Contractor's signing of Construction Change Directive acknowledges agreement with proposed method for adjusting Contract Sum and Contract Time and is recorded as Change Order.
 - e. Contractor disagreement or no response to proposed method for adjusting Contract Sum or Contract Time does not relieve Contractor from responsibility to perform Work.
 - f. Payment for Construction Change Directives will be made in accordance with AIA Document A201 Subparagraph 9.3.1.1.

PART 2 - PRODUCTS

NOT USED

PART 3 - EXECUTION

NOT USED

END OF SECTION

Attachments

CHANGE ORDER REQUEST (PROPOSAL)

Project: _____ COR Number: _____

From (Contractor): _____
To: _____ Date: _____

A/E Project Number: _____
RE: _____ Contract For: _____

This Change Order Request (COR) contains an itemized quotation for changes in the Contract Sum and/or Time in response to proposed modifications to the Contract Documents base on Proposal Request Number _____

Description of Proposed Change:

Attachment

Reason For Change:

Does Proposed Change involve a change in Contract Sum or Contract Time? Yes No

If Yes: Proposed Change in Contract Sum _____
Proposed Change in Contract Time _____

Attached Pages: Proposed Worksheet Summary
Proposed Worksheet Detail(s)

Signed by: _____

Attached is supporting information from Subcontractor Supplier _____ _____

Copies: Owner Contractor Consultants Field _____ _____

PROPOSAL WORKSHEET SUMMARY

Project: _____ COR Number: _____
 _____ From (Contractor): _____
 To: _____ Date: _____
 Proposal Request Number: _____ A/E Project Number: _____

Complete and attach Proposal Worksheet Detail for each Subcontractor. Enter Work Sheet Information below.

SUBCONTRACTORS' ADDITIONS:

Sheet	Description	Material	Labor	Sub-Total
1				
2				
3				
4				
5				
6				
7				
Sub-Total				

SUBCONTRACTORS' DEDUCTS:

Sheet	Description	Material	Labor	Sub-Total
1				
2				
3				
4				
5				
6				
7				
Sub-Total				

Subcontractors' Net: _____
 Subcontractors' OH&P: _____
 Subcontractors' Bond: _____
Subcontractors' Total: _____
 General Contractor OH&P: _____
 General Contractor Bond: _____
 Insurance: _____
 Tax: _____
WORKSHEET TOTAL: _____

PROPOSAL WORKSHEET DETAIL

Project Name: _____ COR Number: _____

Project Number: _____ Detail Sheet Number: _____

Subcontractor Name: _____ Date: _____

Phone Number/Contact Person: _____ **DO NOT MARK IN SHADED AREAS.**

ADDITIONS

				UNIT PRICES				SUB-TOTALS					
	Ref. No.	Item Description	Quantity		Materials		Labor		Materials		Labor		TOTAL
1													
2													
3													
4													
5													
Sub-Total (Enter this number on Work Sheet Summary.)													

DEDUCTIONS

				UNIT PRICES				SUB-TOTALS					
	Ref. No.	Item Description	Quantity		Materials		Labor		Materials		Labor		TOTAL
1													
2													
3													
4													
5													
Sub-Total (Enter this number on Work Sheet Summary.)													

SECTION 012900
PAYMENT PROCEDURES

PART 1 - GENERAL

1.1 SUMMARY

- A. Coordinate Schedule of Values and Applications for Payment with Construction Progress Schedule, Submittal Schedule, and List of Subcontracts.

1.2 SCHEDULE OF VALUES

- A. General: Refer to Section 013200.

1.3 APPLICATIONS FOR PAYMENT

- A. General:
1. Maintain consistency with previous applications for payments as certified by Architect and paid by Owner.
 2. Initial Application for Payment, Application for Payment at time of Substantial Completion, and final Application for Payment involve additional requirements.
 3. Payment application times:
 - a. Submit each progress payment the last day of each month.
 - b. Submit draft to Architect by the 25th day of the month.
 - c. Work covered by each Application for Payment is period indicated in Agreement.
 4. Payment application forms: Use AIA Document G702 *Application and Certificate for Payment* and G703 *Continuation Sheet* for Application for Payment.
- B. Application Preparation:
1. Complete every entry on form, including notarization and execution by person authorized to sign legal documents on behalf of Contractor.
 2. Incomplete applications will be returned without action.
 3. Match data entries on Schedule of Values and Construction Progress Schedule. Use updated schedules if revisions have been made.
 4. Include amounts of Change Orders and Construction Change Directives issued prior to last day of construction period covered by application.
- C. Transmittal:
1. Submit one signed original and four signed copies of each executed Application for Payment to Architect by date required for receipt; include waivers of lien and similar attachments with one copy.
 2. Transmit each copy with transmittal form listing attachments, and recording appropriate information related to application in manner acceptable to Architect.
- D. Waivers of Mechanics Lien:
1. With each Application for Payment submit waivers of mechanics liens from subcontractors and suppliers for construction period covered by previous application.
 2. Submit partial waivers on each item for amount requested, prior to deduction for retainage, on each item.
 3. When application shows completion of item, submit final or full waivers.
 4. Owner reserves right to designate which entities involved in Work must submit waivers.
 5. Waiver forms: Submit waivers of lien on properly executed AIA Document G706A, *Contractor's Affidavit of Release of Liens*.
- E. Initial Application for Payment: Administrative actions and submittals that must precede or coincide with submittal of first Application for Payment include following:
1. Initial Schedule of Values.
 2. Schedule of principal products.
 3. List of subcontractors.
 4. List of principal suppliers and fabricators.

5. Construction Progress Schedule (preliminary if not final).
 6. Submittal schedule (preliminary if not final).
 7. Copies of building permits.
 8. Schedule of unit prices.
 9. List of Contractor's staff assignments.
 10. List of Contractor's principle consultants.
 11. Copies of authorizations and licenses from governing authorities for performance of Work.
 12. Initial progress report.
 13. Report of preconstruction meeting.
 14. Certificates of insurance and insurance policies.
 15. Performance and payment bonds (if required).
- F. Application for Payment at Substantial Completion:
1. Following issuance of Certificate of Substantial Completion, submit Application for Payment reflecting Certificates of Partial Substantial Completion issued previously for Owner occupancy of designated portions of Work.
 2. Required administrative actions and submittals that precede or coincide with this application include:
 - a. Occupancy permits and similar approvals.
 - b. Warranties and maintenance agreements (dated to commence on date of Substantial Completion).
 - c. Test/adjust/balance records.
 - d. Maintenance instructions.
 - e. Meter readings.
 - f. Start-up performance reports.
 - g. Change-over information related to Owner's occupancy, use, operation, and maintenance.
 - h. Application for reduction of retainage, and consent of surety, AIA Document G707A, *Consent of Surety to Reduction in or Partial Release of Retainage*.
 - i. Advice on shifting insurance coverages.
 - j. Final progress photographs.
 - k. Comprehensive list of incomplete or non-complying Work (initial punch list).
- G. Final Payment Application: Required administrative actions and submittals which precede or coincide with submittal of final payment Application for Payment include following:
1. Completion of Project Closeout requirements.
 2. Completion of items specified for completion after Substantial Completion.
 3. Assurance that unsettled claims will be settled.
 4. Submittal of AIA Document G707, Consent of Surety to Final Payment.
 5. Assurance that Work not complete and accepted will be completed without undue delay.
 6. Final cleaning.
 7. Transmittal of required Project construction records to Owner.
 8. Certified property survey.
 9. Proof that taxes, fees and similar obligations have been paid.
 10. Removal of temporary facilities and services.
 11. Removal of surplus materials, rubbish and similar elements.
 12. Change of door locks to Owner's access.

PART 2 - PRODUCTS

NOT USED

PART 3 - EXECUTION

NOT USED

END OF SECTION

SECTION 013100

PROJECT MANAGEMENT AND COORDINATION

PART 1 - GENERAL

1.1 GENERAL COORDINATION PROVISIONS

- A. Carefully study and compare Contract Documents before proceeding with fabrication and installation of Work. Promptly advise Architect of any error, inconsistency, omission, or apparent discrepancy discovered.
- B. Allot time in construction scheduling for liaison with Architect; establish procedures for handling queries and clarifications. Use "Request for Interpretation" form for requesting information. Copy of form is bound after last page of this Section. Remove form for making additional copies or request an original copy from Architect. Limit each RFI to a single issue or a group of related issues.
 - 1. If Architect is able to respond to a request for interpretation by making specific reference to Drawing sheet or Specification Section, Contractor shall reimburse Owner for charges of Architect and Architect's Consultants for performing review services for the Contractor.
 - 2. If Contractor disagrees with Architect's response to Contractor's RFI, Contractor shall notify Architect within seven days of receipt of response. Lack of such notification shall be understood to mean that Contractor agrees with response.
 - 3. Allow minimum 7-day response time from receipt of each RFI. RFI's shall include a workable no-cost proposed solution from Contractor. If more than 10 RFIs are received within 4 working day period, Architect's response time will be extended as necessary for professional response; order of responses will be based on priority established by Architect after consultation with Owner and Contractor.
- C. In addition to other specified meetings, hold coordination meetings and conferences with personnel and subcontractors to ensure coordination of Work.
- D. Coordinate scheduling, submittals, and Work of various Specification sections to avoid conflicts and ensure efficient and orderly sequence of installation of interdependent construction elements.
- E. Coordinate Work of various Specification sections having interdependent responsibilities for installation, connection, and operation.
- F. Verify that characteristics of operating equipment are compatible with building utilities and services.
- G. Except as otherwise indicated, conceal pipes, ducts, conduit and wiring in construction. Coordinate locations of fixtures and outlets with finish elements.
- H. Make provision to accommodate items scheduled for later installation.

1.2 COORDINATION DRAWINGS AND LAYOUTS

- A. General:
 - 1. Coordination drawings are not shop drawings and are not to be submitted to Architect for approval.
 - 2. Coordination drawings show relationship and integration of different construction elements that require careful coordination during fabrication or installation to fit in space provided or to function as intended.
 - 3. Except as otherwise specified, prepare composite coordination drawings to scale of 1/4"=1'-0" or larger; detailing major elements, components, and systems of site utilities, architectural, structural, mechanical, and electrical equipment and materials in relationship with each other, installations, and building components. Include dimensions.
 - 4. Provide coordination drawings utilizing different colors to illustrate work of separate trades.
 - 5. Indicate locations where space is limited for installation and access and where sequencing and coordination of installations are of importance to efficient flow of Work affecting one or more trades.
 - 6. Indicate scheduling, sequencing, movement, and positioning of large equipment into building during construction.

7. Prepare floor plans, elevations, and details to indicate penetrations in floors, walls, and ceilings and their relationship to other penetrations and installations.
 8. Prepare reflected ceiling plans to coordinate and integrate installations, air outlets and inlets, light fixtures, communications systems components, sprinklers, and other ceiling-mounted devices.
 9. Show interrelationship of components to be shown on separate Shop Drawings.
 10. Indicate required installation sequences.
- B. Site Utilities: Include, but not necessarily limited to following:
1. Water Distribution: Pipe sizes, valve and meter locations, underground structures, connections, anchors, and reaction backing. Indicate spatial relationship between piping and other piping in same trench, and proximate structures.
 2. Sanitary Sewerage: Pipe sizes, manholes, locations and elevations, underground structures, and connections. Indicate spatial relationship between piping and other piping in same trench, and proximate structures.
 3. Natural Gas Distribution: Pipe sizes, valves, gas meters, and specialties. Include details of underground structures and piping. Show other piping in same trench and clearances from natural gas piping. Indicate interface and spatial relationship between piping and proximate structures.
 4. Drainage and Containment:
 - a. Manholes and other structures, pipe sizes, locations, and elevations. Include details of underground structures and connections. Indicate spatial relationship between piping other piping in same trench, and proximate structures.
 - b. Profile Drawings: Show systems piping in elevation. Draw profiles at horizontal scale of not less than 1 inch equals 50 feet and vertical scale of not less than 1 inch equals 5 feet. Indicate underground structures and pipe. Show types, sizes, materials, and elevations of other utilities that cross system piping
 5. Storm Drainage:
 - a. Pipe sizes, manholes and catch basins locations and elevations. Include details of underground structures and connections. Show other piping in the same trench and clearances from storm sewerage system piping. Indicate interface and spatial relationship between piping and proximate structures.
 - b. Profile Drawings: Show storm sewerage system piping in elevation. Draw profiles at a horizontal scale of not less than 1 inch equals 50 feet and a vertical scale of not less than 1 inch equals 5 feet. Indicate pipe and underground structures. Show types, sizes, materials, and elevations of other utilities crossing sewerage system piping.
- C. Structural Systems: Include, but do not necessarily limit to following:
1. Structural frame showing interface with exterior cladding.
 2. Location of openings in relation to structure.
 3. Show attachments to decking, structural elements, and other systems.
- D. Mechanical Systems: Include, but do not necessarily limit to following:
1. Proposed locations of piping, ductwork, equipment, and materials.
 2. Proposed locations for access panels and doors.
 3. Clearances for installing and maintaining insulation.
 4. Clearances for servicing and maintaining equipment, including tube removal, filter removal, and space for equipment disassembly required for periodic maintenance. Show access locations.
 5. Equipment connections and support details.
 6. Exterior wall and foundation penetrations.
 7. Fire-rated wall and floor penetrations.
 8. Sizes and location of required concrete pads and bases.
 9. Valve stem movement.
- E. Plumbing Systems: Include, but do not necessarily limit to following:
1. Proposed locations of clean-outs.
- F. Electrical Systems: Include, but do not necessarily limit to following:
1. Proposed locations of major raceway systems, equipment, and materials.

2. Clearances for servicing equipment, including space for equipment disassembly required for periodic maintenance. Show access locations.
 3. Exterior wall and foundation penetrations.
 4. Fire-rated wall and floor penetrations.
 5. Equipment connections and support details.
 6. Sizes and location of required concrete pads and bases.
- G. Coordinate in field with affected trades for proper relationship to Work based on Project conditions.
- H. Notify Architect of conflicts and other coordination issues requiring resolution prior to commencing construction in each affected area.
- I. Submit Contractor's certification to Architect that coordination documents have been completed and coordination issues have been identified and resolved prior to commencing construction in each affected area.
- J. Make coordination documents available in field office for review by Architect and Owner during entire period of construction.

1.3 COORDINATION OF SPACE

- A. Coordinate use of Project space and sequence of installation of plumbing, fire protection, mechanical and electrical Work. Follow routings shown for pipes, ducts, and conduits as closely as practicable, with due allowance for available physical space; make runs parallel with building lines. Utilize space efficiency to maximize accessibility for other installations, for maintenance, and for repairs.
- B. Layout of plumbing, fire protection, mechanical, and electrical systems, equipment, fixtures, piping, ductwork, conduit, specialty items, and accessories indicated on Drawings is diagrammatic. Variations in alignment, elevation, and details required to avoid interference and satisfy architectural and structural limitations are not necessarily shown.
- C. Prior to installation of material and equipment, review and coordinate Work with Architectural and Structural Drawings to establish exact space conditions. Where available space is inadequate or where reasonable modifications are not possible, request information from Architect before proceeding.
- D. Coordinate installation to prevent conflicts and cooperate in making, without extra charge, reasonable modifications in layout as needed.
- E. Provide clear access to control points, valves, strainers, control devices, and specialty items of every nature related to such systems and equipment to obtain maximum head room. Provide adequate clearances as necessary for operation and maintenance.

1.4 COORDINATION OF CONTRACT CLOSEOUT

- A. Coordinate completion and clean up of Work in preparation for Substantial Completion.
- B. To minimize disruption of Owner's activities after occupancy of premises, coordinate access to site by various trades for correction of defective Work and for correction of Work not in accordance with Contract Documents.

1.5 GENERAL MEETING REQUIREMENTS

- A. Schedule meetings and conferences throughout progress of Work; each session scheduled, administered, and presided by entity indicated. Requirements for meetings and conferences include:
1. Prepare agenda for each conference and meeting.
 2. Distribute written notice to participants 7 days in advance of scheduled date.
 3. Make physical arrangements.
 4. Record minutes and attendees; include significant proceedings and decisions.
 5. Reproduce and distribute copies of minutes within 5 days after each meeting.
 6. Distribute one copy of minutes to each participant and to entities affected by decisions made at meeting.
 7. Distribute one copy of minutes to Architect and Owner.

8. Maintain in field office one copy of agenda and minutes for each conference and meeting.
- B. Representatives attending meetings shall be qualified and authorized to act on behalf of entity each represents.
- C. Architect and professional consultants may attend meetings to ascertain that Work is consistent with Contract Documents.
- D. Owner may be present at meetings and may propose agenda items.

1.6 PRECONSTRUCTION CONFERENCES

- A. Schedule preconstruction conferences no later than 7 days prior to commencement of Work. Convene at Project site.
- B. Attendees:
 1. Architect and professional consultants; Architect presides over meeting and is responsible for minutes.
 2. Owner.
 3. Contractor.
 4. Major subcontractors.
 5. Others as appropriate.
- C. Minimum Agenda:
 1. Administrative and procedural issues:
 - a. Designation of key personnel.
 - b. Review and clarify responsibilities of parties to contract.
 - c. Communications procedures.
 - d. Review of proposed subcontractors, materials, equipment, and products.
 - e. Application for payment procedures; schedule of values, proposal requests, change orders.
 - f. Critical work sequencing; long lead time items.
 - g. Submittal and construction progress schedules.
 - h. Submittal requirements; complete, correct, and timely submittals; scheduled dates.
 - i. Procedures for submitting product data, shop drawings, samples, and other submittals.
 - j. Product options and substitutions procedures.
 - k. Procedures for requests for interpretations (RFI), minor changes, field decisions, construction change directives, proposal requests, change orders, and filing claims.
 - l. Procedures for testing and inspection, including timely notification.
 - m. Responsibilities and limitations of authority of testing laboratories; distribution of reports.
 - n. Procedures for maintaining Project Record Documents.
 - o. Schedule for progress meetings.
 2. Site mobilization and utilization:
 - a. Use of premises; office and storage areas.
 - b. Temporary utilities and services.

1.7 PROGRESS MEETINGS

- A. Schedule periodic meetings as necessary by progress of Work; day, location, and time to be determined. Convene at Project site.
- B. Attendees:
 1. Contractor; presides over meeting and is responsible for minutes.
 2. Subcontractors as appropriate.
 3. Owner, Architect, and professional consultants may attend as appropriate.
 4. Others as appropriate to agenda.
- C. Minimum Agenda:
 1. Approval of minutes of previous meeting.
 2. Work progress since previous meeting:
 - a. Current activities.
 - b. Critical activities.

- c. Deviations from schedule.
 - 3. Field observations, problems, conflicts, and decisions.
 - 4. Deficiencies:
 - a. Identification of items.
 - b. Status of correction.
 - 5. Requests for Interpretations (RFIs):
 - a. Status of clarification.
 - b. Status of proposal requests.
 - 6. Changes and modifications:
 - a. Status of change orders.
 - b. Pending changes.
 - c. Pending claims and disputes.
 - d. Clarification decisions of Architect or Owner.
 - 7. Problems and conflicts which impede planned progress.
 - 8. Construction Progress and Submittal Schedules:
 - a. Off-site fabrication and delivery schedules.
 - b. Effect of proposed changes on construction progress schedule and coordination.
 - c. Submittal schedules, status of submittals, and effect on construction progress schedule.
 - d. Corrective measures to regain projected schedule.
 - 9. Planned progress during succeeding Work period.
 - 10. Adequacy of work forces.
 - 11. Coordination between elements of Work.
 - 12. Maintenance of Project Record Documents.
 - 13. Other business relating to progress of Work.
- D. Meeting Minutes:
- 1. Include column to indicate who is required to take action and date action is to be completed. Each of these items requiring action will be carried in subsequent minutes of meeting as "old business" until noted as "resolved."
 - 2. As minimum, separate into following categories:
 - a. Old business.
 - b. New business.
 - c. Work progress.
 - d. Deficiencies.
 - e. RFIs.
 - f. Proposed changes.
 - g. Schedules.
 - h. Submittals.
 - i. Other business, including events to be accomplished by next meeting.

1.8 PREINSTALLATION CONFERENCES

- A. Schedule preinstallation conferences required in individual Specification sections. Convene at Project site prior to commencing Work of the section.
- B. Attendees:
 - 1. Project superintendent; presides over meeting and is responsible for minutes.
 - 2. Subcontractor (installer, applicator, or erector).
 - 3. Material or equipment supplier.
 - 4. Manufacturers' representative.
 - 5. Others directly affecting, or affected by the work.
 - 6. Testing agency (if necessary).
 - 7. Subcontractors as appropriate.
 - 8. Owner, Architect, and professional consultants may attend as appropriate.
 - 9. Others as appropriate to agenda.
- C. Minimum Agenda:
 - 1. Access to work and conditions of proper installation.

2. Conditions of installation, such as substrates, existing and surrounding conditions, and environmental conditions.
3. Conditions detrimental to installation.
4. Preparation procedures, including protection of adjacent work.
5. Verify installers' receipt and understanding of installation instructions.
6. Review submittals, installation procedures, and sequence.
7. Review coordination with other work.
8. Evaluate delivery schedule and Construction Progress Schedule.
9. Observe sample installation.
10. Required protection procedures.
11. Observe actual installation areas.

1.9 CLOSEOUT CONFERENCE

- A. Schedule Project Closeout conference prior to requesting Substantial Completion.
- B. Attendees:
 1. Contractor; presides over meeting and is responsible for minutes.
 2. Major subcontractors.
 3. Owner, Architect, and professional consultants may attend as appropriate.
 4. Others as appropriate to agenda.
- C. Minimum Agenda:
 1. Start-up of facilities and systems.
 2. Testing, adjusting, and balancing.
 3. System demonstration and observation.
 4. Operation and maintenance instructions for the owner's personnel.
 5. Contractor's inspection of work.
 6. Contractor's preparation of an initial "punch list."
 7. Procedure to request Architect inspection to determine date of substantial completion.
 8. Completion time for correcting deficiencies.
 9. Inspections by authorities having jurisdiction.
 10. Certificate of occupancy and transfer of insurance responsibilities.
 11. Partial release of retainage.
 12. Preparation for final inspection.
 13. Closeout submittals:
 - a. Project Record Documents.
 - b. Operating and maintenance documents.
 - c. Operating and maintenance materials.
 - d. Warranties and bonds.
 - e. Affidavits.
 14. Final application for payment.
 15. Final cleaning.
 16. Contractor's demobilization of site.
 17. Maintenance.

PART 2 - PRODUCTS

NOT USED

PART 3 - EXECUTION

NOT USED

END OF SECTION

Attachment: Request for Interpretation

REQUEST FOR INTERPRETATION

Contractor: _____ Project: _____

Question to: Architect From: Contractor Date: _____

Other Signed: _____ RFI Number: _____

RE:

Specification Section No. _____ Paragraph No. _____ Drawing Ref. _____ Details _____

Contractor's Proposed Solution:

Response:

Response Above From: Architect To: Contractor Date Transmitted: _____ Dated Rec'd: _____

Copies: Owner Other _____ Signed: _____

SECTION 013200
CONSTRUCTION PROGRESS DOCUMENTS

PART 1 - GENERAL

1.1 PHOTOGRAPHY

- A. Cooperate with photographer, provide access to Work, and reasonable use of temporary facilities including temporary lighting.
- B. Employ commercial photographer, mutually agreeable to Owner and Architect, to take construction photographs.
- C. Take photographs on date for each Application for Payment, and as follows:
 - 1. Site clearing.
 - 2. Excavations.
 - 3. Foundations.
 - 4. Structural framing.
 - 5. Enclosure of building.
 - 6. Final completion.
- D. Provide correct exposure and focus, high resolution and sharpness, maximum depth of field, and minimum distortion.
- E. Views:
 - 1. Consult with Architect for instructions on views required at each visit to site.
 - 2. Photograph from locations to factually illustrate condition of construction and state of progress.
 - 3. Provide photograph views at each specified time until Date of Substantial Completion.
- F. Architect has right to request fewer photographs be taken at certain intervals so that more photographs may be taken at other times, providing that total number of photographs remain same.
- G. Additional Photographs:
 - 1. From time to time Architect may issue requests for additional photographs, in addition to periodic photographs specified.
 - 2. Additional photographs will be paid for by Change Order, and are not included in Contract Sum or Allowance.
 - 3. Architect will give photographer 3 days notice, where feasible.
 - 4. In emergency situations, photographer shall take additional photographs within 24 hours of Architect's request.
 - 5. Circumstances that could require additional photographs include, but are not limited to:
 - a. Substantial Completion of major phase or component of Work.
 - b. Owner's request for special publicity photographs.
 - c. Special events planned at project site.
 - d. Immediate follow-up when on-site events result in construction damage or losses.
 - e. Photographs taken at fabrication locations away from Project site.
 - f. Extra record photographs at time of final acceptance.
- H. Do not display photographs in publications without permission of Owner.

1.2 IMAGES

- A. Digital Images:
 - 1. Submit complete set of digital image electronic files with each submittal of prints
 - 2. Provide complete set as Project Record Document.
 - 3. Identify electronic media with date photographs were taken.
 - 4. Submit images that have the same aspect ratio as the sensor, uncropped.
- B. Deliver images to Owner in accordance with Section 017800. Provide index to electronic images in chronological sequence.

1.3 SCHEDULE OF VALUES

- A. General:
 - 1. Submit at least 30 days prior to submitting first Application for Payment.
 - 2. Upon request of Architect, submit additional data to substantiate accuracy of given values.
 - 3. Approved schedule will be used as basis for reviewing applications for payment.
- B. Format:
 - 1. Use AIA Document G703 - *Continuation Sheet* for application and certificate for payment, or use letter size white bond paper following format of AIA Document G703.
 - 2. Contractor's standard form or electronic media printout will be considered on request.
 - 3. Follow 50 Division format established in Table of Contents of Project Manual for listing of categories. Identify each line item by number and title of respective Specification sections.
 - a. Identify Schedule of Values with following information:
 - b. Project name and location.
 - c. Name of the Architect.
 - d. Project number.
 - e. Contractor's name and address.
 - f. Date of submittal.
- C. Content:
 - 1. List installed value of each item of Work and each subcontracted item of Work as separate line item to serve as basis for computing values for Progress Payments. Round off values to nearest dollar.
 - 2. For each major subcontract, list products and operations of that subcontract as separate line items.
 - 3. Include in each line item, as applicable, amount specified for allowances.
 - 4. Itemize separate line costs for performance and payment bonds, field supervision, field layout, temporary facilities and controls, and overhead and profit.
 - 5. For items on which payments will be requested for stored products, list sub-values for cost of materials, delivered and unloaded, with taxes paid.
 - 6. Sum of listed values shall equal total Contract Sum.
- D. Review and Resubmittals:
 - 1. After Architect's initial review, revise and resubmit as necessary.
 - 2. Revise and resubmit whenever Change Order is issued. Show each Change Order as new line item. Submit revised schedule with next application for payment.

1.4 CONSTRUCTION PROGRESS SCHEDULE

- A. Submit initial preliminary schedule 15 days prior to first Application for Payment. Within 7 days after return of reviewed submittal, resubmit revised data.
- B. Prepare schedule as horizontal bar chart with separate bar for each major portion of Work or operation, identifying first work day of each week.
- C. Content:
 - 1. Show complete sequence of construction by activity, with dates for beginning and completion of each major element of construction.
 - 2. Identify Work of separate stages or phases, separate floors, or other logically grouped activities.
 - 3. Show accumulated percentage of completion of each item, and total percentage of Work completed as of first day of each month.
 - 4. Review specifications and determine availability of products and long-lead items. Identify long lead items on schedule to allow sufficient time for submittals and order placement to obtain item without delaying Work.
 - 5. Indicate delivery dates for Owner furnished products.
 - 6. Provide sub-schedules to define critical portions of entire schedule.
- D. Submittal Schedule:
 - 1. Provide separate sub-schedule to construction progress schedule indicating submittal dates and review time allowed for shop drawings, product data, samples and other similar data, including Owner furnished products.

2. Submit schedule submittal 15 days prior to first Application for Payment.
 3. Indicate dates reviewed submittals will be required from Architect taking into consideration the quantity of days specified for Architect's review.
 4. Allow sufficient time in schedule for resubmittal of disapproved submittals without causing construction delay.
 5. Indicate decision dates for selection of finishes and colors.
- E. Progress Revisions:
1. Identify activities modified since previous submittal, major changes in scope, changes in dates, and other identifiable changes.
 2. Provide narrative report as necessary to define problem areas, anticipated delays, and impact on schedule.
 3. Report corrective action taken, or proposed, and its effect.
- F. Progress Submittals:
1. Submit revised schedule with each application for payment.
 2. Submit in quantity required for distribution, plus 2 copies to be retained by Architect.
- G. Distribute copies of reviewed schedule to project site file, subcontractors, suppliers, and other concerned parties.
- H. Architect will review construction progress schedules and submittal schedules, and return within 30 working days of receipt.

1.5 PROPOSED PRODUCTS LIST

- A. General:
1. Submit at least 15 days prior to submitting first Application for Payment.
 2. Submit complete list of major products proposed for use, with name of manufacturer, trade name, and model number of each product.
- B. For products specified only by reference standards, give manufacturer, trade name, model or catalog designation, and reference standards.
- C. Listing may be combined with submittal of subcontractor listing required by subparagraph 5.2.1 of General Conditions.
- D. Architect will reply in writing within 15 days stating whether there is reasonable objection to listed items. Failure to object to a listed item shall not constitute waiver of requirements of Contract Documents.

1.6 PROPOSED SUBCONTRACTORS AND MANUFACTURERS

- A. Submit in writing within 30 days of notice to proceed complete listing of all subcontractors and manufacturers proposed for Project. Follow specification table of contents for subcontractor and manufacturer listing.
- B. Architect will respond in writing within 21 days stating whether or not Owner or Architect have reasonable objection to any proposed subcontractor or manufacturer. Failure to reply constitutes notice of no reasonable objection, however, failure to reply does not alter Contract Document requirements.

PART 2 - PRODUCTS

NOT USED

PART 3 - EXECUTION

NOT USED

END OF SECTION

SECTION 013300
SUBMITTAL PROCEDURES

PART 1 - GENERAL

1.1 SUMMARY

- A. Related Sections:
 - 1. Section 013100 - Project Management and Coordination: Coordination drawings and layouts.
 - 2. Section 013200 - Construction Progress Documentation: Submittal Schedule and Proposed Products List.

1.2 SUBMITTAL PROCEDURES

- A. Schedule submittals to expedite Project in accordance with approved Construction Progress Schedules and in such sequence as to cause no delay in the Work or in the activities of Owner or of separate contractors.
- B. Deliver submittals to Architect's office. Submittals accepted only from Contractor.
- C. Submit product data, shop drawings, samples, calculations, certificates, manufacturer's instructions, and other items requested within each specification section.
- D. Transmit each submittal using form which includes at a minimum:
 - 1. Transmittal Date
 - 2. Project Name and Architect's Project Number
 - 3. Number of submittals included.
 - 4. Submittal Number
 - 5. Submittal Name
 - 6. Date indicated on submittal
 - 7. Indication of other parties copied on transmittal
 - 8. Indication of whether submittal constitutes a Substitution
 - 9. Indication of whether submittal is an initial or resubmittal.
- E. Use blue colored paper for informational submittals; white paper for all other submittals.
- F. Transmit each submittal using form attached to this Section. Number submittals using Specification section number and unique numeric reference number. Indicate reference number of previous submission for resubmittals.
 - For example, Specification Section - 079200; Reference Number - 02; previous Reference Number - 01.
- G. Identify Project, Contractor, subcontractor or supplier, pertinent Drawing sheets and detail numbers, and Specification section number, as appropriate.
- H. Example of submittal review stamp is appended to end of this section for information.
- I. Apply Contractor's stamp, sign or initial and date certifying that review, verification of products, field dimensions, adjacent construction Work, and coordination of information, is in accordance with requirements of Work and Contract Documents.
- J. Submittals will be returned without processing if they have not been reviewed and stamped by Contractor for coordination of work and conformance with the Drawings and Specifications prior to submission to Architect, if they are not initialed or signed by authorized person, if they are not dated, or if it becomes evident that they have not been properly reviewed. Delays resulting therefrom are not responsibility of Architect.
- K. Maintain in field office a copy of submittal schedule and log of submittals indicating current status of each item.

- L. Prepare submittals using the same units of measurement system (metric or inch-pound) in compliance with requirements stated in Section 014000. Use ASTM E380 and E621 for establishing metric measurements used in submittals.
- M. Submit deferred submittals to authorities having jurisdiction for each system and condition for this project requiring engineering or design selections by Contractor. Obtain approval from authority having jurisdiction.

1.3 PRODUCT DATA

- A. Submit quantity of copies required by Contractor, plus 2 copies to be retained by Architect.
- B. Mark each copy to identify applicable products, models, options, and other data. Supplement manufacturers' standard data to provide information unique to Project. Delete inapplicable data.

1.4 SHOP DRAWINGS

- A. Submit one reproducible and 2 copies. Only reproducible will be returned to Contractor.
- B. Bind in complete sets. Transmit reproducible transparencies in roll form to eliminate folding. Folding of prints is acceptable.
- C. Present in clear and thorough manner. Title each drawing with Project name and number; identify each element of drawings by reference to sheet number and detail, schedule, or room number of Contract Documents.
- D. Check and coordinate shop drawings of any section or trade with requirements of other sections or trades and as necessary for proper coordination and complete installation of Work.
- E. Do not use Contract Drawings for shop drawings. Provide original shop drawings with changes from Contract Drawings clearly indicated. Contractor shall not rely on the receipt of any electronic media from the Architect or engineers for the preparation of any required shop drawings.
- F. Show layout, details, materials, dimensions, thicknesses, methods of assembly, attachments, relation to adjoining Work, wiring diagrams, rough-in requirements, and other pertinent data and information.
- G. Verify dimensions and field conditions. Clearly indicate field dimensions and field conditions.
- H. Submit detail drawings of special accessory components not included in manufacturer's product data.
- I. Existing Conditions:
 - 1. Show locations of existing conditions which affect installation of new Work.
 - 2. Show details of existing conditions and proposed modifications as requested by Architect.

1.5 SAMPLES

- A. Submit 1 set, except where indicated otherwise in Specification sections. Sample to be retained by Architect.
- B. Include identification on each sample with full Project information.
- C. Submit samples to illustrate functional and aesthetic characteristics of product, including integral parts and attachment devices. Coordinate sample submittals for interfacing Work.
- D. Except where specified otherwise, submit samples from full range of manufacturer's standard colors illustrating textures, patterns, and finishes for Architect selection.
- E. Where custom colors are specified, submit samples illustrating colors, textures, patterns, and finishes for Architect's review. Architect will advise colors required or furnish samples for color matching.
- F. Architect's acceptance of samples is for visual compliance with design intent only and does not constitute acceptance of performance criteria.

1.6 SUPPORT REACTION DESIGN DATA

- A. When specified in individual Sections, submit support reaction design data.

- B. Furnish separate submittal indicating complete description of loads, forces, and moments transferred to "base building" structure at each point of contact.
- C. Include secondary forces resulting from connections used.
- D. Do not submit engineering calculations for support reactions.
- E. Submit design data bearing seal and signature of professional engineer responsible for design.

1.7 CALCULATIONS

- A. When specified in individual Sections, submit calculations.
- B. Submit engineering calculations for component sizes, deflections, and connections.
- C. Submit calculations bearing seal and signature of registered professional engineer responsible for design.
- D. Where existing conditions deviate from Contract Documents or shop drawings, submit calculations for existing condition, including calculations for anticipated corrective action required, and changes to loads transferred to "base building" structure.

1.8 INFORMATIONAL SUBMITTALS

- A. Informational submittals upon which Architect is not expected to take responsive action may be so identified in Contract Documents. When professional certification of performance criteria of materials, systems, or equipment is required by Contract Documents, Architect shall be entitled to rely upon accuracy and completeness of such certifications.
- B. Types of Informational Submittals:
 - 1. Design data: Submit with shop drawings.
 - 2. Test reports: Submit within two weeks of testing.
 - 3. Certifications:
 - a. Submit certifications when specified in individual Specification sections.
 - b. Indicate material or product conforms to or exceeds specified requirements. Submit supporting reference data, affidavits, and certifications as appropriate.
 - c. Certifications may be recent or previous test results on material or product, but must be acceptable to Architect.
 - d. Submit welder certifications 2 weeks prior to commencement of welding operations.
 - e. Submit manufacturer or fabricator certifications with product data.
 - f. Submit certificates of compliance within two weeks following approval or acceptance by authority having jurisdiction.
 - g. Submit installation certifications within two weeks following completion of product installation.
 - 4. Engineering Certifications:
 - a. Submit certified statement, signed and sealed by professional engineer responsible for design attesting to the following:
 - 1) Conformity to applicable governing codes.
 - 2) Conformity to criteria in Contract Documents.
 - 3) Component parts were designed or selected for locale and application intended.
 - b. Submit with shop drawings. Submit prior to fabrication if shop drawings are not required by individual specification sections.
 - 5. Qualification Data:
 - a. When specified in individual Sections, submit manufacturer's, fabricator's, and installer's qualifications verifying years of experience.
 - b. Include list of completed projects having similar scope of Work identified by name, location, date, reference names, and phone numbers.
 - c. Submit manufacturer qualification data with proposed products list.

- d. Submit fabricator or installer qualification data with list of subcontractors at least 15 days prior to submitting first Application for Payment.
- 6. Manufacturer's Instructions:
 - a. Refer to Section 016000 for requirements.
 - b. When specified in individual Specification sections, submit manufacturer's printed instructions for delivery, storage, assembly, installation, adjusting, finishing, and other pertinent data.
 - c. Identify conflicts between manufacturer's instructions and Contract Documents.
 - d. Submit with product data.
- 7. Manufacturer's Field Reports:
 - a. Refer to Section 014000 for requirements.
 - b. When specified in individual Specification sections, submit written results and findings of manufacturer's field services specified as part of Field Quality Control.
 - c. Submit within two weeks following completion of field services covered in individual reports.
- C. Quantity: Submit in quantities specified for product data.

1.9 INCOMPLETE AND PARTIAL SUBMITTALS

- A. Incomplete Submittal: Submittal not complying with specified submittal requirements.
- B. Partial Submittal: Submittal subdivided into components as indicated in submittal schedule and each component submitted separately.
- C. Architect will return incomplete submittals without review. Complete submittals for each item are required. Submittal will not be considered official until it is complete in every respect. Delays resulting from incomplete submittals are not responsibility of Architect.

1.10 CONTRACTOR REVIEW

- A. Review and approve submittals prior to transmittal to Architect; determine and verify field measurements, field construction criteria, manufacturer's catalog numbers, and conformance of submittal with requirements of Contract Documents.
- B. Coordinate submittals with requirements of Work and of Contract Documents.
- C. Stamp, sign or initial, and date each submittal to certify compliance with requirements of Contract Documents.
- D. Do not fabricate products or begin Work which require submittals until approved submittals have been received from Architect.

1.11 ARCHITECT REVIEW

- A. Architect will review construction progress schedules, submittal schedules, product lists, shop drawings, product data, and samples and return within 15 working days of receipt.
- B. Do not make "Mass" submittals to Architect. "Mass Submittals" are defined as eight or more submittals in four working day contiguous period or 15 or more submittals in one week. If Mass submittals are received, Architect's review time stated above will be extended as necessary to perform proper review. Architect will review Mass submittals based upon priority determined by Architect after consultation with Owner and Contractor.
- C. Informational submittals and other similar data are for Architect's information and do not require Architect's responsive action.
- D. Submittals stamped "Approved": No corrections or resubmittal required; fabrication may proceed.
- E. Submittals stamped "Approved as Noted": Comply with noted corrections and modifications; resubmittal not required; fabrication may proceed. If for any reason noted corrections and modifications can not be fully complied with, resubmit for review requesting clarification; do not proceed with fabrication.

- F. Submittals stamped "Disapproved/Resubmit" and "Incomplete/Resubmit": Revise and resubmit for review; do not proceed with fabrication. Disapproved submittals will not be considered valid cause for construction delay.
- G. Submittal approval does not authorize changes to Contract requirements unless accompanied by a Change Order, Architect's Supplemental Instruction, or Construction Change Directive.
- H. Architect's review of samples and mock-ups is for visual compliance with design intent only and does not constitute review or acceptance of performance criteria nor does it constitute acceptance of a change to the Contract Documents.

1.12 RESUBMITTALS

- A. Make resubmittals under procedures specified for initial submittals; identify changes made since previous submittal. Make resubmittals in timely manner and complying with submittal schedule.
- B. Architect will record time required to review resubmittals after original submittal and first resubmittal. Contractor shall reimburse Owner for charges of Architect and Architect's Consultants for reviewing submittal more than 2 times.

1.13 DISTRIBUTION

- A. Duplicate and distribute reproductions of shop drawings, product data, samples, and other submittals which bear Architect's stamp of approval, to Project site file, subcontractors, suppliers, other affected contractors, and other entities requiring information.
- B. Provide each testing and inspection agency one set of approved submittals for their exclusive use in providing specified quality control testing and inspection services; refer to Section 014500.
- C. Provide additional set of approved submittals for Project record documents file; refer to Section 017800.

PART 2 - PRODUCTS

NOT USED

PART 3 - EXECUTION

NOT USED

Architect Review:
Approval is for conformance with design concepts only. Approval does not authorize changes to Contract Documents.
<input type="checkbox"/> Approved <input type="checkbox"/> Approved as noted <input type="checkbox"/> Disapproved / Resubmit <input type="checkbox"/> Incomplete / Resubmit <input type="checkbox"/> Received / No Action Required <input type="checkbox"/> Provide file copy with requested corrections identified. <input type="checkbox"/> Not subject to review
By: _____ Date: _____
Architect

SUBMITTAL TRANSMITTAL (Submit separate form for each product)

Contractor: _____

Project: _____

TRANSMITTAL To: Contractor _____ Date: _____ Submittal No: _____

A From: Subcontractor _____ By: _____ Resubmission _____

Quantity	Reference Number	Title/Description/ Manufacturer	Specification Section Title, Paragraph / Drawing Detail Reference
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- Submitted for Review and Approval
- Resubmitted for Review and Approval
- Complies with Contract Requirements
- Will be available to meet construction schedule
- A/E Review Time included in construction schedule

- Substitution Involved - Substitution Request Attached
- If Substitution involved, Submission includes full point by point comparative data or Preliminary details
- Items included in Submission will be ordered immediately upon receipt of approval

Other remarks on above submission:

TRANSMITTAL To: Architect - Att: _____ Date Received by Contractor: _____

B From: Contractor _____ Date Transmitted by Contractor: _____

Reviewed, Coordinated, and Approved by Contractor
 Remarks on above submission: _____ One copy retained by sender

TRANSMITTAL To: Contractor _____ Date Received: _____

C From: Architect _____ Other Signed _____ Dated Returned: _____

- Approved
- Approved as noted
- Disapproved / Resubmit
- Not subject to review
- Submission Incomplete; Resubmit
- Received; No Action Required
- Full point by point comparative data required to complete approval process
- Provide File Copy with corrections identified
- Reproducible copies only returned
- Remarks on above submission: _____
- One copy retained by sender

TRANSMITTAL To: Subcontractor _____ Date Received: _____

D From: Contractor Signed _____ Dated Returned: _____

Copies Owner _____ _____ One copy retained by sender

Remarks on above:

SECTION 014000
QUALITY REQUIREMENTS

PART 1 - GENERAL

1.1 REGULATORY REQUIREMENTS

- A. General: Reference to codes, standards or regulatory requirements made on Drawings or in Specifications are considered an integral part of Contract Documents as minimum requirements. Nothing in Contract Documents should be understood to conflict with laws, by-laws, or regulations of municipal, State, Federal, and other authorities having jurisdiction.
- B. Should Contractor knowingly perform any work that does not conform with requirements of applicable codes, ordinances, regulations, or standards, Contractor shall assume full responsibility for such work and shall correct non-conforming work at no additional cost to Owner.
- C. Code Requirements: As indicated on Drawings.

1.2 REFERENCE STANDARDS

- A. Comply with association, trade, federal, commercial, standards generating organization (such as ANSI and ASTM), and other similar standards referenced within Specification sections, except where more explicit or stringent requirements are indicated or required by Specification or applicable codes.
- B. Reference standards include their associated amendments and supplements.
- C. Except where a specific date is indicated, date of standard is latest edition in effect at date of Contract Documents, or date of standard required by code.
- D. Reference standards have same force and effect as if bound into or copied directly into Contract Documents; standards are made a part of Contract Documents by reference.
- E. Contractual relationship of parties to the Contract shall not be altered from Contract Documents by mention or inference otherwise in reference standards.
- F. Names and titles of standards are frequently abbreviated. Where acronyms or abbreviations are used in Specifications, they are defined to mean the recognized name of trade association, standards generating organization, governing authority, or other entity applicable to context of text provision.
- G. Should specified reference standards conflict with Contract Documents, request clarification from Architect before proceeding.
- H. When indicated by individual Specification section, obtain copy of standard. Maintain copy at Project site during submittals, planning, and progress of specific work, until Substantial Completion.
- I. Units of measurements required by specifications govern regardless of units of measurement used in reference standards.

1.3 PROJECT MANUAL CONTENT

- A. Sections of General Conditions apply to execution of all sections of the Specifications.
- B. Language:
 - 1. Imperative mood of sentence structure is generally used which places verb as first word in sentence. Except as otherwise indicated, requirements expressed imperatively are to be performed by Contractor.
 - 2. In certain circumstances, the language of specifications and other contract documents are of abbreviated type. It implies words and meanings that will be appropriately interpreted. Words such as "the," "shall," "shall be," "Contractor shall," "a," "all," "an," "any," and other similar words are eliminated.
 - 3. Singular words will be interpreted as plural and plural words will be interpreted as singular where applicable and where full context of Contract Documents so indicates.
 - 4. The words "shall be" are implied wherever a colon (:) is used within a sentence or phrase.

- C. Specialist Assignments:
1. In certain circumstances, Specification text requires or implies that specific elements of Work are to be assigned to specialists who must be engaged to perform that element of Work. Such assignments are special requirements of Contract.
 2. Such assignments are intended to establish which party or entity involved in a specific element of Work is considered as being sufficiently experienced in indicated construction processes or operations to be recognized as "expert" in those processes or operations. Nevertheless, ultimate responsibility for fulfilling Contract requirements remains with Contractor.
 3. These requirements should not be interpreted to conflict with enforcement of building codes and similar regulations governing the Work. They are also not intended to interfere with local trade union jurisdictional settlements and similar conventions.
- D. Minimum Quality/Quantity:
1. Quality level or quantity shown or specified is intended to be minimum for Work to be performed or provided.
 2. Except as otherwise specifically indicated, actual Work may either comply exactly with that minimum within specified tolerances, or may exceed that minimum within reasonable limits.
 3. In complying with these requirements, indicated numeric values are either minimums or maximums as noted, or as appropriate for context of requirements.
 4. Refer instances of uncertainty to Architect for decision before proceeding.

1.4 SYMBOLS

- A. List of Symbols:
- # Number.
 - % Percent.
 - F Degrees Fahrenheit.
 - C Degrees Celsius.
 - ' Feet.
 - " Inches.
 - ± Plus to Minus; Plus or Minus.
 - +/- Plus to Minus; Plus or Minus.

1.5 DEFINITIONS

- A. Basic Contract definitions are included in General Conditions of the Contract.
- B. And: Conjunction indicating that items in series are to be taken jointly. It may also mean plus or in addition to preceding items in the series.
- C. Approved: Where used in conjunction with Architect's response or action, meaning will be held to limitations of Architect's responsibilities and duties as specified in General and Supplementary Conditions. In no case will Architect's approval be interpreted as release of Contractor from responsibilities to fulfill requirements of Contract Documents.
- D. Directed, Requested: Terms such as "directed," "requested," "authorized," "selected," "approved," "required," "accepted," and "permitted" mean "directed by Architect," "requested by Architect," and similar phrases. However, no such implied meaning shall be interpreted to extend Architect's responsibility into area of construction supervision.
- E. Finish: The manner or method of completion. The final appearance of a surface, including texture, smoothness, sheen, and color, after finishing operations have been performed. Finishing operations include preparation of substrate and application, curing, and protection of specified finish materials.
- F. Furnish: Means to supply, purchase, procure and deliver complete with related accessories, ready for assembly, application, installation, and similar operations, as applicable in each instance.
- G. Indicated: Refers to graphic representations, notes, or schedules on Drawings, or other paragraphs or Schedules in Specifications, and similar requirements in Contract Documents. Terms such as "shown," "noted," "scheduled," and "specified" are used to help reader locate the reference. Location is not limited.

- H. Install: Means to construct, assemble, erect, mount, anchor, place, connect, apply and similar operations, complete with related accessories, as applicable in each instance.
- I. Installer: Entity (person or firm) engaged to perform a particular unit of Work at Project site, including installation, erection, application, repair, patching, and similar required operations. Such entities must be experienced in operations they are engaged to perform.
- J. Mold Growth Products: Any organic cellular based product capable of fostering growth of mold. Examples include:
 - 1. Wood based products.
 - 2. Paper based products including paper faced products such as gypsum board and gypsum sheathing.
 - 3. Insulation products.
 - 4. Resins, binders, and adhesives.
 - 5. Wall coverings and carpet backings.
- K. Or: Used to introduce any of the possibilities in a series. Items in the series are not required to be taken jointly. It does not mean that individual items in the series are optional requirements.
- L. Product: Includes natural and manufactured materials, components, machinery, fixtures, equipment, devices, furnishings, systems, and their associated accessories to be incorporated into the Work.
- M. Provide: Means to furnish and install, complete and ready for operations and use for purpose intended.
- N. Regulations: Includes laws, ordinances, statutes, and lawful orders issued by authorities having jurisdiction, as well as rules, conventions, and agreements within construction industry that control performance of the Work.
- O. Similar: Interpreted in its general sense and not as meaning identical. Elements defined as "similar" shall be coordinated in relationship to their location and connection with other parts of the Work.
- P. True To Line, Plumb, Level, and Flat: Install Work within following tolerances, except where indicated otherwise:
 - 1. True to line: Allowed deviation from straight line within plus or minus 1/16 inch in one foot; plus or minus 1/8 inch in 10 feet; plus or minus 1/4 inch in 20 feet; and plus or minus 3/8 inch in lengths over 20 feet.
 - 2. Level: Allowed deviation from horizontal plane within plus or minus 1/16 inch in one foot; plus or minus 1/8 inch in 10 feet; plus or minus 1/4 inch in 20 feet; and plus or minus 1/2 inch in lengths over 20 feet.
 - 3. Plumb: Allowed deviation from vertical plane within plus or minus 1/16 inch in one foot; plus or minus 1/8 inch in 10 feet; plus or minus 1/4 inch in 20 feet; and plus or minus 1/2 inch in lengths over 20 feet.
 - 4. Flat: Allowed deviation from flat plane in any planar direction within plus or minus 1/16 inch in one foot; plus or minus 1/8 inch in 10 feet; plus or minus 1/4 inch in 20 feet; and plus or minus 3/8 inch in lengths over 20 feet.
 - 5. Tolerances are not accumulative.

1.6 QUALITY ASSURANCE

- A. Supervise performance of Work in such manner and by such means to ensure that Work, whether completed or in progress, will not be subjected to harmful, dangerous, damaging, or otherwise deleterious exposure during construction period.
- B. Ensure that persons performing Work are qualified to produce workmanship of specified quality.
- C. Monitor quality control over products, suppliers, manufacturers, services, site conditions, and workmanship to ensure Work complies with Contract Documents.
- D. Comply with specified reference standards for minimum quality of Work except when more stringent tolerances, codes, or specified requirements indicate higher standards or more precise workmanship.

1.7 MANUFACTURER'S FIELD SERVICES AND REPORTS

- A. Submit reports in accordance in accordance with Section 013300.
- B. Submit qualifications of field observer 30 days in advance of required observations; observer is subject to approval of Architect.
- C. When specified in individual Specification sections, require material or product suppliers or manufacturers to provide qualified staff personnel to observe site conditions, conditions of surfaces, quality of workmanship, and conditions of installation as applicable, and to initiate instructions when necessary.
- D. Report observations and site decisions or instructions given to applicators or installers that are supplemental or contrary to manufacturer's written instructions.
- E. Submit reports within 7 days of observation. Distribute copies to Architect, Project site file, subcontractor, and other entities requiring information.

PART 2 - PRODUCTS

NOT USED

PART 3 - EXECUTION

NOT USED

END OF SECTION

SECTION 014500
QUALITY CONTROL

PART 1 - GENERAL

1.1 FIELD SAMPLES

- A. Field Sample Definition: Partial installation of selected materials installed in final location at Project site for Architect's review and approval of visual features and workmanship.
- B. General:
 - 1. Provide field samples at site required by individual Specification sections.
 - 2. Erect at location acceptable to Architect; perform Work in accordance with applicable Specification sections.
 - 3. Construct complete, including Work of related trades required in finished Work.
 - 4. Make adjustments necessary to obtain approval from Architect. Do not proceed with further work until sample installation has been approved by Architect.
 - 5. Approved samples will serve as standard of quality and workmanship of Work; maintain samples until completion of relevant Work.
 - 6. Approved field samples may remain as part of completed Work, unless noted otherwise.
 - 7. Comply with requirements of Section 017400 for Construction waste management and disposal requirements.

1.2 MOCK-UPS

- A. Mock-up Definition: Full size assemblies constructed remotely from final position on Project that incorporate several materials or elements of construction erected for Architect's review and approval of visual features and workmanship. Mock-ups represent quality of materials and workmanship required for Work.
- B. General:
 - 1. Use materials, fabrication and installation methods identical with those indicated for Work. Simulate actual construction conditions as accurately as possible.
 - 2. Provide mock-ups required by individual Specification sections.
 - 3. Approval:
 - a. Obtain Architect's written approval for each mock-up.
 - b. Do not start production of materials for final Project site erection until Architect's approval of mock-up has been obtained.
 - c. Approved mock-up will serve as standard of quality and workmanship of Work; maintain mock-up until completion of relevant Work.
 - 4. Upon completion of relevant Work or when directed by Architect, demolish and remove mock-up.
 - 5. Comply with requirements of Section 017400 for Construction waste management and disposal requirements.

1.3 TESTING LABORATORY SERVICES

- A. General Requirements:
 - 1. Provide inspections, tests, and other services specified in individual specification sections and building code.
 - 2. Employment of testing laboratory shall in no way relieve Contractor of obligation to perform Work in accordance with requirements of Contract Documents.
 - 3. Where terms "Laboratory," "Inspector," "Inspection Laboratory," or "Testing Laboratory" are used, they mean and refer to officially designated and accredited testing laboratory complying with criteria established in ASTM E699.
 - 4. Provide testing laboratory with one set of Contract Documents and relevant approved submittals.
- B. Selection and Payment:
 - 1. Owner will appoint, employ, and pay for services of an independent testing laboratory to perform specified inspections and testing, unless specified otherwise.

- C. Testing Laboratory:
 - 1. Laboratory Qualifications:
 - a. Maintain staff size and qualifications required by testing standards and specification.
 - b. Maintain instruments and equipment in accordance with testing standards.
 - c. Authorized to operate in state where Project is located.
 - 2. Laboratory Responsibilities:
 - a. Cooperate with Architect and Contractor; provide qualified personnel after due notice.
 - b. Perform inspections, sampling, and testing in accordance with specified standards.
 - c. Ascertain compliance of materials and mixes with requirements of Contract Documents.
 - d. Provide inspections, tests, and other services specified in individual specification sections.
 - e. Promptly notify Architect and Contractor of observed irregularities or non-conformance of Work or products with Contract Documents.
 - 3. Laboratory and inspection personnel are not authorized to:
 - a. Release, revoke, alter, relax, or enlarge any requirements of Contract Documents.
 - b. Perform any duties of Contractor.
 - c. Approve or accept any portion of Work.
 - d. Stop the Work.
- D. Contractor Responsibilities:
 - 1. Cooperate with laboratory personnel, provide access to Work and manufacturer's operations.
 - 2. Deliver samples or test mock-ups to testing laboratory prior to being incorporated into Work.
 - 3. Furnish copies of product tests or mill test reports as specified or required.
 - 4. Furnish incidental labor and facilities:
 - a. To provide access to Work to be tested.
 - b. To obtain and handle samples at Project site or at source of product to be tested.
 - c. To facilitate inspections and tests.
 - d. For storage and curing of test samples.
 - 5. Notify Architect and laboratory 48 hours prior to expected time for operations requiring inspection and testing services.
 - 6. When inspections or tests can not be performed after proper notification and at no fault of laboratory, reimbursement costs for laboratory expenses incurred will be charged to Contractor by deducting charges from Contract Sum.
- E. Submittals:
 - 1. Provide submittals in accordance with Section 013300.
 - 2. Laboratory Reports:
 - a. Include with each report:
 - 1) Date issued.
 - 2) Project title and number.
 - 3) Testing laboratory name, address, and telephone number.
 - 4) Record of temperature and weather conditions.
 - 5) Names of individuals making tests and inspections. Name and signature of person submitting report.
 - 6) Dates, times, and locations of sampling, testing, and inspection.
 - 7) Identification of specification section and products.
 - 8) Location in Project.
 - 9) Type of inspection or test.
 - 10) Reference standards used for test.
 - 11) Name of material suppliers.
 - 12) Results of tests and interpretation of test results.
 - 13) Professional opinion of whether tested and inspected Work complies with Contract Documents.
 - 14) Certified statement, signed and sealed by testing laboratory attesting to accuracy of testing results.
 - 15) Number pages.
 - b. Submit test reports within 2 weeks of test date.
 - c. After each inspection and test, promptly submit copies of written reports as follows:

- 1) Owner: 1 copy.
 - 2) Architect: 3 copies.
 - 3) Code Officials: 1 copy.
 - 4) Contractor: 3 copies.
- d. When requested by Architect, provide interpretation of test results and suggested remedies.
- F. Failures and Retesting:
1. When initial inspections and tests indicate Work does not comply with Contract Documents, subsequent testing will be performed by same Testing Agency and will be done at Contractor's expense and deducted from Contract Sum.
 2. Removal and replacement of Work necessitated by such non-compliance of Contract Documents shall be at Contractor's expense.

PART 2 - PRODUCTS

NOT USED

PART 3 - EXECUTION

3.1 REPAIR AND PROTECTION

- A. Protect construction exposed by testing service activities.
- B. Upon completion of inspection, testing, sample-taking, and similar services, repair damaged construction. Comply with requirements of Section 017329 - Cutting and Patching.

END OF SECTION

SECTION 015000
TEMPORARY FACILITIES AND CONTROLS

PART 1 - GENERAL

1.1 QUALITY ASSURANCE

- A. Comply with applicable laws and regulations of authorities having jurisdiction.
- B. Obtain approval from authorities having jurisdiction for each temporary utility before use. Obtain required certifications and permits. Pay connection fees.
- C. Construction Signs:
 - 1. Except for specified sign, no other construction signs will be allowed on site.
 - 2. Sign: Construct and install to withstand 90 mph wind velocity.
 - 3. Graphics Painter: Professional sign painter, minimum 2 years experience.
 - 4. Finishes, Painting: Adequate to withstand weathering, fading, and chipping for duration of construction.
 - 5. Permit: Obtain and pay for permit if required to display sign on Project site. Coordinate requirements with authorities having jurisdiction.

1.2 SCHEDULING

- A. Prepare schedule indicating dates for implementation and termination of each temporary utility.
- B. At earliest feasible time, when acceptable to Owner, change over from use of temporary utility service to use of permanent utility service.

PART 2 - PRODUCTS

2.1 MATERIALS

- A. Materials for temporary facilities may be new or used suitable for intended purpose, but of adequate capacity for required usage, must not create unsafe conditions, and must not violate requirements of applicable codes and standards.
- B. Water: Provide potable water approved by local health officials.

2.2 TEMPORARY FIELD OFFICES

- A. Field Office:
 - 1. Structurally sound, weathertight, equipped with heating, air conditioning, ventilation system, electric power outlets, lighting, and telephone.
 - 2. Temporary Building: Portable or mobile buildings may be used. Floor raised above ground.
 - 3. When permanent facilities are enclosed with operable utilities, relocate office into building upon written approval of Owner, and remove temporary building.
 - 4. Size:
 - a. As required for Contractor's operations.
 - b. Provide space in field office for project meetings, with table and chairs to accommodate 6 people.
 - 5. Equip with copier, high speed internet connection, and facsimile telecopier.

2.3 CONSTRUCTION AIDS

- A. Provide scaffolds, staging, ladders, stairs, ramps, runways, platforms, railings, chutes, and other devices and equipment necessary to facilitate execution and construction contract administration of Work.
- B. Provide cranes, hoists, rigging, material lifts, and other conveyances or apparatus as necessary to facilitate execution of Work.
- C. Provide storage areas and sheds sized to storage requirements for products of individual Sections, allowing for access and orderly provision for maintenance and inspection of products to requirements of Section 016000.

2.4 VEHICULAR ACCESS AND CONTROLS

- A. Provide signs, signals, traffic cones and drums, flares and lights, and flag equipment of types required by authority having jurisdiction.

2.5 TEMPORARY BARRIERS AND ENCLOSURES

- A. Partition performance requirements:
 - 1. Maximum flame spread index of 75 in accordance with ASTM E84.
 - 2. Minimum fire rating: 2 hours.
- B. Partition Framing Options:
 - 1. Lumber: Stud grade; fire-retardant treated in accordance with AWPA C20.
 - 2. Steel stud framing in accordance with ASTM C645.
- C. Gypsum Board: ASTM C1396; Type X for fire-rated assemblies.
- D. Plywood: PS-1; fire-retardant treated in accordance with AWPA C27.
- E. Polyethylene: Fire-rated, reinforced, polyethylene sheet.
- F. Doors:
 - 1. Non-fire-rated partitions: Wood or steel doors and frames.
 - 2. Fire-rated partitions: Steel doors and frames; 1-1/2 hour rating.
 - 3. Hardware:
 - a. Provide each door with hinges, lockset, closer, and dust-tight gasketing.
 - b. Provide fire-rated hardware on doors in fire-rated partitions.
 - c. Construction masterkey locksets.
- G. Temporary Fence:
 - 1. Contractor Options:
 - a. Solid wood fencing:
 - 1) Plywood: Exterior type PS-1, C-D Plugged, thickness as appropriate for framing requirements.
 - 2) Framing: 4 by 4 inch treated posts and 2 by 4 inch rails, spaced to support plywood.
 - 3) Paint: Exterior type in colors directed by Architect. Required at surfaces exposed to public view.
 - b. Open mesh fencing:
 - 1) Fabric: Hot dip galvanized steel wire woven into 2 inch mesh.
 - 2) Framing: Galvanized steel posts or roll-formed sections spaced to support fabric. Equip with top rail and bottom tension wire.
 - 2. Equip with gates and locks.

2.6 CONSTRUCTION SIGN

- A. Support Structure and Framing: Wood or metal, in sound condition structurally adequate and suitable for specified finish.
- B. Sign Surfaces: New exterior grade plywood with medium density overlay, minimum 23/32 inch thick, sized to minimize joints.
- C. Nails, Bolts, and Fasteners: Types and sizes as required, galvanized or corrosion resistant.
- D. Primers and Paints: Exterior type, colors as selected by Architect, two coats consisting of an appropriate primer followed by one coat of paint for support structure, framing and sign surfaces.
- E. Graphics: Design, sizes, colors, and styles of lettering as selected by Architect. Apply over painted background.
- F. Sign: One painted assembly of not less than 32 ft² with painted graphics to include:
 - 1. Title of Project.
 - 2. Name of Owner.
 - 3. Names and titles of Architect, Engineer, and Consultants.

PART 3 - EXECUTION

3.1 INSTALLATION

- A. Install, maintain, and operate temporary utilities and services to ensure continuous operation. Modify and extend systems as Work progresses.
- B. Install temporary facilities and controls in manner to produce reasonable uniform appearance, structurally adequate for required purposes, and properly maintained.
- C. Modify and relocate temporary facilities and controls as necessary to accommodate progress of Work.

3.2 TEMPORARY ELECTRIC POWER AND LIGHTING

- A. Provide temporary electrical service required for power and lighting, arrange provisions with utility company, and pay costs for service and energy consumed. Equip service with meter, main disconnect, and over current protection.
- B. Complement existing power service capacity and characteristics as required.
- C. Provide electrical service sized to provide adequate temporary power and lighting for construction operations.
- D. Provide branch distribution system from temporary power source with distribution boxes and outlets located so that power and lighting is available throughout active work areas.
- E. Permanent receptacles may be utilized during construction.
- F. Replace receptacle plates and wiring devices damaged during construction.
- G. Provide lighting to conduct construction operations.
- H. Permanent lighting system may be utilized during construction.
- I. Restore permanent lighting systems used during construction to original condition. Maintain lighting and provide routine repairs.

3.3 TEMPORARY HEATING AND VENTILATING

- A. Provide heating as necessary to protect materials, products, and finishes from damage due to temperature or humidity.
- B. Provide temporary heating and ventilating system that complies with codes and regulations.
- C. Except where indicated otherwise in individual Specification sections, maintain minimum ambient temperature of 50 degrees F in enclosed areas where construction is in progress.
- D. Provide heating system as necessary to maintain specified conditions during construction.
- E. Permanent heating plant may be utilized for source of temporary heat, extended and supplemented with temporary heating devices as required.
- F. Provide and pay for costs of supervision, operation, maintenance, fuel, and energy consumed.
- G. Mold Prevention: Provide heating and ventilation as necessary to keep mold growth products dry during construction operations until Substantial Completion.
 - 1. Heat and ventilate as required to dissipate excessive humidity.
 - 2. Heat and ventilate as required to properly cure and dry materials.
 - 3. Heat and ventilate as required to dry wet areas and materials before installation of materials susceptible to moisture damage.
 - a. Exception: Exterior skin of exterior enclosure assemblies.
 - b. Use moisture meter to confirm that materials are sufficiently dry.
 - 4. Remove products exhibiting mold growth from project site, whether built into project or stored on site.
- H. Use of permanent heating/ventilating and associated distribution systems will be permitted only upon meeting following requirements:
 - 1. Verify that installation is approved for operation, equipment is lubricated, and filters are in place.

2. Equipment installed complete with accessories, started-up, maintained, serviced, and operated in strict accordance with manufacturer's instructions.
 3. Provide and pay for regular replacement of filters and worn or consumed parts.
 4. Operation of permanent systems or any portion thereof to provide temporary heat/ventilation does not constitute acceptance of system or portion of system.
 5. Immediately before Substantial Completion, completely clean each permanent unit used, install new filters, and perform service functions required for placing units in use and qualifying for specified warranties.
- I. Ventilate enclosed areas to assist cure of materials, to dissipate humidity, and to prevent accumulation of dust, fumes, vapors, or gases.

3.4 TEMPORARY TELEPHONE SERVICE

- A. Provide telephone service to temporary field office at time of Project mobilization.
- B. Pay costs for installation, maintenance, and service charges.

3.5 TEMPORARY WATER

- A. Provide, maintain, and pay for water service required for construction operations.
- B. Extend branch piping with outlets located so water is available by hoses with threaded connections. Provide temporary pipe insulation to prevent freezing.
- C. Wash Facilities: Supply with potable water for personnel to wash-up for sanitary condition. Dispose of drainage properly. Provide cleaning compounds appropriate for each condition.

3.6 TEMPORARY FIELD OFFICE

- A. Provide temporary field offices at time of project mobilization. Maintain during progress of Work.

3.7 TEMPORARY SANITARY FACILITIES

- A. Provide and maintain sanitary facilities and enclosures.
- B. Restore existing facilities used during construction to same or better condition than originally found. Replace damaged fixtures, partitions, and accessories.

3.8 TRAFFIC REGULATION

- A. Construction Parking Control:
 1. Coordinate with Owner for temporary parking areas to accommodate construction personnel.
 2. When site space is not adequate, provide additional remote off-site parking.
 3. Control vehicular parking to prevent interference with public traffic and parking, access by emergency vehicles, and Owner's operations.
 4. Monitor parking of construction personnel's vehicles. Maintain vehicular access to and through parking areas.
 5. Prevent parking on or adjacent to access roads, in pedestrian paths or sidewalks, or non-designated areas.
- B. Flagpersons: Provide trained and equipped flagpersons to regulate traffic when construction operations or traffic encroaches on public traffic lanes.
- C. Flares and Lights: Use flares and lights during hours of low visibility to delineate traffic lanes and guide traffic.
- D. Access Roads and Approaches:
 1. Construct and maintain temporary roads and approaches accessing public thoroughfares to serve construction area.
 2. Extend and relocate as Work progress requires. Provide detours necessary for unimpeded traffic flow.
 3. Provide and maintain access to fire hydrants free of obstructions.
 4. Track-equipped vehicles not allowed on paved areas.
 5. Keep streets, drives, and walks adjacent to site and haul routes clean and free of dirt, debris, and litter caused by construction operations.

- E. Haul Routes:
 1. Consult with authority having jurisdiction, establish public thoroughfares to be used for haul routes and site access.
 2. Confine construction traffic to designated haul routes.
 3. Provide traffic control at critical areas of haul routes to regulate traffic, to minimize interference with public traffic.
- F. Traffic Signs and Signals: Comply with requirements of authorities having jurisdiction.

3.9 TEMPORARY BARRIERS AND ENCLOSURES

- A. Provide barriers to prevent unauthorized entry to construction areas, to allow for Owner's use of site, and to protect existing facilities and adjacent properties from damage from construction operations.
- B. Provide barricades and covered walkways required by governing authorities for public rights-of-way and sidewalks.
- C. Protect non-owned vehicular traffic, stored materials, site, and structures from damage.
- D. Exterior Enclosures:
 1. Provide temporary weathertight enclosure at exterior openings to accommodate acceptable working conditions and protection for products, to allow for temporary heating and maintenance of required ambient temperatures identified in specification Sections, and to prevent entry of unauthorized persons.
 2. Mold Prevention: Provide temporary weathertight exterior enclosures as required to keep mold growth products dry during construction operations. Refer to Section 014000 for definition of Mold Growth Products.
 3. Provide access doors with operating hardware and locks.
- E. Site Enclosure Fence:
 1. Before construction operations begin, install enclosure fence with lockable entrance gates.
 2. Locate where indicated, or enclose entire Project site or portion determined sufficient to accommodate construction operations.
 3. Provide minimum 6 foot high fence around construction site.
 4. Install in a manner that will prevent people, dogs, and other animals from easily entering site except by entrance gates.
 5. Adequately set fence posts to resist vandalism, wind loads, and construction operations.
 6. Set fence posts in compacted mixture of gravel and earth or in concrete bases.
 7. Provide gates in sizes and at locations necessary to accommodate delivery vehicles and other construction operations.
- F. Tree and Plant Protection:
 1. Preserve and protect existing trees and plants designated to remain.
 2. Provide 6 foot high barriers around drip line, with access for maintenance.
 3. Consult with Architect, remove agreed-on roots and branches which interfere with construction.
 4. Protect areas within drip lines from traffic, parking, storage, dumping, chemically injurious materials and liquids, ponding, and continuous running water.
 5. Replace trees and plants damaged by construction operations.

3.10 TEMPORARY CONTROLS

- A. Fire Protection:
 1. Comply with local fire protection code and governing authorities.
 2. Provide and maintain fire protection including, without limitation, fire extinguishers and other appropriate fire-fighting equipment ready for immediate use.
 3. Distribute equipment around site, particularly in immediate vicinity of performance of welding or similar hazardous Work.
 4. Store gasoline and other flammable liquids in Underwriter's Laboratories listed safety containers in conformance with recommendations of National Board of Fire Underwriters. Do not store gasoline or other flammable liquid within building.
 5. Coordination with permanent fire protection systems:

- a. At earliest feasible date in each area of Project, complete installation of permanent fire protection system, including connected services, and place into operation and use.
 - b. Instruct key construction personnel on use of systems.
- B. Dust Control:
 - 1. Execute Work by methods to minimize raising dust from construction operations.
 - 2. Provide positive means to prevent air-borne dust from dispersing into atmosphere.
- C. Erosion and Sediment Control:
 - 1. Plan and execute construction by methods to control surface drainage from cuts and fills, from borrow, and from waste disposal areas. Prevent erosion and sedimentation.
 - 2. Minimize amount of bare soil exposed at one time.
 - 3. Provide temporary measures such as berms, dikes, silt fences, drains, and other soil and erosion control devices required by authorities having jurisdiction.
 - 4. Construct fill and waste areas by selective placement to avoid erosive surface silts or clays.
 - 5. Periodically inspect earthwork to detect evidence of erosion and sedimentation; promptly apply corrective measures.
- D. Water Control:
 - 1. Provide methods to control surface water to prevent damage to site or adjoining properties.
 - 2. Control fill, grading, and ditching to direct surface drainage away from excavations, pits, tunnels, and other construction areas; and to direct drainage to proper runoff.
 - 3. Protect site from puddling or running water.
 - 4. Maintain excavations free of water. Provide, operate, and maintain pumping equipment.
- E. Security:
 - 1. Provide security and facilities to protect Work [and existing premises] from unauthorized entry, vandalism, and theft.
 - 2. Conduct operations in manner to avoid risk of loss, theft, or damage by vandalism.

3.11 CONSTRUCTION SIGN

- A. Install project identification sign within 30 days after commencement of construction.
- B. Place at location designated by Architect.
- C. Install assembly plumb and level, rigidly braced, framed, and anchored to resist wind load.
- D. Maintain signs; repair deterioration and damage.
- E. Remove signs, framing, supports, and foundations at completion of Project and restore area.

3.12 TEMPORARY USE OF PERMANENT SYSTEMS

- A. When allowed by Specifications, certain items of new permanent systems (equipment) may be used prior to Substantial Completion.
- B. Prior to operating permanent equipment, notify Architect in writing of intended usage. Verify equipment is approved for operation and equipment is lubricated and ready for operation. Arrange for, obtain, and pay for necessary approvals, manufacturer's acceptance, inspections, permits, and other provisions necessary for temporary use.
- C. Provide and pay for operation, maintenance, and regular replacement of filters, and worn or consumed parts. Use of permanent equipment shall not affect the warranty which begins at Substantial Completion of Project.

3.13 REMOVAL, CLEANING, AND RESTORATION

- A. Remove temporary above grade or buried utilities, equipment, facilities, controls, and materials prior to request for Substantial Completion.
- B. Remove temporary paving that is not intended for or acceptable for integration into permanent paving.
- C. In areas intended for landscaping, remove soil and aggregate fill that does not comply with requirements for fill or subsoil in landscaped areas.

- D. Remove materials contaminated with road oil, asphalt, or other compounds harmful to plant growth.
- E. Repair or replace street paving, curbs, and sidewalks at temporary entrances as required by authorities having jurisdiction.
- F. Remove underground installations to a minimum depth of 2 feet.
- G. Clean and repair evidence or indication of installation or use of temporary Work.
- H. Restore existing facilities and equipment used during construction to original condition. Restore permanent facilities and equipment used during construction to specified condition.

END OF SECTION

SECTION 016000
PRODUCT REQUIREMENTS

PART 1 - GENERAL

1.1 SUMMARY

- A. Section Includes:
 - 1. General product requirements.
- B. Related Sections:
 - 1. Section 017300 - Execution: Protection of installed work.

1.2 BASIC PRODUCT REQUIREMENTS

- A. Furnish like products from single manufacturer to greatest extent possible.
- B. Provide products complete with accessories, trim, finish, safety guards, and other devices and details needed for complete installation and intended use and effect.
- C. Product Identifications: Nameplates, trademarks, logos, and other identifying marks on products are not permitted on surfaces exposed to view in public areas, interior or exterior. Plumbing, mechanical, and electrical equipment not exposed to public view are excluded from foregoing limitation. Required testing laboratory labels (such as UL, FM, or WH) are also excluded from foregoing limitation.

1.3 PRODUCT OPTIONS

- A. Products specified by reference standards: Select any product by any manufacturer which can be shown to comply to referenced documents. Evidence of compliance will be required at time of product data or shop drawing submittals.
- B. Products specified by naming several products: Select any product named.
- C. Acceptable Product: The term as used in these Specifications is to assist the user in locating the specified product and is not intended to denote sole source for product specified. The acceptable product listed denotes a typical product by one of listed acceptable manufacturers. Products by other listed manufacturers meeting or exceeding listed product or specified criteria may be used without following substitution procedures.
- D. Products specified by naming one manufacturer's model or performance criteria with reference to other acceptable or approved manufacturers: Products of other listed manufacturers must meet or exceed model number or criteria specified. Equivalent products by other listed manufacturers may be used without following substitution procedures.
- E. Products specified by naming one product or indicating option of selecting equivalent products by stating "equivalent to," "or other approved manufacturers," or other similar language: Submit "Substitution Request Form" for any product not specifically named.
- F. Products specified by naming only one product followed by "no substitutions," or other similar language: There is no option.

1.4 PRODUCT DELIVERY REQUIREMENTS

- A. Arrange deliveries in accordance with construction progress schedules. Schedule deliveries to allow adequate time for product inspection prior to installation. Schedule shall also take into consideration and allow adequate time for reordering of products damaged during delivery or do not meet Contract requirements.
- B. Coordinate to avoid conflict with Work and conditions at site.
- C. Deliver products in undamaged condition, in manufacturer's original unopened containers or packaging, with identifying labels intact and legible.
- D. Promptly inspect shipments to ensure that products comply with requirements, quantities are correct, and products are undamaged.

1.5 PRODUCT STORAGE, AND HANDLING REQUIREMENTS

- A. Storage:
 - 1. Store and protect products in accordance with manufacturer's instructions with labels intact and legible.
 - 2. Store environmentally sensitive products in weathertight, climate controlled enclosures.
 - 3. Provide off site storage and protection when site does not permit on site storage.
 - 4. Protect and cover products subject to deterioration with impervious sheet covering. Provide ventilation to avoid condensation.
 - 5. Arrange storage to permit access for inspection. Periodically inspect to ensure products are undamaged and are maintained under specified conditions.
 - 6. Store loose granular materials on solid flat surfaces in well-drained area. Prevent contamination with other materials.
- B. Handling:
 - 1. Handle products in accordance with manufacturer's instructions.
 - 2. Do not load structure during construction by storing products with load greater than structure is calculated to safely support.
 - 3. Provide equipment and personnel to store products by methods to prevent soiling, disfigurement, or damage.
- C. Mold Prevention: Take precautions in delivery, handling, and storage of mold growth products to keep them dry until time of installation.
 - 1. Refer to Section 014000 for definition of Mold Growth Products.
 - 2. Only install clean and dry mold growth products.
 - 3. Remove wet or dirty mold growth products from project site.
- D. Do not use products in Work which have deteriorated, become damaged, or are otherwise unfit for use.

PART 2 - PRODUCTS

NOT USED

PART 3 - EXECUTION

3.1 PRODUCT INSTALLATION

- A. Refer to Section 017300 - Execution.

END OF SECTION

SECTION 017123
FIELD ENGINEERING

PART 1 - GENERAL

1.1 SUBMITTALS

- A. General: Submit in accordance with Section 013300.
- B. Submit following informational submittals:
 - 1. Name, address, and telephone number of Surveyor before starting survey work.
 - 2. On request, documentation verifying accuracy of survey work.
- C. Closeout Submittals:
 - 1. Submit under provisions of Section 017800.
 - 2. Project record documents:
 - a. Submit copy of surveyor's log.
 - b. Submit 6 copies of final property survey for Owner's records.

1.2 QUALITY ASSURANCE

- A. Employ Land Surveyor registered to perform surveying in State where project is located, acceptable to Owner and Architect.

PART 2 - PRODUCTS

NOT USED

PART 3 - EXECUTION

3.1 SURVEY REFERENCE POINTS

- A. Control datum is indicated on Drawings.
- B. Establish and maintain minimum of 2 permanent bench marks on site, referenced to established control points. Record locations with horizontal and vertical data on Project Record Documents.
- C. Protect survey control points prior to starting site work; preserve permanent reference points during construction.
- D. Do not change or relocate benchmarks or control points without prior written approval of Architect.
- E. Promptly report to Architect the loss or destruction of any reference point or relocation required because of changes in grades or other reasons.
- F. Replace dislocated survey control points based on original survey control. Make no changes without prior written notice to Architect. Base replacements on original survey control points.
- G. Existing Utilities and Equipment:
 - 1. Existence and location of indicated existing underground utilities and construction are not guaranteed.
 - 2. Before beginning sitework:
 - a. Investigate and verify existence, location, and elevations of underground utilities and other construction.
 - b. Verify location and invert elevation at points of connection for sanitary sewer, storm sewer, and water-service piping.
 - 3. Furnish information necessary to adjust, move, or relocate existing utility structures, utility poles, lines, services, or other appurtenances located in or affected by construction.
 - 4. Coordinate with local authorities having jurisdiction.

3.2 SURVEY REQUIREMENTS

- A. Establish building location and layout on site. Establish and verify each floor elevation. Establish layout, lines, and elevation of Work based on established datum.
- B. Work from lines and levels established by property survey.

- C. Establish benchmarks and markers to set lines and levels at each story of construction and elsewhere as needed to locate each element of Project.
- D. Calculate and measure required dimensions within indicated or recognized tolerances.
- E. Do not scale Drawings to determine dimensions.
- F. Advise entities engaged in construction activities of marked lines and levels provided for their use.
- G. Establish elevations, lines, and levels. Locate, lay out, and periodically verify layouts, by instrumentation and similar appropriate means:
 - 1. Site improvements including pavements; stakes for grading, fill and topsoil placement; and utility locations, slopes, and invert elevations;
 - 2. Grid or axis for structures.
 - 3. Building foundation, column locations, and ground floor elevations.
- H. As construction proceeds, check every major element for line, level, and plumb.
- I. Surveyor's Log:
 - 1. Maintain and make available for references, surveyor's log of control and other survey work as work progresses. Make this log available for reference.
 - 2. Record deviations from required lines and levels, and advise Architect of deviations exceeding indicated or recognized tolerances.
 - 3. Record deviations on Project Record Drawings that are accepted and not corrected.

3.3 FINAL PROPERTY SURVEY

- A. Prior to Substantial Completion, prepare a final property survey illustrating locations, dimensions, angles, and elevations of buildings and site work that have resulted from construction of Project indicating their relationship to permanent bench marks and property lines.
- B. Show significant features (real property) for Project.
- C. Include certification on survey, signed by surveyor, that principal metes, bounds, lines, levels, and elevations of Project are accurately shown.

END OF SECTION

SECTION 017300

EXECUTION

PART 1 - GENERAL

1.1 SUMMARY

- A. Related Sections:
 - 1. Section 016000 - Product Requirements: Basic Product Requirements.

1.2 EXAMINATION OF CONDITIONS

- A. Examine substrates and conditions under which Work is to be performed. Do not commence work over unsatisfactory conditions detrimental to proper and timely execution of Work.
- B. Do not proceed with Work until unsatisfactory conditions have been corrected.
- C. Commencement of installation constitutes acceptance of conditions and cost of any corrective measures are responsibility of Contractor.

1.3 SUBMITTALS

- A. Contractor shall provide a submittal for information showing proposed placement of any crane on site including crane equipment specifications, wind charts and lift diagrams. Plan shall show the placement of the crane overlaid onto a site plan showing placement outriggers and any blocking to be used. At no time shall the crane wheels, outriggers or blocking be supported by the outdoor patio, concrete sidewalk or gutter pans. Blocking shall be large enough to avoid damage to bearing surface. Any damage caused by excess loads from equipment or materials shall be repaired by the Contractor at no cost or schedule impact to the Town.
- B. The Contractor shall provide a submittal showing maximum material and equipment loads to be placed on the roofing structure in order to verify any temporary loads will not cause overloading or damage to the roof structure. If a submittal will not to be required, please specify the maximum loads for each roof area so they know the limits. Remember this building will be occupied so we want to be very careful!

1.4 PREPARATION

- A. Require compliance with manufacturer's printed installation instructions, including each step in sequence. Do not omit preparatory steps or installation procedures unless specifically modified or exempted by Contract Documents.
- B. Maintain one set of complete instructions at Project site during installation and until completion.
- C. Should Project conditions or specified requirements conflict with manufacturer's instructions, request clarification in writing from Architect before proceeding.

PART 2 - PRODUCTS

NOT USED

PART 3 - EXECUTION

3.1 PRODUCT EXECUTION

- A. Install, erect, connect, condition, use, adjust, and clean products in accordance with manufacturer's instructions and in conformity with specified requirements.
- B. Verify and coordinate clearances, dimensions and installation of adjoining construction, equipment, piping, ducts, conduits, or other mechanical or electrical items or apparatus.
- C. Prior to fabrication, field measure actual existing conditions to ensure proper fit.
- D. Inspect each item of material or equipment immediately prior to installation. Reject damaged and defective items.

- E. Recheck measurements and dimensions of Work, as an integral step of starting each installation. Whenever stock manufactured products are specified, verify actual space requirements for setting or placing into allotted space. No extra cost will be allowed for adjustment of Work to accommodate particular product.
- F. Provide attachment and connection devices and methods for securing Work. Secure in place with devices designed and sized to withstand stresses, vibration, physical distortion or disfigurement.
- G. Allow for expansion of materials and building movement.
- H. Isolate each unit of Work from incompatible Work as necessary to prevent deterioration and electrolytic action.
- I. Clean and perform maintenance on installed Work as frequently as necessary through remainder of construction period. Lubricate operable components to ensure operability without damaging effects.
- J. Adjust operating products and equipment to ensure smooth and unhindered operation.

3.2 PROTECTION OF INSTALLED WORK

- A. Protect installed Work in manner to prevent damage from subsequent construction operations.
- B. Provide special protection where specified in individual Specification sections.
- C. Provide temporary and removable materials for protection of installed products. Control activity in immediate work area to minimize damage.
- D. Ensure materials, systems, and components will be without damage or deterioration at time of Substantial Completion.
- E. Protect finished Work from damage, defacements, stains, scratches, and wear.
- F. Provide protective coverings at walls, projections, jambs, sills, and soffits of openings.
- G. Protect finished floors, stairs, and other surfaces from traffic dirt, wear, damage, or movement of heavy objects, by protecting with durable sheet materials.
- H. Mold Prevention:
 - 1. Provide protection to keep mold growth products dry during construction operations until time of Substantial Completion.
 - 2. Provide temporary protection if permanent protection is not provided in timely manner by sequencing and scheduling of construction operations.
- I. Remove or repair damaged items. Remove products exhibiting mold growth.
- J. Prohibit traffic or storage upon waterproofed or roofed surfaces. If traffic or activity is necessary, obtain recommendations for protection from waterproofing or roofing material manufacturer.
- K. Prohibit traffic from lawn and landscaped areas.

END OF SECTION

SECTION 017329
CUTTING AND PATCHING

PART 1 - GENERAL

1.1 SUMMARY

- A. Section includes incidental cutting, fitting, and patching within new construction required to complete work or to make its several parts fit together.
- B. Related Sections:
 - 1. Section 078400 - Firestopping.

1.2 SUBMITTALS

- A. Submit written request to perform cutting and patching 2 weeks in advance of cutting or alteration which affects:
 - 1. Structural value or integrity of any element of Project.
 - 2. Integrity or effectiveness of weather exposed or moisture resistant elements or systems.
 - 3. Efficiency, operation, maintenance, or safety of operational equipment.
 - 4. Visual qualities of elements exposed to view.
- B. Include in request:
 - 1. Identification of Project.
 - 2. Location and description of affected Work.
 - 3. Description of proposed Work:
 - a. Scope of cutting, fitting, patching, or alteration.
 - b. Listing of applicable trades.
 - c. Proposed products and materials.
 - d. Extent of refinishing.
 - 4. Necessity for cutting or alteration.
 - 5. Alternatives to cutting and patching.
 - 6. Effect on structural integrity of Work.
 - 7. Effect on weatherproof integrity of Work.
 - 8. Effect on the building's appearance and significant visual elements.
 - 9. Effect on utilities:
 - a. List utilities affected by cutting and patching.
 - b. List utilities that will be relocated.
 - c. List utilities that will be temporarily out-of-service. Indicate time period of service outage.
 - 10. Date and time of execution.
- C. Should conditions or schedule require change of products or methods different than original installation, submit written recommendation to Architect explaining conditions necessitating change and requirements of alternative materials or methods.
- D. Approval by Architect to proceed with cutting and patching does not waive Architect's right to later require complete removal and replacement of unsatisfactory work.

PART 2 - PRODUCTS

2.1 MATERIALS

- A. Primary Products and Materials: Those required for original installation; comply with Specifications for each specific product involved.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Comply with provisions of Section 017300.

- B. After uncovering existing Work, examine conditions affecting installation of products and performance of Work.

3.2 PREPARATION

- A. Provide temporary supports to ensure structural integrity of affected portions of Work.
- B. Provide devices and methods to protect other portions of Project from damage.
- C. Provide protection from elements for areas which may be exposed by uncovering work; maintain excavations free of water.
- D. Provide materials and control operations to prevent spread of dust in surrounding area. Provide drop cloths or other suitable barriers.
- E. Avoid interference with use of adjoining areas or interruption of free passage to adjoining areas.
- F. Avoid cutting in service pipes, ducts, or conduit until provisions have been made to bypass them.

3.3 PERFORMANCE

- A. Cut into construction to provide for installation of other Work and subsequent fitting and patching required to restore surface to original condition.
- B. Cut, fit, patch, excavate, and backfill to complete Work and to:
 - 1. Fit several parts together, to integrate with other work.
 - 2. Uncover portions of work to provide for installation of ill-timed work.
 - 3. Remove and replace defective work.
 - 4. Remove and replace work not conforming to requirements of Contract Documents.
 - 5. Remove samples of installed work as necessary for testing.
 - 6. Provide openings in elements of work for penetrations of plumbing, mechanical, and electrical work.
 - 7. Uncover work to allow for Architect's observation of covered work which has been covered up prior to required observation by Architect.
- C. Execute in manner which does not void required or existing warranties.
- D. Execute by methods which will prevent damage to other Work and which will produce appropriate surfaces to receive installation of new Work:
 - 1. Use hand or small power tools designed for sawing or grinding, not hammering or chopping.
 - 2. Cut holes and slots as small as possible, neatly to size required, with minimum disturbance of adjacent surfaces.
 - 3. Temporarily cover openings when not in use.
 - 4. To avoid marring existing finished surfaces, cut or drill from exposed or finished side into concealed surfaces.
 - 5. Cut through concrete and masonry using cutting machine, such as Carborundum saw or diamond-core drill.
- E. Execute fitting and adjustment to produce finished installation complying with specified products, functions, tolerances, and finishes.
- F. Restore surfaces which have been cut, removed, or damaged, to match existing conditions.
- G. Install products and materials to complete Work in accordance with requirements of Contract Documents.
- H. Employ original installer to perform cutting and patching for weather exposed and moisture resistant elements, and sight exposed surfaces.
- I. Do not cut and patch structural elements in manner that would result in reduction of load carrying capacity or of load deflection ratio.
- J. Do not cut and patch operational elements or safety related components in manner that would result in reduction of their capacity to perform in manner intended, including energy performance, that would result in increased maintenance, decreased operational life, or decreased safety.
- K. Fit work tight to pipes, sleeves, ducts, conduit, and other penetrations through surfaces.
- L. Where utilities are to be removed, relocated, or abandoned, by-pass before cutting. Cut-off pipe or conduit in walls or partitions to be removed. Cap, valve, or plug and seal the remaining portion of pipe, duct, or conduit to prevent entrance of moisture or matter after by-passing and cutting.

- M. Except where indicated otherwise, restore exposed finishes of patched areas to match adjacent surface and where necessary extend finish restoration into adjacent surfaces in manner which will eliminate evidence of patching and refinishing. Thoroughly clean surfaces prior to application of paint and other finishes.
- N. Where patching occurs in previously painted surface, provide appropriate prime coat followed by first finish coat of paint. Provide final finish coat over entire area containing patch; for continuous surface extend to nearest vertical break or intersection, for an assembly refinish entire unit. Except where indicated otherwise, finish in sheen and color to match existing.

3.4 CLEANING

- A. Thoroughly clean areas and spaces affected by Work. Completely remove paint, mortar, oils, putty, and items of similar nature.
- B. Restore damaged surfaces to its original condition.

END OF SECTION

SECTION 017400
CLEANING AND WASTE MANAGEMENT

PART 1 - GENERAL

1.1 SUMMARY

- A. Section Includes:
 - 1. Construction and final cleaning prior to Certification of Substantial Completion.
 - 2. Recycling nonhazardous demolition and construction waste.
 - 3. Disposing of nonhazardous demolition and construction waste.

1.2 SYSTEM DESCRIPTION

- A. Execute cleaning during progress of work and at completion of work as required by this section and the Conditions of the Contract.
- B. Hazards Control:
 - 1. Store volatile wastes in covered safety containers.
 - 2. Remove containers from premises daily.
 - 3. Prevent accumulation of waste which creates hazardous conditions.
 - 4. Provide adequate ventilation during use of volatile or noxious substances.
- C. Conduct cleaning and disposal operations to comply with local ordinances and anti-pollution laws.
 - 1. Do not burn or bury rubbish and waste materials on Project site.
 - 2. Do not dispose of volatile wastes or hazardous materials such as mineral spirits, oil, or paint thinner in storm or sanitary drains.
 - 3. Do not dispose of wastes into streams or waterways.
- D. Recycle Requirements: Owner's goal is to recycle as much nonhazardous demolition and construction waste as possible.

PART 2 - PRODUCTS

2.1 CLEANING MATERIALS

- A. Use only materials and methods recommended by manufacturer of material being cleaned.
- B. Do not use materials which will create hazards to health or property, or which will damage surfaces.
- C. Provide covered containers for deposit of waste materials, debris, and rubbish.

PART 3 - EXECUTION

3.1 CLEANING DURING CONSTRUCTION

- A. Execute periodic cleaning to keep building, site, and adjacent properties free of accumulations of waste materials, debris, rubbish, and wind blown debris resulting from construction operations.
- B. Prior to Substantial Completion remove construction tools, scaffolding, equipment, machinery, and surplus materials.
- C. Broom clean and vacuum interior areas prior to start of surface finishing, and continue cleaning to eliminate dust.
- D. Schedule cleaning operations so that dust and other contaminants will not fall on or adhere to wet or newly-coated surfaces.
- E. Remove debris and rubbish from pipe chases, plenums, attics, crawl spaces, and other closed or remote spaces, prior to enclosing space.
- F. Do not throw materials from heights.
- G. Open free-fall chutes not permitted. Terminate closed chutes into appropriate containers with lids.

3.2 FINAL CLEANING

- A. Comply with manufacturer's instructions.
- B. Remove tools, construction equipment, machinery, and surplus material from Project site.
- C. Employ experienced personnel or professional cleaning firm.
- D. Cleaning:
 - 1. Clean exposed exterior and interior hard-surfaced finishes to dirt-free condition, free of stains, films, and similar foreign substances.
 - 2. Remove labels which are not required as permanent labels.
 - 3. Clean glossy materials to polished condition; remove foreign substances.
 - 4. Polish reflective surfaces to clear shine.
 - 5. Glass and glazing:
 - a. Wash and clean mirrors and both sides of glass.
 - b. Remove putty and other substances which obscure vision.
 - c. Replace chipped, scratched, and broken glass.
 - 6. Clean concrete floors in unoccupied spaces.
 - 7. Clean resilient flooring, stone flooring, tile, pavers, and other similar hard-surface flooring, including associated bases. Refer to individual Specification sections for requirements of sealing, buffing, waxing, and polishing.
 - 8. Clean exposed surfaces of equipment; remove excess lubrication.
- E. Avoid disturbing natural weathering of exterior surfaces.
- F. Site:
 - 1. Clean areas disturbed by construction activities, including landscape areas, free of rubbish, litter and foreign substances.
 - 2. Sweep paved areas to broom clean condition.
 - 3. Remove stains, spills, and other foreign deposits.
 - 4. Rake grounds that are neither paved nor planted to even-textured surface.
- G. Owner's Goals:
 - 1. Special requirements for waste management during demolition and construction operations.
 - a. Protect environment, both on-site and off-site, during demolition and construction operations.
 - b. Prevent environmental pollution and damage.
 - c. Monitoring requirements.
 - d. Salvaging nonhazardous demolition and construction waste.
 - e. Recycling nonhazardous demolition and construction waste.
 - f. Disposing of nonhazardous demolition and construction waste.
 - 2. Salvage/Recycle Requirements: Owner's goal is to salvage and recycle as much nonhazardous demolition and construction waste as possible.
- H. Remove waste, foreign matter, and debris from roofs, gutters, areaways, and drainage systems.
- I. Prior to final completion, conduct inspection of sight-exposed interior surfaces, exterior surfaces, and associated work areas to verify that entire Work is clean.
- J. Maintain cleaning until Project, or portion thereof, is accepted by Owner.

END OF SECTION

SECTION 017700
CLOSEOUT PROCEDURES

PART 1 - GENERAL

1.1 SUMMARY

- A. Related Sections:
 - 1. Section 015000 - Temporary Facilities and Controls: Temporary use of permanent systems prior to Substantial Completion.
 - 2. Section 017500 - Starting and Adjusting: Starting of systems, testing and balancing, demonstrations, and instruction of Owner's personnel.

1.2 PREREQUISITES TO SUBSTANTIAL COMPLETION

- A. Complete items in following paragraphs before requesting Certification of Substantial Completion, either for entire Work or for portions of Work.
- B. Conduct inspection to substantiate basis for request that Work is substantially complete. Create comprehensive list (initial punch list) indicating items to be completed or corrected, value of incomplete or non-conforming work, reason for being incomplete, and date of anticipated completion for each item. Include copy of list with request for Certificate of Substantial Completion.
- C. Submit statement showing accounting of changes to Contract Sum.
- D. Advise Owner of pending insurance change-over requirements at final payment.
- E. Obtain and submit releases enabling Owner's full, unrestricted use of Project and access to services and utilities. Include certificate of occupancy, operating certificates, and similar releases from authorities having jurisdiction and utility companies.
- F. Submit project record documents in compliance with Section 017800, maintenance manuals, [digital images of construction photographs](#), and other similar final record data.
- G. Deliver tools, spare parts, extra stocks of material, and similar physical items to Owner.
- H. Discontinue or change over and remove temporary facilities and services from Project site, along with construction tools, mock-ups, and similar elements.
- I. Perform final cleaning in accordance with Section 017400.
- J. Touch-up and otherwise repair and restore marred exposed finishes.

1.3 SUBSTANTIAL COMPLETION REVIEW

- A. When Contractor considers Work to be substantially complete, submit to Architect:
 - 1. Written certificate that Work, or designated portion, is substantially complete.
 - 2. List of items to be completed or corrected (initial punch list).
- B. Within 7 days after receipt of request for Substantial Completion, Architect will make site review to determine whether Work or designated portion is substantially complete following procedures indicated in Conditions of the Contract.
- C. Should Architect determine that Work is not substantially complete:
 - 1. Architect will promptly notify Contractor in writing, stating reasons for its opinion.
 - 2. Contractor shall remedy deficiencies in Work and send second written request for Substantial Completion to Architect.
 - 3. Architect will re-perform review of Work.
- D. When Architect finds that Work is substantially complete, Architect will:
 - 1. Prepare Certificate of Substantial Completion on AIA Form G704, accompanied by Contractor's list of items to be completed or corrected as verified and amended by Architect and Owner (final punch list). If Contractor fails to generate initial punch list, or if Architect adds more than 500 items to Contractor's list, or ten or more items per room on average, Owner will re-imburse Architect for time spent in adding to or generating list, and will deduct amount of compensation from payment to Contractor.

2. Submit Certificate to Owner and Contractor for their written acceptance of responsibilities assigned to them in the Certificate.
- E. After Work is substantially complete, Contractor shall:
1. Allow Owner occupancy of Project under provisions stated in Certificate of Substantial Completion.
 2. Complete work listed for completion or correction within time period stipulated.

1.4 PREREQUISITES FOR FINAL COMPLETION

- A. Complete items in following paragraphs before requesting final acceptance and final payment. List known exceptions, if any, in request.
- B. When Contractor considers Work to be complete, submit written certification that:
 1. Contract Documents have been reviewed.
 2. Work has been examined for compliance with Contract Documents.
 3. Work has been completed in accordance with Contract Documents.
 4. Work is completed and ready for final inspection.
- C. Submit final punch list indicating all items have been completed or corrected.
- D. Submit final payment request with final releases and supporting documentation not previously submitted and accepted. Include certificates of insurance for products and completed operations where required.
- E. Submit specified warranties, workmanship/maintenance bonds, maintenance agreements, and other similar documents in accordance with Section 017800.
- F. Submit updated accounting statement for final changes to Contract Sum.
- G. Submit consent of surety to final payment.
- H. Perform final cleaning for Contractor soiled areas in accordance with Section 017400.

1.5 FINAL COMPLETION REVIEW

- A. Within 7 days after receipt of request for final review, Architect will make site review to determine whether Work or designated portion is complete following procedures indicated in Conditions of the Contract.
- B. Should Architect consider Work to be incomplete or defective:
 1. Architect will promptly notify Contractor, in writing, listing incomplete or defective work.
 2. Contractor shall take immediate steps to remedy stated deficiencies and send second written request to Architect that Work is complete.
 3. Architect will reinspect Work.

1.6 REVISITS FOR SITE REVIEWS

- A. Should Architect have to re-perform site reviews due to failure of Work to comply with claims of completion made by Contractor, Owner will reimburse Architect for such additional services and will deduct amount of compensation from final payment to Contractor.

1.7 EVIDENCE OF PAYMENTS AND RELEASE OF LIENS

- A. Submit Contractor's affidavit of Payment of Debts and Claims on AIA Document G706.
- B. Submit Contractor's affidavit of Release of Liens on AIA Document G706A with:
 1. Consent of Surety to Final Payment: AIA G707.
 2. Contractor's Release or Waiver of Liens.
 3. Separate releases or waivers of liens from subcontractors, suppliers and others with lien rights against property of Owner, together with list of those parties.
- C. Execute submittals before delivery to Owner.

1.8 FINAL ADJUSTMENT OF ACCOUNTS

- A. Submit final statement of accounting to Architect.
- B. Show adjustments to Contract Sum:
 1. Original Contract Sum.

2. Additions and deductions resulting from:
 - a. Previous Change Orders.
 - b. Allowances.
 - c. Unit Prices.
 - d. Deductions for uncorrected Work.
 - e. Deductions for inspection payments.
 - f. Other adjustments.
 3. Total Contract Sum as adjusted.
 4. Previous payments.
 5. Retainage.
 6. Sum remaining due.
- C. Architect will prepare final Change Order reflecting approved adjustments to Contract Sum which are not included in Change Orders previously processed.

1.9 FINAL APPLICATION FOR PAYMENT

- A. Submit final Application for Payment in accordance with procedures and requirements stated in Conditions of the Contract.

PART 2 - PRODUCTS

NOT USED

PART 3 - EXECUTION

NOT USED

END OF SECTION

SECTION 017800
CLOSEOUT SUBMITTALS

PART 1 - GENERAL

1.1 RECORDING

- A. Post changes and modifications to record documents as they occur. Do not wait until end of Project. Architect will periodically review record documents to assure compliance with this requirement.

1.2 SUBMITTAL

- A. Deliver closeout submittals and samples to Architect for transmittal to Owner.
- B. Include typed list identifying each item submitted as closeout document.

1.3 OPERATIONS AND MAINTENANCE MANUALS

- A. Prepare data in form of instructional manual in heavy-duty three-ring binders with durable plastic covers.
 - 1. Where written instructions are required, use personnel skilled in technical writing to extent necessary for communication of essential data.
 - 2. Where drawings or diagrams are required, use personnel capable of preparing drawings clearly in understandable format.
- B. Examine for completeness.
- C. Submit one copy of completed volumes in final form after instructing Owner's personnel under Section 017500, but prior to request for Substantial Completion. This copy will be returned with Architect's comments. Revise as necessary prior to final submittal.
- D. Prepare and insert additional data in manuals when need for such data becomes apparent during Owner's instruction.
- E. Submit 3 copies of final volumes at time of request for Substantial Completion.
- F. Label covers and spine of each binder with typed or printed title OPERATIONS AND MAINTENANCE MANUAL, title of project, and subject matter of binder when multiple binders are required.
- G. Separate contents with tab dividers, logically organized with tab title clearly printed under reinforced laminated plastic tabs.
- H. Manuals shall contain:
 - 1. Table of contents.
 - 2. Directory listing names, addresses, and telephone numbers of Architect, Engineer, and Contractor.
 - 3. List names, addresses and telephone numbers of subcontractors, suppliers, and service representatives, including local source of supplies and replacement parts.
 - 4. General system or equipment description.
 - 5. Copies of applicable shop drawings and product data.
 - 6. Mark product data to clearly identify specific products and component parts.
 - 7. Supplement product data with drawings necessary to illustrate relationship of component parts of equipment and systems, include control and flow diagrams.
 - 8. Arranged by product, system, or process flow, and subdivided by Specification section. Identify following:
 - a. Significant design criteria.
 - b. List of equipment.
 - c. System or equipment identification, including:
 - 1) Name of manufacturer.
 - 2) Model number.
 - 3) Serial number of each component.
 - d. Parts list for each component.

- e. Operating instructions.
 - f. Maintenance instructions and schedules for equipment and systems.
 - g. Emergency instructions.
 - h. Wiring and piping diagrams.
 - i. Inspection and test procedures.
 - j. Precautions against improper use and maintenance.
9. Copies of warranties.
 10. Protective plastic jackets: Provide protective transparent plastic jackets designed to enclose diagnostic software for computerized electronic equipment.
 11. Text material:
 - a. Provide manufacturer's standard printed material or typewritten specially prepared data.
 - b. Provide text on **8-1/2 inches** by **11 inches**, **20 pound** white bond paper.
 12. Drawings and diagrams:
 - a. Provide reinforced punched binder tabs on drawings and bind in with text.
 - b. Oversize drawings:
 - 1) Fold drawings to same size as text pages and use as fold-out.
 - 2) Drawings too large to be used as fold-out, place folded drawing in front or rear pocket of binder. Insert typewritten page indicating drawing title, description of contents, and drawing location at appropriate location in manual.

1.4 MATERIAL AND FINISHES MAINTENANCE MANUAL

- A. Manual:
 1. Submit 3 copies of each manual, in final form, on material and finishes to Architect for distribution.
 2. Provide one section for interior products, including applied materials and finishes, and second for products designed for exterior products.
- B. Interior Products:
 1. Provide manufacturer's data and instructions on care and maintenance of architectural products, including applied materials and finishes.
 2. Product data: Provide complete information on architectural products, including following, as applicable:
 - a. Manufacturer's catalog number.
 - b. Size.
 - c. Material composition.
 - d. Color.
 - e. Texture.
 - f. Reordering information for specially manufactured products.
 3. Care and maintenance instructions: Provide information on care and maintenance including manufacturer's recommendations for types of cleaning agents to be used and methods of cleaning. Provide information regarding cleaning agents and methods that could prove detrimental to product. Include manufacturer's recommended schedule for cleaning and maintenance.
- C. Exterior Products:
 1. Provide complete manufacturer's data with instructions on inspection, maintenance, and repair of products exposed to weather or designed for moisture-protection purposes.
 2. Manufacturer's data: Provide manufacturer's data giving detailed information, including following, as applicable.
 - a. Applicable standards.
 - b. Chemical composition.
 - c. Installation details.
 - d. Inspection procedures.
 - e. Maintenance information.
 - f. Repair procedures.

1.5 SPARE PARTS AND MAINTENANCE MATERIALS

- A. Provide tools, spare parts, maintenance and extra stock materials in quantities specified in individual Specification sections.
- B. Deliver to Project site and place in locations as directed; obtain receipt from subcontractors and suppliers.
- C. Submit letter at time of inspection for Substantial Completion listing items and quantities; attach receipts.

1.6 WARRANTIES AND BONDS

- A. Disclaimers and Limitations: Manufacturer's disclaimers and limitations on product warranties do not relieve Contractor of warranty on Work that incorporates products, nor does it relieve suppliers, manufacturers, and subcontractors required to countersign special warranties with Contractor.
- B. Owner's Recourse:
 - 1. Written warranties made to Owner are in addition to implied warranties, and shall not limit duties, obligations, rights and remedies otherwise available under law.
 - 2. Warranty periods shall not be interpreted as limitations on time in which Owner can enforce such other duties, obligations, rights, or remedies.
 - 3. Rejection of warranties: Owner reserves right to reject warranties and to limit selections to products with warranties not in conflict with requirements of Contract Documents.
- C. Submit 3 copies of warranties, maintenance bonds, and maintenance/service contracts as specified in various Specification sections. Include one copy of each warranty in Operations and Maintenance Manual, or in Material and Finishes Maintenance Manual.
- D. Assemble data in heavy-duty three-ring binders with durable plastic covers, two required.
- E. Label cover and spine of each binder with typed or printed title WARRANTIES AND BONDS and title of Project.
- F. Prepare table of contents in sequence of table of contents of Project Manual, with each item identified with number and title of Specification section in which specified, and name of product or work item.
- G. Separate each warranty, bond, or service contract with tab and index sheets keyed to listing in table of contents. Provide full information, using separate typed sheets as necessary. List subcontractor, supplier, and manufacturer, with name, address, and telephone number of responsible principal.
- H. Obtain warranties, bonds, and maintenance/service contracts executed in triplicate by responsible subcontractors, suppliers, and manufacturers; warranties commence on Date of Substantial Completion.
- I. Verify that documents are in proper form, contain full information, and are notarized.
- J. Time of Submittals:
 - 1. Submit binders containing warranties, bonds, and maintenance/service contracts within 10 days after date of Substantial Completion.
 - 2. For equipment or component parts of equipment put into service during construction with Owner's permission, submit photo copies of documents within 10 [] days after acceptance listing date of acceptance as beginning of warranty period. Retain originals of executed documents for final submittal as indicated in subparagraph above.
 - 3. For items of Work when acceptance is delayed beyond date of Substantial Completion, submit within 10 days after acceptance listing date of acceptance as beginning of warranty period.

1.7 RECORD DOCUMENT REQUIREMENTS

- A. Maintain at Project site record copy of:
 - 1. Project Manual.
 - 2. Contract Drawings.
 - 3. Addenda.
 - 4. Change Orders, Change Directives, Supplemental Instructions, and other modifications to Contract.

5. Approved shop drawings, product data, samples, and similar required submittals.
 6. Approved substitutions.
 7. Reports of inspection and testing agencies.
 8. Inspection certificates.
 9. Manufacturer's certificates, manufacturer's instructions, and reports of manufacturer's field observations.
 10. Samples.
 11. Other items indicated in various sections within Division 01.
- B. Obtain from Architect and pay reproduction costs for one set of reproducible Contract Drawings for recording changes and modifications.
 - C. Obtain from Architect and pay reproduction costs for one set of Project Manuals for record purposes.
 - D. Store record documents and samples in field office apart from documents used for construction. Provide files and racks for secure storage.
 - E. Label and file documents and samples in accordance with section number listings in Table of Contents of Project Manual. Label each item PROJECT RECORD DOCUMENT in stamped or printed letters in prominent location on each Drawing.
 - F. Maintain documents and samples in clean, dry, legible condition; do not use for construction purposes.
 - G. Record information concurrently with construction progress.
 - H. Make documents available for review by Architect and Owner during construction period.

1.8 CONTRACT DRAWINGS AND SHOP DRAWINGS

- A. Legibly mark drawings to record actual construction which varies appreciably from Contract Documents. Give particular attention to information on concealed elements which would be difficult to identify or measure and record later. Items required to be marked include but are not limited to:
 1. Dimensional changes to Drawings.
 2. Measured depths of foundation below main floor datum.
 3. Measured horizontal and vertical locations of underground utilities and appurtenances, referenced to permanent surface improvements.
 4. Measured locations of internal utilities and appurtenances concealed in construction, referenced to visible and accessible features of construction.
 5. Revisions to routing of piping and conduits.
 6. Revisions to electrical circuitry.
 7. Actual equipment locations.
 8. Duct size and routing.
 9. Revisions to details shown on Drawings.
 10. Details not on original Contract Drawings.
 11. Changes made by addenda, change orders, change directives, supplemental instructions, and other issued modifications.
 12. References to related shop drawings and other similar detailed modifications.
- B. Mark-up Procedures:
 1. Mark completely and accurately record prints of Contract Drawings or shop drawings, whichever is most capable of showing actual physical conditions. Where shop drawings are marked, show cross-reference on Contract Drawings location.
 2. Mark record sets with red erasable colored pencil; use other colors to distinguish between changes for different categories of Work at same location.
 3. Mark important additional information which was either shown schematically or omitted from original Drawings.
 4. Record modifications caused by Supplemental Instructions, Construction Change Directives, Change Orders, Alternates, and similar modifications.
 5. Accurately record information using understandable technique.
 6. Record data as soon as possible after it has been obtained. In case of concealed installations, record and check mark-up prior to concealment.

7. At time of Substantial Completion, submit Record Drawings to Architect for Owner's records. Organize into sets, bind and label sets for Owner's continued use.
- C. Preparation of Reproducibles:
1. Immediately prior to request for Substantial Completion, review completed marked-up Record Drawings with Architect.
 2. When authorized, prepare full set of corrected reproducible of Contract Drawings and shop drawings.
 3. Incorporate changes and additional information previously marked on print sets. Erase, redraw, and add details and notations where applicable. Identify and date each Record Drawing.
- D. Review of Reproducibles:
1. Before copying and distributing, submit corrected reproducible and original marked-up prints to Architect for review.
 2. When acceptable, Architect will initial and date each reproducible, indicating acceptance of general scope of changes and additional information recorded, and of quality of drafting.
 3. Reproducibles and original marked-up prints will be returned to Contractor for organizing into sets, printing, binding and final submittal.
- E. Copies and Distribution:
1. After completing preparation of reproducible Record Drawings, print 3 copies of each Record Drawing, whether or not changes and additional information were recorded.
 2. Organize copies into manageable sets.
 3. Bind each set with durable paper cover sheets, with appropriate identification, including titles, dates and other information on cover sheets.
 4. Organize and bind original marked-up set of prints that were maintained during construction period in same manner.
 5. Organize record reproducible sets matching print sets. Place reproducible sets in durable tube-type drawing containers with end caps. Mark end cap of each container with suitable identification.
 6. Submit marked-up record set, reproducible, and prints to Architect for Owner's records; Architect will retain one copy set.

1.9 PROJECT MANUALS

- A. Legibly record changes and modifications issued by addenda and change orders.

PART 2 - PRODUCTS

NOT USED

PART 3 - EXECUTION

NOT USED

END OF SECTION

SECTION 024116
STRUCTURE DEMOLITION

PART 1 - GENERAL

1.1 SUMMARY

- A. Section Includes:
 - 1. Demolition of designated structures and removal of materials from site.
- B. Related Sections:
 - 1. Section 013100 - Project Meetings.
 - 2. Section 014500 - Quality Control.
 - 3. Section 015000 - Temporary Facilities and Controls: Barriers and Fences.

1.2 SUBMITTALS

- A. General: Submit in accordance with General Conditions Section 4.14.
- B. Demolition Schedule: Submit schedule showing time and detailed sequence of demolition, removal of materials, arranged shut-off and capping of utility services.
- C. Submit following Informational Submittals:
 - 1. Certifications specified in Section 014500.
 - 2. Qualification Data: Submit demolition contractor's qualifications.
- D. Closeout Submittals:
 - 1. Project Record Documents:
 - a. Submit under provisions of General Conditions Section 9.8.
 - b. Record actual locations of capped utilities.

1.3 QUALITY ASSURANCE

- A. Contractor Qualifications: Company specializing in demolition work with minimum of 3 years documented experience.
- B. Regulatory Requirements:
 - 1. Comply with applicable codes, ordinances, rules, regulations, and laws of local, municipal, state and federal authorities having jurisdiction.
 - 2. Obtain and pay for necessary permits and notices; post where required.
 - 3. Comply with safety requirements of local fire department.
 - 4. Comply with requirements of ANSI A10.6.
- C. Notify affected utility companies before starting Work and comply with their requirements.
- D. Do not close or obstruct roadways without permits.

1.4 PRE-DEMOLITION CONFERENCE

- A. Conduct conference in accordance with Section 013100 to discuss following:
 - 1. Present draft of demolition schedule for review.
 - 2. Coordinate phasing requirements.
 - 3. Identify items to be protected and preserved before proceeding with Work.

1.5 PROJECT CONDITIONS

- A. Occupancy: Owner will occupy the building throughout construction except areas under the skylight during the skylight work.
- B. Existing Conditions:
 - 1. Owner assumes no responsibility for actual condition of structures to be demolished.
- C. Hazardous Materials:
 - 1. Inform Owner immediately upon discovery of asbestos products, radioactive materials, radon gas, toxic wastes, or other similar hazardous materials.
 - 2. Strictly follow regulations applicable to hazardous materials.

3. Do not remove hazardous materials without Owner authorization.
- D. Explosives: Not permitted.
- E. Traffic and Passageways:
1. Maintain accessibility for fire fighting apparatus.
 2. Conduct demolition operations and debris removal to avoid interference with use of roads, streets, walks, and adjacent occupied facilities.
 3. Obtain written permission from authorities having jurisdiction prior to closing or obstructing streets, walks, or other adjacent occupied facilities.
 4. Provide alternate routes when closing or obstructing traffic ways when required by governing authorities.
The Contractor shall install "Caution: Overhead Work Ahead" signage at the inside of all exterior doors leading to work areas.
- F. Protection:
1. Perform Work in manner to eliminate hazards to persons or property and avoid interference with adjacent areas, utilities and structures.
 2. Provide and maintain temporary barricades, fences, guardrails, warning signs, warning lights, and other similar provisions as necessary for protection of persons.
 3. Provide and maintain fire extinguishers; comply with requirements of governing authorities.
 4. Maintain existing utilities which are to remain in service and protect from damage during demolition operations.
 5. The contractor shall protect the existing structure from water and pest intrusion until the roof is complete.
 6. No materials shall be dropped or lowered from the roof or onto adjacent roof areas except where pedestrians are restricted from access. Areas below shall be protected from damage with a safety fence offset at least 10 feet from the roof edge.

PART 2 - PRODUCTS

NOT USED

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine conditions and proceed with work in accordance with Section 017300.

3.2 PREPARATION

- A. Provide, erect, and maintain temporary barriers and security devices to restrict public access and below all work areas.
- B. Prevent movement or settlement of adjacent structures. Provide bracing and shoring as necessary.
- C. Utilities:
1. Mark location of utilities.
 2. Disconnect and cap utility services; comply with requirements of governing authorities.
 3. Notify affected utility company in advance of date and time when service needs to be disconnected.
 4. Do not commence demolition operations until associated disconnections have been completed.

3.3 SALVABLE MATERIAL AND EQUIPMENT

- A. Materials Retained by Contractor:
1. Items of salvable value not indicated as Owner salvaged or scheduled for reinstallation may be removed as work progresses.
 2. Salvaged items must be removed from site as they are removed from structure. Storage or sale of salvaged items on site will not be permitted.

3.4 DEMOLITION

- A. General:
 - 1. Conduct demolition to minimize interference with adjacent structures.
 - 2. Cease demolition operations immediately if adjacent structures appear to be in danger. Conduct safety operations as necessary. Do not resume demolition operations until directed.
 - 3. Conduct operations with minimum interference to public or private accesses. Maintain egress and access at all times.
 - 4. Sprinkle debris with water to minimize dust. Provide hoses and water connections as necessary.
 - 5. Do not cause flooding or contaminated runoff.
- B. Demolish indicated structures and appurtenances in orderly manner. Remove demolished materials from site daily.
- C. Perform demolition in accordance with governing authorities.
- D. Remove and immediately dispose of contaminated or vermin infested materials when encountered.
- E. Do not burn or bury materials or debris on site. Leave site in clean condition.
- F. Backfill open pits and holes caused as result of demolition.
- G. Do not backfill until areas to be filled are free of standing water, frost, frozen material, trash and debris.
- H. Place fill in horizontal layers not exceeding 9 inches in loose depth. Compact each layer at optimum moisture content of fill materials to a density equal to original adjacent ground, unless subsequent excavation for new work is required.

3.5 ADJUSTING

- A. After fill placement and compaction, grade surface to meet adjacent contours with uniform slope to surface drain.

3.6 CLEANING

- A. Clean adjacent structures and improvements of dust, dirt, and debris caused by demolition operations. Return adjacent areas to condition existing prior to start of Work.

END OF SECTION

SECTION 055133

LADDERS

PART 1 - GENERAL

1.1 SUMMARY

- A. Section Includes: Steel ladders for roof access.
- B. Related Sections:
 - 1. Section 099000 - Paints and Coatings.

1.2 SYSTEM REQUIREMENTS

- A. Design Requirements: Fabricator is responsible for designing system, including anchorage to structural system and necessary modifications to meet specified requirements and maintain visual design concepts.
- B. Structural Requirements: Ladders: In addition to requirements shown and specified, comply with applicable provisions of ANSI A14.3 for design, materials, fabrication, and installation of component parts.

1.3 SUBMITTALS

- A. General: Submit following items under provisions of Section 013300.
- B. Product Data: Submit product data for primer paint.
- C. Shop Drawings: Submit shop drawings showing dimensions, fabrication and installation details. Indicate size and type of fasteners, welds, accessory items, shop finish and method of anchorage.
- D. Submit following Informational Submittals:
 - 1. Certifications specified in Quality Assurance article.
 - 2. Qualification Data: Fabricator's and welder's qualification data.

1.4 QUALITY ASSURANCE

- A. Fabricator Qualifications: Company specializing in fabricating work specified in this Section with minimum 5 years documented experience.
- B. Welder Qualifications: AWS certified within past 12 months for each type of weld required.
- C. Certifications:
 - 1. Submit certificates verifying AWS qualifications for each welder employed on Project.
 - 2. Submit fabricator's certification that products furnished for Project meet or exceed specified requirements.
 - 3. Engineering Certifications.
 - 4. Furnish certification that code required design loadings have been complied with in the design and fabrication of the work.

1.5 DELIVERY, STORAGE AND HANDLING

- A. Comply with provisions of Section 016000.

PART 2 - PRODUCTS

2.1 MATERIALS

- A. Steel Section: ASTM A36.
 - 1. Steel: Maximize use of recycled steel with minimum of 30 percent.
- B. Steel Sheet: ASTM A653, G90, (galvanized) or ASTM A611, grade as required for design loading.
- C. Fasteners:
 - 1. General: Provide zinc-coated fasteners for exterior use or where built into exterior walls. Select fasteners for the type, grade and class required.
 - 2. Bolts and Nuts: Regular hexagon head type, ASTM A307, Grade A.

3. Eyebolts: ASTM A489.
 4. Machine Screws: ASME B18.6.3.
 5. Lag Bolts: ASME B18.2.1.
 6. Wood Screws: Flat head, ASME B18.6.1.
 7. Plain Washers: Round, ASME B18.22.1.
 8. Lock Washers: Helical, spring type, ASME B18.21.1.
 9. Masonry Anchorage Devices: Expansion shields.
 10. Toggle Bolts: Tumble-wing type, class and style as required.
- D. Concrete Inserts: Threaded or wedge type; galvanized ferrous castings, either malleable iron, ASTM A47, or cast steel, ASTM A27. Provide bolts, washers and shims as required, hot-dip galvanized, ASTM A153.

2.2 VERTICAL LADDERS

- A. Type: Vertical steel ladders consisting of the following components:
1. Side Rails: 3/8 inch by 2-1/2 inches flat steel bars with eased edges.
 - a. Side-Step Ladders and Ladders with Top Terminating at Hatch: Space side rails 18 inches apart.
 - b. Through Ladders (Step through ladder at top termination): Space side rails 24 inches apart.
 2. Rungs: 3/4 inch minimum round steel bars spaced 12 inches maximum on center, punched through the stringers and plug welded.
 3. Provide non-slip surface on top of each rung, either by coating the rung with aluminum oxide granules set in epoxy resin adhesive, or by using manufactured rung filled with aluminum oxide grout.
 4. Angle Supports: Support ladders by steel angles bolted to walls and floors to provide minimum of 7 inches from face of wall to centerline of rungs. Locate at 5 feet on center and within 16 inches of top and bottom.
 5. Safety Handrails: Extend rails 48 inches above top rung and anchor to structure, if adjacent structure does not extend above top rung, gooseneck extended rails back to structure.

2.3 FABRICATION PROCEDURES

- A. Shop Assembly: Preassemble items in shop to greatest extent possible to minimize field splicing and assembly. Disassemble units only as necessary for shipping and handling limitations. Clearly mark units for reassembly and coordinated installation.
- B. Verify measurements in field for work fabricated to fit Project conditions. Before starting work, examine adjoining work on which work of this section is in any way dependent for workmanship and fit.
- C. Fabricate finish surfaces smooth, unless otherwise specified.
- D. Cut, punch, drill and tap for attachment of work coming in contact with ladder where indicated or where directions for same are given prior to or with approval of shop drawings.
- E. Make joints as strong and rigid as adjoining sections. Make exposed joints close fitting and where jointing is least conspicuous. Unless otherwise indicated or specified, full weld joints and seams and dress smooth where exposed.
- F. Connections and Accessories: Weights of connections and accessories shall meet design loads.

2.4 SURFACE PREPARATION AND APPLICATION

- A. Steel surfaces to be primed must be dry and free of dirt, oils, rust, salt and other contaminants.
- B. Blast-clean steel to "commercial grade" SSPC SP-6 for general use.
- C. Apply primers in accordance with manufacturer's instructions.

2.5 UNIVERSAL PRIMER

- A. Manufacturer's standard, lead and chromate free primer, capable of providing sound foundation for field applied top coats despite prolonged exposure.

- B. Maximum Allowable Dry Time: 4 hours to touch; 24 hours to re-coat.
- C. Compatible with finish paint system specified in 099000.
- D. Acceptable Products:
 - 1. Series 88HS, Tnemec Company, Inc., Kansas City, MO.
 - 2. Carboguard 890 VOC, Carboline Company, St. Louis, MO.

2.6 FINISHES

- A. Interior Ladders: Universal primer.
- B. Final painting under Section 099000 - Paints and Coatings.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine conditions and proceed with Work in accordance with Section 017300.

3.2 INSTALLATION

- A. Set items in position, align and brace securely until permanent anchorage is made.
- B. Install supporting members, fastenings, framing, hangers, bracing brackets, straps, bolts and angles required to set and connect work to structure.
- C. Provide suitable anchors.
- D. Upon completion of installations, re-examine work and provide additional shims, washers, anchors and corrective work to ensure that installation is firm, tight, anchored, in alignment with neat fits, without distortion, unsightly fastenings, raw edges or protrusions.

3.3 PROTECTION

- A. Protect finished installation under provisions of Section 017300.

END OF SECTION

SECTION 061053
MISCELLANEOUS ROUGH CARPENTRY

PART 1 - GENERAL

1.1 SUMMARY

- A. Section Includes: Wood blocking within building and on roof.

1.2 DEFINITIONS

- A. Blocking: Wood used for plates, furring, shimming, stripping, sleepers, grounds, curbing, cants, bracing, nailers, and filling in between framing members.

1.3 SUBMITTALS

- A. General: Submit in accordance with General conditions Section 4.14.
- B. Product Data: Provide product data on wood treatment materials; include historical performance information.
- C. Submit following Informational Submittals:
1. Certifications specified in Section 014000.
 2. Manufacturer's instructions for wood treatment materials.

1.4 QUALITY ASSURANCE

- A. Grade Marks:
1. Identify lumber and plywood by official grade mark.
 2. Lumber: Include symbol of grading agency, mill name, grade, species, grading rules, and condition of seasoning at time of manufacturer.
 3. Plywood: Include type, class identification index, and agency mark.
 4. Pressure treatment: Include quality mark of grading agency which maintains continued supervision, testing, inspection, and re-examination service over product quality as described in AWPA standards.
 5. Fire-retardant treated wood: Imprint each piece with mark attesting to FR-S rating.
- B. Certifications: Submit manufacturer's certification that products furnished for Project meet or exceed specified requirements.

1.5 DELIVERY, STORAGE AND HANDLING

- A. Comply with requirements of Section 016000.
- B. Storage and Protection:
1. Store products above ground, on platforms or skids, and covered with waterproof coverings.
 2. Store products with ventilation, drainage, and protection against damp or wet locations.
 3. Support products to prevent warping and distortion.
- C. Fire-Retardant Treated Wood:
1. Keep materials dry during delivery and storage.
 2. Protect against exposure to weather.

PART 2 - PRODUCTS

2.1 SOLID SAWN LUMBER

- A. General: Provide from an FSC certified source.
- B. Lumber Grading Agency: Certified by American Lumber Standards Committee or NLGA.
- C. Grading rules of NLGA, SPIB, WCLIB, and WWPA apply to respective materials furnished.
- D. Comply with PS-20.
- E. Dimensions: Lumber dimensions are nominal; actual dimensions conform to PS-20 and applicable rules writing agencies.

- F. Maximum moisture content at time of dressing: 19 percent.
- G. Surfacing: Surface four sides (S4S), unless noted otherwise.
- H. Finger-jointed lumber is not permitted.
- I. Size Classification: 2 inches to 4 inches thick, 2 inches to 4 inches wide.
- J. General Non-Structural Framing: Stud grade, any species.
- K. Blocking: Utility grade, any species.

2.2 PLYWOOD

- A. Grading Rules:
 1. PS-1 or APA PRP-108.
 2. Plywood Grading Agency: Certified by APA.
 3. Species Groups: 1 through 4, as required for span rating.
- B. Uses, Grades, and Ratings:
 1. Equipment Panel Boards:
 - a. Rated Sheathing.
 - b. Exposure 1.
 - c. Grade: C-D.
 - d. Thickness: 23/32 inches minimum.

2.3 FASTENERS

- A. Provide fasteners in sizes, spacings, and locations to suit applications.
- B. Provide hot-dipped galvanized or stainless steel fasteners for use with preservative treated and fire-retardant treated wood and for exterior use or where built into exterior walls. Select fasteners for the type, grade and class required.
- C. Anchors:
 1. Toggle bolt type for anchorage to hollow masonry.
 2. Expansion shield and lag bolt type for anchorage to solid masonry or concrete.
 3. Bolts or ballistic fasteners for anchorage to steel.
- D. Bolts: ASTM A307 with nuts and washers.
- E. Anchor Bolts: ASTM A307 with nuts and washers.
- F. Lag Screws and Lag Bolts: ANSI B18.2.1 with washers.
- G. Wood Screws: ANSI B18.6.1.
- H. Nails, Staples, and Spikes: FS FF-N-105.

2.4 ACCESSORIES

- A. Adhesive:
 1. APA AFG-01.
 2. Waterproof, air cured type, cartridge dispensed.
 3. VOC Limits: 30 g/l maximum for wood substrates.

2.5 WOOD TREATMENTS

- A. Kiln dry pressure-treated products after treatment to following maximum moisture contents:
 1. Lumber: 19-percent.
 2. Plywood: 15-percent.
- B. Preservative Pressure Treatment:
 1. Solid sawn lumber, decking, and timber: Comply with AWPA C2.
 2. Plywood: Comply with AWPA C9.
 3. Use of chromated copper arsenate (CCA) not allowed.
 4. Provide preservative treatment of quaternary ammonia, copper, and ammonia or amine.
 5. Acceptable Above Grade Products and Manufacturers:
 - a. ACQ Preserve³, Chicago Flameproof, Chicago, IL.
 - b. Wolmanized L³ Outdoor Wood, Arch Wood Protection, Inc., Smyrna, GA.

- c. Dura-Guard, Hoover Treated Wood Products, Inc., Thomson, GA.
 - 6. Do not incise surfaces of lumber at exposed to view locations.
 - 7. Treat following Items for Above Ground Use:
 - a. Wood used with roofing, flashing, and waterproofing.
 - b. Roof curbs, cants, and nailers for flashing.
 - 8. Acceptable Above Grade Products and Manufacturers:
 - a. ACQ Preserve, Chicago Flameproof, Montgomery, IL 60538.
 - b. Wolmanized L³ Outdoor Wood, Arch Chemicals, Inc., Norwalk, CT 06856
 - c. Dura-Guard[®], Hoover Treated Wood Products, Inc., Thomson, GA 30824.
- C. Preservative Cut Surface Treatment Applied at Site:
 - 1. Description:
 - a. Comply with AWPA M4.
 - b. Water repellent containing a 2-percent copper naphthenate solution.
 - c. Compatible with preservative pressure treatment.
 - d. Pigment: Colored.
 - 2. Acceptable Products and Manufacturers:
 - a. Number 10 Green Preservative, Cuprinol Group, Cleveland, OH.
 - b. Green EndCoat, Osmose Wood Preserving, Inc., Griffin, GA.
- D. Fire Retardant Pressure Treatment:
 - 1. Description:
 - a. AWPA C20 for lumber.
 - b. AWPA C27 for plywood.
 - c. Chemically treat and pressure impregnate wood products.
 - d. Capable of providing a maximum flame spread/smoke development rating of 25/25 (FR-S Rating).
 - e. Not required to have brush treatment of cuts made in the field.
 - f. Equilibrium moisture content of not more than 28 percent when tested in accordance with ASTM D3201 procedures at 92 percent relative humidity.
 - g. Not detrimental to structural properties of plywood when exposed to elevated temperatures and high humidity when tested in accordance with ASTM D5516.
 - h. Not capable of bleeding through or adversely affecting type of finish indicated.
 - i. Not capable of corroding metals when tested in accordance with MIL-L-19140E.
 - 2. Acceptable Products and Manufacturers, Exterior:
 - a. Exterior Fire Retardant Wood, Chicago Flameproof, Montgomery, IL 60538.
 - b. FRX Outdoor Wood, Arch Wood Protection, Inc., Smyrna, GA 30080.
 - c. Exterior Fire-X, Hoover Treated Wood Products, Thomson, GA 30824.
 - 3. Treated following Wood Items with Interior Type A Treatment:
 - a. Wood used with roofing, flashing, and waterproofing.
 - b. Roof curbs, cants and nailers for flashing.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine conditions and proceed with work in accordance with Section 017300.
- B. Site Verification of Conditions:
 - 1. Verify end supports are ready to receive framing.
 - 2. Before installation, check members for damage, and proper dimensions.

3.2 PREPARATION

- A. Wood Treatment Applied to Cut Surfaces at Site:
 - 1. Comply with AWPA M4.
 - 2. Apply preservative treatment in accordance with manufacturer's instructions to:
 - a. Preservative pressure treated wood site-sawn ends.
 - b. Holes cut through preservative pressure treated wood.
 - 3. Allow preservative to cure prior to erecting members.

3.3 CONSTRUCTION

A. General:

1. Construct plumb, level, true to line, square, and free from warp or twist while maintaining dimensional tolerances and alignment with surrounding construction.
2. Comply with AFPA NDS for attaching to substrates by anchoring and fastening to draw and securely hold members rigidly in place.
3. Install fasteners at spacings required by more stringent requirements of AFPA NDS or applicable building code.
4. Comply with APA E30 requirements for plywood.
5. Place horizontal and sloped members with crown edge up.
6. Place vertical members with crown edge facing in same direction.
7. Discard Material:
 - a. With defects which might impair quality of work.
 - b. Which are too small to fabricate work with minimum joints or optimum joint arrangement.
8. Scribe, cope, and construct members accurately cut and fitted.
9. Make tight connections between members to develop full member strength.
10. Locate members as indicated. Do not change size, spacing, or spans without Architect's specific approval. Take care to place species and grades of members where indicated.
11. Do not splice framing members between support points.
12. Cut, notch, or bore members for passage of pipes and conduits in accordance with AFPA WCD. Reinforce members by use of formed sheet metal accessories.
13. Fasteners:
 - a. Use washers under bolt heads and nuts.
 - b. Select fasteners of size that will not penetrate members where opposite side will be exposed to view or will receive finish materials.
 - c. Install fasteners without splitting wood; predrill as necessary.
14. Shimming:
 - a. Concrete and masonry bearing: Use steel or slate shims.
 - b. Metal and wood bearing: Do not use shims.
15. Fire Retardant Treated Wood:
 - a. Do not rip cut.
 - b. Do not mill.
 - c. Only end cuts and bored holes are permitted.

B. Wood Blocking:

1. Construct using maximum practical lengths.
2. Provide and locate continuous blocking to facilitate installation and attachment of wall mounted equipment, cabinets, millwork, finishing materials, fixtures, specialty items, and trim.
3. Cut and form to shapes for true line and level of work to be attached.
4. Coordinate location with other work involved.
5. Secure to masonry with metal plugs, toggle bolts, or expansion bolts set in masonry.
6. Attach to substrates to support applied loading.
7. Countersink bolts and nuts flush with wood surfaces.
8. Size as necessary unless specific size is indicated.

C. Plywood Sheathing:

1. General:
 - a. Install panels with joints between panels staggered over center of supports.
 - b. Install over two or more supports.
 - c. Install with end joints staggered.
 - d. Install with panel joints not more than 1/8 inch wide.
2. Plywood Backing and Mounting Boards:
 - a. Install for equipment where indicated.
 - b. Oversize panel by 12 inches beyond equipment perimeter

3.4 TOLERANCES

- A. Lumber Framing Members: 1/4 inch maximum from true position.

3.5 PROTECTION

- A. Protect finished work in accordance with Section 017300.
- B. Protect products from moisture absorption and subsequent warping or deterioration until subsequent construction can proceed.

END OF SECTION

SECTION 072100
THERMAL INSULATION

PART 1 - GENERAL

1.1 SUMMARY

- A. Section Includes:
 - 1. Batt insulation.
 - 2. Extruded polystyrene board insulation.
- B. Related Sections:
 - 1. Section 072700 – Air Barriers
 - 2. Section 074113 – Metal Roof Panels: Roof Insulation.
 - 3. Section 075423 – TPO Single Ply Roofing: Roof Insulation.

1.2 SUBMITTALS

- A. General: Submit in accordance with General Conditions Section 4.14 .
- B. Product Data: Submit product data for each product.
- C. Submit following Informational Submittals: Manufacturer's instructions.

1.3 QUALITY ASSURANCE

- A. Single Source Responsibility: Furnish each insulation type from one manufacturer for entire Project, unless otherwise acceptable to Architect.

1.4 DELIVERY, STORAGE, AND HANDLING

- A. Comply with requirements of General Conditions Section 4.14.
- B. Identify products with appropriate markings of applicable testing and inspecting organization.
- C. Storage and Protection:
 - 1. Store materials raised off floor or ground and under cover to keep dry.
 - 2. Protected from weather, direct sun light, contamination, sources of ignition, and damage from construction operations.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Acceptable Glass Fiber Insulation Manufacturers:
 - 1. CertainTeed Corporation.
 - 2. Owens Corning.
 - 3. Johns Manville Corporation.
- B. Acceptable Extruded Polystyrene Insulation Manufacturers:
 - 1. Pactiv Building Products.
 - 2. The Dow Chemical Company.
 - 3. Owens Corning Foamular.

2.2 MATERIALS

- A. Fiberglass Batt Insulation - Vapor Retarder
 - 1. General:
 - a. Glass fiber composition with integral fire retardant foil reinforced kraft laminate vapor retarder.
 - b. Thermal resistance "R" values as indicated.
 - 2. Classification: ASTM C665, Type III, Class A.
 - 3. Thermal resistance: ASTM C518, "R" value of 3.2 per inch of thickness at 75 degrees F mean temperature.
 - 4. Permeance: 0.02 perms maximum.

5. Fire rating: ASTM E84, Flame spread 25 or less and smoke development 50 or less.
 6. Acceptable Products:
 - a. Flame-Resistant Foil Insulation (FSK-25), CertainTeed
 - b. Flame Spread 25 Insulation, Owens Corning.
 - c. FSK-25 Thermal-SHIELD, Johns Manville Corporation.
- B. Extruded Polystyrene Board Insulation:
1. General:
 - a. Square edges.
 - b. Thermal resistance "R" value: 5 per inch
 - c. Thickness: As indicated.
 2. Classification:
 - a. Foundation Wall: ASTM C578, Type IV (25 PSI)
 - b. Under Slab: ASTM C578, Type VI (40 PSI).
 - c. Cavity Wall: ASTM C578, Type IV (25 PSI)
 3. Fire Rating: ASTM E84, 1 inch thick test material, flame spread 10 or less, smoke development 200 or less.
- C. Refer to Section 074113 for metal roof panels roof insulation.
- D. Refer to Section 075423 for TPO roof insulation.

2.3 ACCESSORIES

- A. Insulation Fasteners: Impale clip type with retaining disc or plate, galvanized steel, adhered or mechanically fastened to surface to receive insulation, length to suit insulation thickness, capable of securely fastening insulation in place.
- B. Tape: Self-adhering pressure sensitive, compatible with insulation, foil type recommended by manufacturer of insulation.
1. Fire Rating: ASTM E84, flame spread 25 or less and smoke developed of 50 or less.
- C. Furring Channels:
1. General: 25 gage, galvanized metal, Z-shaped.
 2. Acceptable Manufacturers:
 - a. Clark Steel Framing Systems.
 - b. Dale Industries, Inc.
 - c. National Gypsum Company.
 - d. Unimast, Inc

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine conditions and proceed with work in accordance with Section 017300.
- B. Verify that work of other trades which will be covered by insulation is complete, approved, and tested.

3.2 INSTALLATION

- A. General: Comply with Section 017300.
- B. Batt Installation:
 1. Install insulation after plumbing, mechanical, and electrical services have been installed.
 2. Provide mechanical fasteners, wire mesh, or other accessories to ensure insulation remains in specified position.
 3. Fit insulation tight within spaces and tight to exterior side of plumbing, mechanical, and electric services within plane of insulation leaving no gaps or voids.
 4. Butt insulation tightly.
 5. Cut and fit tightly around items penetrating insulation.
 6. Stagger butt joints.
 7. Use batts free of damage.

8. Install insulation within metal framing systems full height and width. Do not allow voids or openings to occur. Insulation is required for full width between studs, including cavity of each stud.
 9. Cut and trim insulation neatly, to fit spaces.
 10. Cut insulation oversize to ensure tight butt joints when installed. Cut insulation to fit around protrusions and irregularly shaped projections.
- C. Batt Insulation with Vapor Barrier:
1. Install insulation with factory applied barrier facing warm-in-winter side of building spaces.
 2. Tape seal butt ends and lapped side flanges. Tape and seal tears and cuts in barrier.
- D. Cavity Wall Insulation:
1. Install extruded polystyrene insulation boards horizontally beginning at bottom of cavity.
 2. Secure insulation with adhesive.
 3. Stagger joints between courses.
 4. Place boards in method to maximize contact bedding.
 5. Butt edges and ends tight to adjacent board and to protrusions.
 6. Cut and shape insulation with knife, handsaw, or other cutting tool as required to fit around penetrations, projections, and openings to accommodate conduit or other services.
 7. Seal cut-outs with manufacturer's recommended sealant.

3.3 PROTECTION

- A. Protect finished work in accordance with Section 017300.
- B. Protect insulation from moisture until building is made watertight.

END OF SECTION

SECTION 072400

EXTERIOR INSULATION AND FINISH SYSTEM

PART 1 - GENERAL

1.1 SUMMARY

- A. Related Sections:
 - 1. Section 076000 - Flashing and Sheet Metal.
 - 2. Section 079200 - Joint Sealants.

1.2 DEFINITIONS

- A. Openings Through System: Hole which passes completely through Exterior Insulation and Finish System. Includes, but is not limited to doors, windows, fixtures set in wall, pipe or duct penetrations, conduit or cable penetrations, mounting brackets, or vents.
- B. Running Bond: Placement of insulation boards such that vertical joints between boards in successive courses are horizontally offset at least 1/4 of board's horizontal unit length.

1.3

- A. Bond Integrity: Free from bond failure within system components or between any system and supporting wall construction, resulting from exposure to fire, wind or suction loads, or weather.
- B. Exterior Insulation and Finish System: EIMA Class PB, Type A, System.
- C. Fire Performance Characteristics: Conform to applicable code for system fire resistance ratings, flammability characteristics, potential heat release, flame spread, and smoke developed indices.
- D. Adhesive/Insulation Fastener Design Requirements: Design to accommodate 150 percent of wind forces:
 - 1. Foam adhesive application coverage and thickness to accommodate 100 percent of wind load forces.
 - 2. Size, spacing, and application of mechanical fasteners to accommodate 50 percent of wind load forces.
- E. Water Penetration:
 - 1. Test method: ASTM E331.
 - 2. Test result: No water penetration to innermost surface.
- F. Water Vapor Transmission:
 - 1. Test method: ASTM E96, Procedure B.
 - 2. Test result: Not more than 15 perms.

1.4 SUBMITTALS

- A. General: Submit in accordance with Section 013300.
- B. Product Data:
 - 1. Submit manufacturer's product data on system materials, performance criteria, dew point location, limitations, and connection devices.
 - 2. Include information for accessories and other required components.
 - 3. Include color charts for finish indicating manufacturer's colors for selection.

4. Include list of EIFS manufacturer approved sealants and sealant manufacturers.
- C. Shop Drawings:
1. Indicate joint layout patterns including dimensions.
 2. Detail drawings of joints, openings through system, attachment to supporting structure, and terminations at windows.
 3. Detail drawings of special accessory components not included in manufacturer's product data.
- D. Samples:
1. Submit four 12 by 12 inches in size for each finish, color, and texture indicated.
 2. Prepare samples using same tools, techniques, and system components intended for actual work.
- E. Submit following Informational Submittals:
1. Certifications specified in Quality Assurance article.
 2. Qualification Data: Manufacturer's and installer's qualification data.
 3. Manufacturer's instructions.
 4. Manufacturer's field reports.
- F. Closeout Submittals:
1. Submit under provisions of Section 017800.
 2. Maintenance data.
 3. Warranty: Submit specified warranty.

1.5 QUALITY ASSURANCE

- A. Single Source Responsibility: Furnish products from one manufacturer for entire Project, unless otherwise acceptable to Architect and proposed manufacturer.
- B. Manufacturer Qualifications: Company specializing in manufacturing Products specified in this Section with minimum 5 years experience, and a member of Exterior Insulation Manufacturers Association.
- C. Applicator Qualifications: Certified by manufacturer with documented experience on at least 5 projects of similar nature in past 5 years, and accepted by system manufacturer for this Project.
- D. Certifications:
1. Submit manufacturer's certification that products furnished for Project meet or exceed specified system requirements.
 2. Submit approval by building code authorities for system use on this Project.
 3. Submit Contractor's and applicator's certification that:
 - a. Products are installed in accordance with Contract Documents, based on inspection specified as part of Field Quality Control.
 - b. Warranty will be issued.

1.6 MOCK-UPS

- A. General: Comply with provisions of Section 014500.
- B. Visual Mock-Up:
1. Construct as detailed.
 2. Size:
 - a. Height: Full Height.
 - b. Width: 4'-0".
 3. Locate on site where directed by Architect.

4. Approved mock-up may remain as part of Work.
- C. Demonstrate for each form of construction and finish required to verify selections made under sample submittals.
 - D. Demonstrate:
 1. Proposed color and texture.
 2. Control joints.
 3. Sealant joints.
 4. Transition to masonry including flashing.
 5. Details and installation to be expected in completed work.
 - E. Approval:
 1. Make adjustments necessary to obtain approval from Architect. Do not proceed with Project installation until mock-up has been approved by Architect.
 2. Approved mock-up establishes minimum performance criteria and quality for installation and materials for Project.
- 1.7 DELIVERY, STORAGE, AND HANDLING
- A. Comply with requirements of Section 016000.
 - B. Store Materials Under Cover:
 1. Protect from moisture absorption and contamination by harmful materials.
 2. Protect from weather, direct sunlight, and surface contamination.
 3. Maintain within manufacturer's required temperature range.
 4. Protected from damage by construction operations.
 5. Protect from condensation and heat build-up when using temporary covers to prevent damage to system.
- 1.8 PROJECT CONDITIONS
- A. Environmental Requirements:
 1. Install system when ambient and surface temperatures are within system manufacturer's installation temperature limits, during and 24 hours after installation of wet materials.
 2. Install system within system manufacturer's relative humidity limits.
 3. Comply with manufacturer's requirements regarding:
 - a. Coating application in direct sunlight.
 - b. Protection of coatings while curing from airborne contamination or adverse weather conditions.
- 1.9 SEQUENCING
- A. Coordinate with Section 076200 for sheet metal flashing.
 - B. Sealant joints:
 1. Immediately after base coat has cured and dried as required by manufacturer.
 2. Before application of finish coat.
- 1.10 WARRANTY
- A. Comply with provisions of Section 017800.
 - B. Warrant installed system for 5 years to:
 1. Be free from defects in material or labor.
 2. Remain in watertight or airtight condition.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Acceptable Products and Manufacturers, Air and Water Barrier Standard Systems:
1. Senerflex Pressure Equalized, Senergy Methods, Cranston, RI.
 2. Outsulation Plus, Dryvit Systems, Inc.
 3. Sto Classic NExT, Sto Corp., Atlanta, GA.

2.2 MATERIALS

- A. General:
1. Air and Water Barrier Coat: Breathable, waterproof coating compatible with Sheathing substrate.
 2. Manufacturer's standard method for drainable systems, including weep mechanisms, based on systems specified.
 3. Base and Finish Coat Aggregate: Manufacturer's aggregate, free of iron-containing compounds.
 4. Base Coat Primer: System manufacturer's base coat primer.
 5. Base Coat Material: Refer to Class PB system below.
 6. Finish Coat Material:
 - a. System manufacturer's factory-mixed formulation of acrylic polymer, aggregate, and color-fast pigments.
 - b. Use single color batches for individual colors to avoid color changes from differently mixed batches.
 7. Water: Clean and potable.
 8. Mechanical Fasteners:
 - a. Corrosion resistant.
 - b. Compatible with system components and substrates.
 - c. Types required by system manufacturer.
- B. Class PB System:
1. Barrier Coat: Refer to Section 072726. Verify compatibility of with insulation.
 2. Adhesive: System manufacturer's formulation compatible with substrate over which insulation is installed.
 3. Expanded Polystyrene Board Insulation:
 - a. ASTM C578, Type I.
 - b. Minimum Density: 1.0 pound per cubic foot.
 - c. Minimum Compressive Strength: 10 psi.
 - d. Comply with bead fusion, aging, dimensional, and mechanical criteria of system manufacturer.
 - e. Panel Size: 24 by 48 inches maximum.
 - f. System manufacturer's stamp of compliance on each board.
 - g. Thickness: As indicated, but not less than 1 inch nor more than 4 inches.
 4. Reinforcing Mesh:
 - a. System manufacturer's coated open weave alkaline resistant fiberglass mesh fabric compatible with other system components.
 - b. System manufacturer's mesh intended for placement at corners, reveals, or molded and formed profiles.
 - c. Standard Weight Mesh: Manufacturer's mesh intended for standard impact resistance described in EIMA-101.86.
 - d. Impact-resistant Mesh: Manufacturer's mesh intended for medium impact resistance described in EIMA-101.86.
 5. Barrier, Base and Finish Coat Material: System manufacturer's formulation of 100 percent acrylic co-polymer binder and aggregate.

2.3 ACCESSORIES

- A. Trim Accessories:
 - 1. Material: Zinc.
 - 2. Corner beads, casing beads, drip channels, or "J" trim, as required by system manufacturer.
 - 3. Control Joints: "Deep" V-Shaped groove channel to penetrate coatings and into insulation. Shallow V-Shaped groove channels which only penetrate coatings, and do not penetrate into insulation, are not permitted.
 - 4. Sealant for Joints between Trim Accessories: As required by system manufacturer.
- B. Joint Sealant: Polyurethane - Silicone - General Purpose sealant specified in Section 079200.

2.4 MIXES

- A. Comply with system manufacturer's requirements for combining and mixing materials.
- B. Do not introduce admixtures, water, or other materials, except as approved by system manufacturer.
- C. Use materials within time period requirements of system manufacturer.
- D. Use adhesive, coating, and primer mixtures within pot-life time period requirements of system manufacturer.

2.5 FINISHES

- A. Finish: Color, texture, and finish as selected by Architect from samples submitted.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine conditions and proceed with work in accordance with Section 017000.
- B. Verify that substrate is flat and even, within tolerances required by system manufacturer. If manufacturer has no substrate tolerance limit, substrate shall be flat and even within tolerance of 1/8 inch in 48 inches.
- C. Verify that substrate and adjacent materials are dry and frost free.
- D. Verify that substrate's moisture content, cleanliness, and physical condition are within system manufacturer's tolerances and requirements.

3.2 PREPARATION

- A. Prepare and clean substrate materials in accordance with system manufacturer's requirements.
- B. Mask and cover adjacent work areas to protect from damage during installation of system.

3.3 INSTALLATION

- A. General: ASTM C1516. Comply with Section 017000, approved Shop Drawings, and manufacturer's recommendations.

- B. Treat sheathing joints in accordance with EIFS manufacturer requirements and with Section 061600.
- C. Barrier Coat: Apply continuous barrier coat over substrate.
- D. Insulation Board:
 - 1. Apply adhesive using ribbon and dab method for drainable system.
 - 2. Apply in courses with long edges oriented horizontally; begin first course from level base line and work upwards.
 - 3. Stagger vertical board joints in successive courses to produce running bond pattern.
 - 4. Precut boards to fit openings, corners, and projections prior to applying adhesive.
 - 5. At corners, alternate boards in successive courses to create an interlocking pattern.
 - 6. Offset board joints minimum of 4 inches from parallel running aesthetic grooves.
 - 7. Board Layout at Openings through System:
 - a. Minimum Board Horizontal Dimension Adjacent to Jambs: 12 inches.
 - b. Minimum Board Vertical Dimension Adjacent to Head and Sill: 6 inches.
 - c. Minimum Distance from Corners to Insulation Board Joints along Head, Sill, and Jambs: 6 inches.
 - d. Cut insulation boards at corners to form single L-shaped boards. Insulation board joints emanating from opening corners are not permitted.
 - 8. Provide minimum 12 inches offset between board joints from sheathing joints.
 - 9. Abut boards tightly to produce flush and even surfaces without gaps or raised edges. If gaps wider than 1/16 inch occur, fill with insulation cut to fit gaps exactly without use of adhesive; do not place adhesive in gaps.
 - 10. Rasp or sand flush irregularities of insulation surfaces which project more than 1/16 inch or less if required by system manufacturer. Do not fill depressions with adhesive and coating materials to form flat surface to receive base coat application.
 - 11. Preparation for Coating Application:
 - a. Prepare insulation by abrading surface to rough surface texture.
 - b. During abrading remove site dirt, ultraviolet light degraded insulation, and other harmful conditions which may impair adhesion of base coat to insulation.
 - 12. Sealant Joints:
 - a. Interrupt insulation where joints are indicated.
 - b. Form joints to receive sealant by leaving gaps of sufficient width to include sealant, base coat, and reinforcing fabric.
 - c. Position joints so system's thermal expansion and contraction does not exceed 1/4 of joint width.
 - d. Provide at following Locations:
 - (1) Where movement joints occur in the substrate system.
 - (2) Where system abuts another material.
 - (3) Where the substrate changes.
 - (4) Where significant structural movement occurs, such as long continuous elevations, changes in roof line, changes in building shape, or changes in structural system.
 - 13. Insulation Attachment:
 - a. Adhesive:
 - (1) Install insulation for Class PB systems with adhesive and mechanical fasteners.
 - (2) Attach insulation board to substrate with adhesive.
 - (3) Apply adhesive as required by system manufacturer and as required by applicable code.
 - (4) When insulation board is in final position, remove adhesive which extends beyond board edges. Scrape board edges clean of adhesive.
 - (5) Allow adhered insulation to remain undisturbed for time period required by system manufacturer, considering temperature and humidity conditions, but not less than 24 hours prior to:

- (6) Beginning rasping and sanding insulation.
- (7) Application of base coat and mesh.
- b. Mechanical Fasteners: As required by system manufacturer for specified system requirements and indicated substrate, attach to:
 - (1) Framing members behind sheathing attached to steel stud framing.
 - (2) Masonry.
- 14. Reveals:
 - a. Includes aesthetic joints, grooves, rabbets, and formed features.
 - b. Recesses in insulation board to create patterns; are coated with base and finish coats.
 - c. Cut in outside face of insulation with power tool router and bit configured to produce required features that conform accurately to profiles at indicated locations.
 - d. Do not reduce insulation thickness to less than 3/4 inch.
- E. Reinforcing Mesh Application:
 - 1. General:
 - a. At openings, provide back-wrapping and double layer of mesh minimum of 4 inches wide from opening's head, sill, and jambs.
 - b. Corners of Openings:
 - (1) Provide 9-1/2 by 12 inches reinforcing mesh panels at corners of openings not aligned with control or sealant joints.
 - (2) Position with mesh panel edges at an angle of 45 degrees from edges of opening.
 - (3) Position panel with long edge touching the opening's corner.
 - c. Position reinforcing mesh edges minimum of 6 inches from edges of insulation panels.
 - 2. Class PB coating application:
 - a. Install mesh to produce wrinkle-free installation with mesh continuous at corners, wrapped at terminating edges, and lapped or otherwise treated at joints to comply with system manufacturer's requirements.
 - b. Install standard weight reinforcing mesh except where noted otherwise.
 - c. Install impact-resistant reinforcing mesh at locations within 8 feet of walking surfaces.
 - d. At locations which receive impact-resistant mesh, apply second base coat and layer of standard weight reinforcing mesh, in same manner as first application. Do not apply until first base coat has cured.
 - e. Tightly butt together (do not lap) adjoining sheets of impact-resistant mesh, unless otherwise required by system manufacturer.
 - f. Lap adjoining sheets of standard weight reinforcing mesh over each other minimum of 2-1/2 inches, or greater if required by system manufacturer.
- F. Base and Finish Coating Application:
 - 1. General:
 - a. Mesh and mesh pattern shall not be visible after base coat cures. If mesh and mesh patterns are visible after base coat cures, recoat them with additional base coat material. Do not exceed system manufacturer's maximum base coat thickness.
 - b. Apply coatings so mechanical fasteners do not telegraph their locations through base and finish coats.
 - c. Do not cut reinforcing mesh embedded in base coat.
 - d. When required by system manufacturer, apply primer over base coat in accordance with system manufacturer's application instructions.
 - e. Prior to application of finish coat, verify that surface of cured base coat is free of projections and strands to produce a flat surface.

- f. Apply finish coat over cured base coat in minimum thickness required by system manufacturer to produce uniform finish texture and color matching approved mock-up.
 - g. Apply finish coat in continuous operation, working to a wet edge, having cold joints occur at reveals, control and sealant joints, and corners.
 - h. Apply finish coat free of scaffold lines.
 - i. Apply each finish coat texture free of texture variations.
2. Class PB Coating Application:
- a. Apply base coat to exposed surfaces of insulation in minimum thickness required by system manufacturer.
 - b. Fully embed reinforcing mesh in wet base coat.
 - c. Treat internal edge of insulation board at sealant joints by encapsulating and back-wrapping with base coat and reinforcing mesh as required by system manufacturer. Do not extend finish coat into joint.
 - d. Treat terminating insulation board edges, including those at openings, by encapsulating and back-wrapping with base coat, reinforcing mesh, and finish coat, as required by system manufacturer.
 - e. Apply finish coat without aggregate to inside edges of sealant joints. Do not apply finish coat over sealant joints
- G. Sealants: Comply with requirements of Section 079200.

3.4 FIELD QUALITY CONTROL

- A. General: Comply with requirements of Section 014500.
- B. Manufacturer's Field Services:
- 1. Inspect during installation of insulation, application of base coat, and application of finish coat.
 - 2. Inspect after completion of finish coat application.
 - 3. Prepare Report indicating:
 - a. Non-complying conditions and locations.
 - b. Repair methods for non-complying conditions.
 - c. Successful and unsuccessful repair of non-complying conditions noted in previous inspection reports.

3.5 PROTECTION

- A. Protect finished work in accordance with Section 017000.
- B. If protection measures are unsuccessful, restore to condition indistinguishable in appearance from, and equivalent in performance to, undamaged areas by replacing in compliance with system manufacturer's instructions.

END OF SECTION

SECTION 072700

AIR BARRIER

PART 1 - GENERAL

1.1 SUMMARY

- A. Section includes fluid applied air barrier for use over exterior wall sheathing substrates and transition material between dissimilar substrates.
- B. Related Sections:
 - 1. Section 072100 – Thermal Insulation.
 - 2. Section 076000 – Flashing and Sheet Metal

1.2 DEFINITIONS

- A. Perm: 1 grain/h•ft²•in-Hg.

1.3 PERFORMANCE REQUIREMENTS

- A. Provide a fluid applied, vapor permeable, air barrier system constructed to perform as a continuous air barrier, and as a liquid water drainage plane flashed to discharge to exterior any incidental condensation or water penetration.
- B. Membrane shall accommodate movements of building materials by providing expansion and control joints as required, with accessory air seal materials at such locations, changes in substrate and perimeter conditions.
- C. Air Barrier Characteristics:
 - 1. Continuous, with joints and transitions made air-tight.
 - 2. Air permeability not to exceed 0.004 cubic feet per minute per square foot under pressure differential of 0.3 in. water (1.57 psf) when tested in accordance with ASTM E2178.
 - 3. Withstand positive and negative combined design wind, fan and stack pressures on envelope without damage or displacement, and transfer load to structure.
 - 4. Air barrier shall not displace adjacent materials under full load.
 - 5. Air barrier shall be joined in airtight and flexible manner to air barrier material of adjacent systems, allowing for relative movement of systems due to thermal and moisture variations and creep.
 - 6. Connection shall be made between:
 - a. Different wall systems.
 - b. Walls to flashings.
 - c. Wall and roof.
 - d. Wall and roof over unconditioned space.
 - e. Walls, floor and roof across construction, control and expansion joints.
 - f. Walls, floors and roof to utility, pipe and duct penetrations.
 - 7. Air Barrier Penetrations: Penetrations of air barrier and paths of air infiltration / exfiltration shall be made air-tight.
 - 8. Comply with Air Barrier Association of America's (ABAA's) definition of a tested system.

1.4 SUBMITTALS

- A. General: Submit following items in accordance with General Conditions Section 4.14.
- B. Product Data:
 - 1. Submit product data for each product including membrane, primers, sealants, adhesives, and auxiliary materials.
 - 2. Include manufacturer's printed instructions for evaluating, preparing, and treating substrate, temperature and other limitations of installation conditions, technical data, and tested physical and performance properties.
 - 3. Provide test results of specified system using ASTM E2357.

- C. Shop Drawings: Show locations and extent of air barrier and details of all typical conditions, intersections with other envelope systems and materials, membrane counter-flashings, and details showing how gaps in the construction will be bridged, how inside and outside corners are negotiated and how miscellaneous penetrations such as conduits, pipes electric boxes and the like are sealed.
- D. Samples: Provide sample of product applied to the following substrates:
 - 1. CMU.
 - 2. Exterior gypsum sheathing.
- E. Submit following Informational Submittals:
 - 1. Certifications specified in Quality Assurance article.
 - 2. Installer qualifications.
 - 3. Manufacturer's instructions.
- F. Closeout Submittals:
 - 1. Submit under provisions of General Conditions Section 9.8.
 - 2. Warranty: Submit specified warranty.

1.5 QUALITY ASSURANCE

- A. Single-Source Responsibility:
 - 1. Obtain air barrier materials from a single manufacturer regularly engaged in manufacturing the product.
 - 2. Provide products which comply with all state and local regulations controlling use of volatile organic compounds (VOCs).
- B. Manufacturer Qualifications: Manufactures materials licensed and certified by Air Barrier Association of America's (ABAA's) Quality Assurance Program.
- C. Installer Qualifications:
 - 1. Certified in writing by system manufacturer as qualified for specified systems.
 - 2. Certified during bidding period as well as for the duration of the installation, as officially recognized Licensed Contractor by the Air Barrier Association of America (ABAA).
 - 3. Installer shall carry liability insurance and bonding.
 - 4. Each worker who is installing air barriers must be either a Certified Applicator or an installer who is registered with ABAA
 - 5. Air barrier installers must be trained and certified by NECA (National Energy Conservation Association) and PSDI (Professional Skills Development Institute for energy conservation).
- D. Certifications:
 - 1. Submit manufacturer's certification that products furnished for Project meet or exceed specified requirements.
 - 2. Submit manufacturer's certification stating that installed system is in compliance with specified requirements.
 - 3. Certification by air barrier manufacturer that products supplied comply with local regulations controlling use of volatile organic compounds (VOCs).
 - 4. Certification of compatibility by air barrier manufacturer, listing all materials on the project that it connects to or that come in contact with it.

1.6 DELIVERY, STORAGE AND HANDLING

- A. Comply with requirements of Section 016000.

1.7 MOCK-UPS

- A. Construct mock-up in accordance with Drawings and Section 014500.
- B. Include mock-up of product on both exterior gypsum sheathing and CMU substrates.

1.8 PREINSTALLATION CONFERENCE

- A. Conduct pre-installation conference in accordance with Section 013100.
- B. Agenda:
 - 1. Review Project Specifications and Drawings.

2. Establish installation schedules and sequence.
3. Coordinate work with in-place and subsequent construction.
4. Review weather and working conditions.
5. Review installation procedures, including:
 - a. Substrate requirements for Project acceptance (curing of concrete surface, form release agents, temperature).
 - b. Material installation.
 - c. Phasing and sequencing requirements.
 - d. Termination, flashing, expansion joint, and penetration requirements.
- C. Conduct tour of areas to receive air barriers and report on surface acceptance, possible problem areas, and recommended remedies.
- D. Submit written report to Architect within 3 days of meeting.

1.9 SEQUENCING

- A. Begin installation only after substrate work is complete and penetrations are securely anchored.

1.10 PROJECT CONDITIONS

- A. Environmental Conditions: Apply air barrier within range of ambient and substrate temperatures recommended by air barrier manufacturer. Do not apply air barrier to a damp or wet substrate, unless the manufacturer specifically permits that for the product.
 1. Do not apply air barrier in snow, rain, fog, or mist.
 2. Do not apply air barrier when the temperature of substrate surfaces and surrounding air temperatures are below those recommended by the manufacturer.

1.11 WARRANTY

- A. Comply with requirements of General Conditions Sections 4.7 and 9.8..
- B. Provide manufacturers warranty for period of 5 years from date of Final Completion.

PART 2 - PRODUCTS

2.1 MATERIALS

- A. Fluid Applied Vapor Permeable Air Barriers:
 1. One component, rubberized (elastomeric), fluid applied material.
 2. Color: Manufacturer's standard.
 3. Compatible with extruded polystyrene insulation adhesive in cavity wall construction.
 4. Performance Characteristics:
 - a. Solids by Weight: 50 percent minimum.
 - b. Water Vapor Permeance: 11 perms minimum, ASTM E96.
 - c. Elongation: ASTM D412, 150 percent minimum.
 - d. Peel Strength: ASTM C836, 10 lbf/inch minimum.
 5. Air Permeability:
 - a. 75 Pa air pressure: 0.00051 L/s.m².
 - b. 250 Pa air pressure: 0.00071 L/s.m².
 - c. 300 Pa air pressure: 0.00075 L/s.m².
 6. Nail Sealability (ASTM 1970): Pass
 7. VOC Content: Less than 100 g/L.
 8. Basis of Design Product:
 - a. Air-Bloc 31MR, Henry Company.
 - b. Air-Shield LMP, WR Meadows.
 - c. Perm-A-Barrier VP, GCP Applied Technologies.
 - d. Location: Use as an air barrier on CMU and gypsum sheathing substrates.
- B. Transition Membrane and Flexible Flashing:
 1. Self-adhering membrane consisting of an SBS rubberized asphalt compound, integrally laminated to polyethylene film.
 2. Thickness: 40 mils.

3. Performance Characteristics:
 - a. Tensile Strength: ASTM D412 modified, 400 psi minimum.
 - b. Minimum Puncture Resistance: ASTM E154, 40 lbf.
 - c. Elongation: ASTM D412, 200 percent.
 4. Compatible with fluid applied air/vapor barrier.
 5. Transition Primer: As recommended by manufacturer for compatibility with transition membrane.
 6. Basis of Design Product:
 - a. Blueskin SA, Henry Co.
 - b. Air-Shield, W.R. Meadows
 - c. Perm-A-Barrier Detail Membrane, GCP Applied Technologies.
 - d. ExoAir 110 Self-Adhered Air & Vapor Membrane, Tremco
- C. Primer: Adhesive with low VOC content for self-adhering membranes at all temperatures shall be Blueskin® LVC Adhesive manufactured by Henry, a synthetic rubber based adhesive, quick setting, having the following physical properties:
1. Color: Blue,
 2. VOC: <240 g/L,
 3. Solids by weight: 40%,
 4. Drying time (initial set): 30 minutes

2.2 PENETRATION AND TERMINATION SEALANT

- A. Termination Sealant: Moisture cure, medium modulus polymer modified sealing compound having the following physical properties:
1. Compatible with sheet air barrier, roofing and waterproofing membranes and substrate,
 2. Complies with Fed. Spec. TT-S-00230C, Type II, Class A,
 3. Complies with ASTM C 920, Type S, Grade NS, Class 25,
 4. Elongation: 450 – 550%,
 5. Remains flexible with aging,
 6. Seals construction joints up to 1 inch wide
 7. HE925 BES Sealant manufactured by Henry or other approved by membrane manufacturer.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine conditions and proceed with Work in accordance with Section 017300.
- B. Verify that substrate work is complete, clean and dry before beginning installation of air barrier materials.
1. Do not proceed with installation until after minimum curing period recommended by air barrier manufacturer.
 2. Ensure that:
 - a. Surfaces are sound, dry, even, and free of oil, grease, dirt, excess mortar or other contaminants.
 - b. Concrete surfaces are cured and dry, smooth without large voids, spalled areas or sharp protrusions.
 - c. Masonry joints are flush and completely filled with mortar, and all excess mortar sitting on masonry ties has been removed.
 3. Verify substrate is visibly dry and free of moisture. Test for capillary moisture by plastic sheet method according to ASTM D4263.

3.2 PREPARATION

- A. Fluid Applied Air Barriers:
1. Remove rough or sharp projections, loose particles, and foreign matter detrimental to adhesion and application of fluid applied air barriers.
 2. Clean and prepare surfaces to receive air barriers in accordance with manufacturer's instructions.

3. Seal penetrations and cracks, and reinforce changes in substrate and other areas as recommended by manufacturer.
 4. Apply manufacturer's recommended primer when required for substrate application.
 5. Fill voids as recommended by manufacturer.
- B. Joint and Crack Treatment:
1. Seal joints between panels of exterior grade gypsum, gypsum sheathing, plywood, OSB or cementitious panels with a strip of self-adhered air/vapor transition membrane lapped a minimum of 1 1/2 inches on both sides of the joint.
 - a. Prime surfaces as per manufacturers' instructions and allow to dry.
 - b. Align and position self-adhering transition membrane, remove protective film and press firmly into place. Ensure minimum 2 inches overlap at all end and side laps of membrane.
 - c. Roll all laps and membrane with a counter top roller to ensure seal.
- C. Inside And Outside Corners
1. Seal inside and outside corners of sheathing boards with a strip of self-adhering air/vapor transition membrane extending a minimum of 3 inches on either side of the corner detail.
 - a. Prime surfaces as per manufacturers' instructions and allow to dry.
 - b. Align and position self-adhering transition membrane, remove protective film and press firmly into place. Ensure minimum 2 inches overlap at all end and side laps of membrane.
 - c. Roll all laps and membrane with a counter top roller to ensure seal.
- D. Crack Treatment – Masonry And Concrete
1. Seal cracks over 1/16 inches in masonry and concrete with a strip of self-adhering transition membrane lapped a minimum of 1 1/2 inches on both sides of the crack.
 - a. Prime surfaces as per manufacturers' instructions and allow to dry.
 - b. Align and position self-adhering transition membrane, remove protective film and press firmly into place. Ensure minimum 2 inches overlap at all end and side laps of membrane.
 - c. Roll all laps and membrane with a counter top roller to ensure seal.
 2. Alternately, static cracks 1/16 inch to 1/8 inch can be sealed with primary air/vapor barrier membrane.
 - a. Fill crack with primary air barrier membrane.
 - b. Allow to dry prior to application of primary air/vapor barrier membrane.

3.3 TRANSITION AREAS

- A. Tie-in to structural beams, columns, floor slabs and intermittent floors, parapet curbs, foundation walls, roofing systems and at the interface of dissimilar materials as indicated in drawings with self-adhered air/vapor barrier transition membrane.
1. Prime surfaces as per manufacturers' instructions and allow to dry.
 2. Align and position self-adhering transition membrane, remove protective film and press firmly into place. Provide minimum 3 inch lap to all substrates.
 3. Ensure minimum 2 inch overlap at all end and side laps of membrane.
 4. Roll all laps and membrane with a counter top roller to ensure seal.

3.4 WINDOWS AND ROUGH OPENINGS

- A. Wrap rough openings with self-adhered membrane as detailed.
1. Prime surfaces as per manufacturers' instructions and allow to dry.
 2. Align and position self-adhering transition membrane, remove protective film and press firmly into place. Ensure minimum 2 inch overlap at all end and side laps of membrane.
 3. Roll all laps and membrane with a counter top roller to ensure seal.

3.5 INSTALLATION

- A. Fluid Applied Air Barrier:
 - 1. Do not apply to wet surfaces.
 - 2. Apply within manufacturer's recommended temperature limits.
 - 3. Apply fluid applied materials in single coat in thickness as recommended by manufacturer.
 - 4. Fill in crevices and grooves making coating continuous and free from breaks and pin holes.
 - 5. Apply around joints, anchors and into chases, corners and reveals.
 - 6. Prepare, treat, and seal vertical and horizontal surfaces at terminations and penetrations through air barrier and at protrusions according to air barrier manufacturer's written instructions and approved tested system in accordance with ABAA air barrier testing procedures.

3.6 FIELD QUALITY CONTROL

- A. Owner's Inspection and Testing/ABAA Audits:
 - 1. Cooperate with Owner's testing agency and ABAA auditors.
 - 2. Allow access to work areas and staging.
 - 3. Notify Owner's testing agency/ABAA auditor in writing of schedule for Work of this Section to allow sufficient time for testing and inspection.
 - 4. Daily inspection and testing may be required.
 - 5. Do not cover Work of this Section until testing and inspection is accepted.

3.7 PROTECTION

- A. Protect air barriers from damage during installation and while left exposed during construction. Repair damage before proceeding with subsequent construction.
- B. Air barrier and transition membranes are not designed for permanent exposure. Good practice calls for covering as soon as possible.

END OF SECTION

SECTION 074113
METAL ROOF PANELS

PART 1 - GENERAL

1.1 SUMMARY

- A. Section Includes:
1. Factory formed metal panel roof system complete with related gutters, downspouts, fascia panels and trim, flashings, closures, ice guards, and accessories.
 2. Vapor barrier.
 3. Water Barrier Underlayment.
 4. Clips, anchoring devices, fasteners, and accessories required for installation of panel system.
 5. Manufacturer responsibility for installation.

1.2 SYSTEM REQUIREMENTS

- A. Performance Requirements:
1. Air Infiltration: Maximum 0.08 pcf of surface with 4 psf air pressure differential when tested in accordance with ASTM E1680.
 2. Water Resistance: No evidence of uncontrolled leakage at 4 psf pressure differential when tested in accordance with ASTM E1646.
 3. Uplift Resistance: UL 580, Class 90 wind uplift resistance.
 4. Design and install system to accommodate thermal expansion, thermal contraction, and building movement.
- B. Roof System Assembly from roof deck up:
1. Existing wood deck.
 2. Vapor barrier.
 3. Roof insulation.
 4. Cover board.
 5. Metal roof underlayment.
 6. Standing seam metal roof.

1.3 SUBMITTALS

- A. General: Submit following items in accordance with General Conditions Section 4.14.
- B. Product Data:
1. Submit product data indicating properties of materials, finishes, and performance capabilities.
 2. Color Charts: Submit samples of manufacturer's full range of standard colors. Submit actual color chips, not photo reproductions.
- C. Shop Drawings:
1. Submit total system layout, panel construction details, flashing, gutter, downspout, and trim details, ice guards, and methods of anchorage to accommodate design loads and thermal movement.
 2. Indicate roof crickets, penetrations, ridge and valley details, terminations and transitions, and change of direction pieces.
 3. Clearly indicate sealant locations.
 4. Include plan showing complete layout of each roof.

- D. Samples:
 - 1. Submit 2 by 4 foot section of panel system, complete with flashings, gutter, and attachment devices.
 - 2. Upon selection of colors by Architect, submit 12 by 12 inches finish samples representing color and finish.
- E. Submit following Informational Submittals:
 - 1. Certifications specified in Quality Assurance article.
 - 2. Qualification Data: Manufacturer's, engineer's, and installer's qualification data.
 - 3. Manufacturer's instructions.
- F. Closeout Submittals:
 - 1. Submit under provisions of General Conditions Section 9.8.
 - 2. Warranty: Submit specified warranty.

1.4 QUALITY ASSURANCE

- A. Manufacturer Qualifications:
 - 1. Company specializing in factory fabrication of standing seam roofs.
 - 2. Minimum 10 years documented experience.
- B. Installer Qualifications:
 - 1. Company specializing in installation of metal roof panel systems.
 - 2. Minimum 5 years documented experience in similar sized installations.
 - 3. Licensed or approved in writing by system manufacturer.
- C. Certifications:
 - 1. Submit manufacturer's certification that products furnished for system, including materials and finishes meet or exceed specified requirements.

1.5 MOCK UP

- A. General: Comply with provisions of Section 014500.
- B. Mock-up:
 - 1. Construct gutter and gutter enclosure 10 feet long where directed.
 - 2. Show splice joint between adjoining sections and construction techniques.
 - 3. Coordinate with field sample specified in Section 076000.

1.6 DELIVERY, STORAGE AND HANDLING

- A. Comply with requirements of Section 016000.
- B. Protection:
 - 1. Protect products and accessories from damage and discoloration during transit and at Project site.
 - 2. Store materials on built-up surfaces.
 - 3. Slope panels for drainage and to protect against damage by weather and construction operations.
- C. Do not overload roof structure with stored materials. Do not permit material storage or traffic on completed roof surfaces.

1.7 WARRANTY

- A. Comply with provisions of General Conditions Section 9.8.
- B. Provide warranty for full replacement value of completed installation signed by manufacturer, applicator and Contractor warranting against water infiltration and defects of materials and workmanship for period of 20 years from Final Completion. If manufacturer will not allow installer and Contractor to sign manufacturer's warranty, append installer and Contractor's warranty to manufacturer's warranty to ensure warranty is complete in covering material, labor, and workmanship.
- C. Warrant penetrations, terminations, sealants, expansion joints, insulation, and panels.
- D. Factory Finish: Provide 20-year warranty from Final Completion.

1. Free of fading or color change in excess of 6 NBS units as measured in ASTM D2244;
2. Will not chalk in excess of numeral rating of 7 when measured in accordance with ASTM D4214;
3. Will not crack, peel, split, craze, delaminate, or chip.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Acceptable Machine-Lock Standing Seam Panel Products and Manufacturers:
1. UNA-CLAD UC-3, Firestone Building Products.
 2. AEP-Span, SpanSeam.
 3. Metal Sales, Magna-Loc.

2.2 MATERIALS AND COMPONENTS

- A. Structural Quality Aluminum-Zinc Alloy-Coated Steel Sheet:
1. Hot-dip aluminum-zinc-coated steel sheet (Galvalume) complying with ASTM A792 with class AZ-50 coating.
 2. Grade 40 or to suit manufacturer's standards.
 3. Smooth finish.
 4. Stiffening ribs.
 5. Minimum 22 gage thickness.
- B. Internal and External Corners: Same materials, gage, and finish as roof panels.
- C. Flashing, Gutters, Trim, Closure Pieces, Caps, and Accessories: Same material, gage, and where exposed, of same finish as metal panels, brake formed to required profiles.
1. Pre-finished galvanized steel architectural sheet and coil.
 2. Thickness: 22 gage.
 3. Color: To match roofing.
- D. Seam-Mounted, Bar-Type Ice/Snow Guards:
1. Type, sizes, configuration, and spacing as recommended by manufacturer.
 2. Prefabricated, continuous, noncorrosive units designed to be installed without penetrating metal roof panels, and complete with predrilled holes, clamps, or hooks for anchoring.
 3. Fabricate to attached to standing seam by use of set screws in clamping blocks.
 4. Continuous rods or bars held in place by stainless-steel clamps attached to vertical ribs of standing-seam metal roof panels.
 5. Finish to match standing seam roof.
- E. Expansion Joints: Same material and where exposed, finish as panels; manufacturer's standard type, of profile to suit system. Exposed fasteners same finish as panels.
- F. Fasteners and Clips:
1. Clips:
 - a. Manufacturer's standard concealed UL-rated clip used to obtain wind uplift test results.
 - b. Galvanized or stainless steel finish.
 - c. Fabricate clips to allow thermal movement of roof panels while preventing roof panel distortion due to wind uplift forces.
 2. Fasteners:
 - a. Provide heavy duty fasteners used to obtain wind uplift test results.
 - b. Corrosion resistant type as used for structural tests for concealed applications.
 - c. 300 - Series stainless steel with soft neoprene washers and exposed screw head color matched to roof panel where exposed. Use exposed fasteners only where absolutely necessary to attach trim. Exposed fasteners are not allowed for roof panels.
- G. Sealants and Gaskets: Manufacturer's standard type suitable for use with installation of metal roofing; non-staining; non-skinning, non-shrinking and non-sagging; ultra-violet and ozone resistant for exterior applications; color to match exposed metal.

2.3 ACCESSORIES

- A. Roof and Insulation Cover Board:
 - 1. 4'-0" by 8'-0" Glass Fiber Faced Gypsum roof board. Thickness indicated on Drawing details.
 - 2. ASTM C1177; FM approved; silicone treated core with glass mat facing.
 - 3. Non-asphaltic coating.
 - 4. Flame Spread: 0.
 - 5. Acceptable Product: Dens-Deck Prime Gypsum Roof Board, G-P Gypsum Corporation.
- B. Roof Vapor Barrier:
 - 1. SBS Modified bitumen adhesive, factory laminated to a tri-laminate woven, high density polyethylene top surface.
 - 2. Thickness: 30 mil
 - 3. Moisture Vapor Permeance: 0.02 Perms per ASTM E96.
 - 4. Water Absorption, 5 by Weight: Less than 0.1 per ASTM D5147
 - 5. Air Permeability: 0.00114 Ft³/min ft², ASTM E2178.
- C. Rigid Board Insulation:
 - 1. ASTM C1289, Class 1, Type II polyisocyanurate rigid board.
 - 2. Provide 2 layers of insulation each 2.5 inches thick.
 - a. LTTR as related to thickness specified: 15.3
 - 3. Compressive Strength: 20 psi, per ASTM D1621.
 - 4. Both faces finished with non-asphaltic fiberglass facer.
 - 5. Provide manufacturer's approved fasteners and plates.
 - 6. Basis of Design: Firestone ISO 95+ GL Insulation.
- D. 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.
 - 1. Minimum Thickness: 30 mil.
 - 2. Tensile Strength: ASTM D412 (Die C Modified); 250 psi.
 - 3. Membrane Elongation: ASTM D412 (Die C Modified); 250%
 - 4. Permeance (Max): ASTM E96; 0.05 Perms.
 - 5. Acceptable Products:
 - a. Blueskin PE 200 HT, Henry.
 - b. Ice and Water Shield HT, Grace Construction Products.
 - c. CCW MiraDRI WIP 300 High Temperature, Carlisle Coatings and Waterproofing.
- E. Sealants and Gaskets: Manufacturer's standard type suitable for use with installation of metal roofing; non-staining; non-skinning, non-shrinking and non-sagging; ultra-violet and ozone resistant for exterior applications; color to match exposed metal.
- F. Touch-up Paint: As recommended by manufacturer.
- G. Bituminous Paint: Asphaltic type of composition recommended by panel manufacturer.

2.4 FABRICATION

- A. Roof Panels:
 - 1. Prefinished galvalume sheet steel.
 - 2. Type: Standing seam.
 - 3. Size: 16 inch wide panel ribs; 1.5 inch seam height.
 - 4. Finish: PVDF, smooth finish.
- B. Forming:
 - 1. Factory formed, uniformly dimensioned, one-piece lengths to avoid field cutting where possible.
 - 2. Intermediate horizontal panel seams not permitted, except where single length roof panel cannot be shipped to Project site.
 - 3. If horizontal seam is necessary, form mated swaged panels for positive joint end laps, fabricated with overlap in direction to shed water flow.
 - 4. Fabricate panel eave with return that engages concealed eave cleat.

- C. Internal and External Corners:
 - 1. Profile to suit system; brake formed to required angles.
 - 2. Mitered internal corners, back braced with sheet stock, to maintain continuity of profile.
- D. Flashing, Gutters, Trim, Closure Pieces, Caps, and Accessories:
 - 1. Comply with standards conforming to recognized industry standard sheet metal practice.
- E. Fabrication of component profiles on site not permitted.
- F. Apply finish coatings prior to roll-forming.
- G. Penetrations: Refer to Section 077000 Roof and Wall Specialties and Accessories, for pipe portals used with metal roofs.
- H. Roof Curbs:
 - 1. Fabricate large penetration and curb units as single, welded, water-tight unit consisting of a cricket and counterflashing on uphill side, and counterflashing for sides and downhill sides.
 - 2. Fabricate curb of sufficient height to prevent water infiltration, and form side pans which conduct water runoff from uphill cricket.

2.5 FINISH

- A. Fluorocarbon Coating:
 - 1. Comply with AAMA 621.
 - 2. Resin: 70 percent polyvinylidene fluoride (PVDF).
 - 3. Substrate: Cleaned and pre-treated.
 - 4. Primer: Manufacturer's standard epoxy or acrylic coating, Dry film thickness:
 - a. Extrusion: Minimum 0.20 mil.
 - b. Coil: Minimum 0.80 mil.
 - 5. Color Coat: PVDF, Dry film thickness:
 - a. Coil: 0.80 mil.
 - b. Extrusion: 1.0 mil.
 - 6. Metal Roof and Trim Color: Color as selected by Architect to match existing adjacent roof

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine conditions and proceed with work in accordance with Section 017300.
- B. Verify roof cover board and vapor barrier have been installed and are ready to accept the insulation.

3.2 PREPARATION

- A. Water Barrier Underlayment:
 - 1. Install high temperature grade water barrier on clean, dry roof cover board.
 - 2. Remove dust, dirt, and loose fasteners.
 - 3. Remove protrusions from the deck area.
 - 4. Verify substrate has no voids, damaged, or unsupported areas.
 - 5. Repair voids or unacceptable areas before installing membrane.
 - 6. Prime substrates with manufacturer's approved primer if required for proper installation of membrane over substrate.
 - 7. Install membrane in strict accordance with manufacturer's printed application procedures, precautions, and limitations.
 - 8. Start application at low points and lap membrane shingle fashion to prevent water penetration.
 - 9. Membrane Underlayment: Apply horizontally, lapping preceding layer not less than 4 inches. End lap membrane not less than 6 inches.
 - a. Maximize adhesion to substrate by brooming or rolling membrane in place after placement.
 - b. Center membrane at valleys, hips, and ridges.
 - 10. Install one course of slip sheet sheathing paper, lapping edges minimum of 2 inches and ends 6 inch respectively.

- B. Insulation Board: Install in accordance with manufacturer's recommendations.
 - 1. Place 2 layers of insulation with fasteners or adhesives and offset joints in accordance with insulation manufacturer's instructions to achieve FM wind uplift rating.
 - 2. Install insulation in parallel courses with end joint staggered and adjacent boards butted together with no joints greater 1/4 inch. Do not install cracked or broken boards.
 - 3. Cut insulation to fit neatly to perimeter blocking and protrusions through roof.
 - 4. Mechanical Attachment to Metal Deck:
 - a. Comply with FM 1-90 Approved Fastening Pattern.
 - b. Install fasteners in accordance with fastener manufacturer's recommendations. Fasteners are to have minimum penetration into structural deck recommended by fastener manufacturer and PVC manufacturer.
 - c. Use fastener tools with a depth location as recommended or supplied by fastener manufacturer to ensure proper installation.
- C. Underlayment:
 - 1. Install underlayment over solid substrates with horizontal overlaps and endlaps staggered as recommended by manufacturer.
 - 2. Start application at low point, working up deck laying plies in shingle fashion.
 - 3. Fasten underlayment with approved fasteners spaced on 12 inch centers maximum.

3.3 INSTALLATION

- A. General: Install metal roofing and related components in accordance with Section 017300 and approved shop drawings.
- B. Metal Panel:
 - 1. Fasten system to structure with concealed metal clips and screws at spacings required by panel manufacturer.
 - 2. Align, level, and plumb system within specified tolerances.
 - 3. Fasten clips using manufacturer's tested fastener pattern to resist design loads with screws of sufficient length to penetrate substrate.
 - 4. Install eave cleat and panel in manner to allow for expansion and contraction without distorting panels or distressing cleat or fasteners.
 - 5. Fully seat adjacent panel to achieve continuous engagement of seam joint.
 - 6. Install ridge assembly and clips to allow roof panels to thermally move.
 - 7. Protect surfaces in contact with cementitious materials and dissimilar metals with application of bituminous paint. Allow to dry prior to installation.
- C. Bar-Type Ice/Snow Guards:
 - 1. Attach bar supports to vertical ribs of standing-seam metal roof panels with clamps and set screws. Do not use fasteners that will penetrate metal roof panels.
 - 2. Provide number of rows of ice guards and at locations indicated on Drawings, spaced as indicated.
- D. Install flashing, gutters, downspouts, trim, closures, caps, and accessories as indicated or required for complete weathertight installation. Install all items to allow for thermal movement without detriment to roofing system or appearance.
- E. Seal and place gaskets to prevent weather penetration.
- F. Tolerances:
 - 1. Maximum Offset from True Alignment Between Adjacent Members Butting or In line: 1/8 inch.
 - 2. Maximum Variation from Plane or Location Indicated on Drawings: 1/4 inch.

3.4 PROTECTION

- A. Protect finished work in accordance with Section 017300.
- B. Protect system from damage, staining, or soiling after installation. Replace components which have been scratched, dented, or otherwise showing signs of damage or improper installation.

END OF SECTION

SECTION 075423
TPO SINGLE PLY ROOFING

PART 1 - GENERAL

1.1 SUMMARY

- A. Section Includes: Welded seam TPO fully adhered single roofing over rigid roof insulation.
- B. Related Sections:
 - 1. Section 061053 – Miscellaneous Rough Carpentry: Wood nailers.
 - 2. Section 076000 – Flashing and Sheet Metal.

1.2 REFERENCES

- A. Reference Standards: In addition to requirements shown or specified, comply with applicable provisions of following for design, materials, fabrication, and installation of component parts:
 - 1. NRCA Roofing and Waterproofing Manual, National Roofing Contractors Association.

1.3 SYSTEM DESCRIPTION

- A. Design Requirements: Conform to NRCA - Roofing and Waterproofing Manual, except where more stringent requirements are indicated.
- B. Performance Requirements:
 - 1. Provide a system of components which will meet building code wind uplift ratings.
 - 2. Provide roofing system to comply with ANSI/SPRI *Wind Design Standard for Edge Systems Used with Low Slope Roofing Systems* and ANSI/SPRI *Standard Field Test Procedure for Determining The Withdrawal Resistance of Roofing Fasteners*.
- C. Fire Resistance Requirements:
 - 1. Class A.
 - 2. Test method: ASTM E108 and UL 790.
- D. Membrane on steel deck.
 - 1. Roof Type A: Furnish and install completed welded seam single ply sheet roofing assembly consisting of following layers indicated from top down:
 - a. Fully adhered welded seam membrane.
 - b. Cover board, 1/4-inch.
 - c. Rigid insulation.
 - d. Vapor barrier.
 - e. Roof deck board, 5/8-inch.
 - f. Steel deck.
 - 2. Roof Type B: Furnish and install completed welded seam single ply sheet roofing assembly consisting of following layers indicated from top down:
 - a. Fully adhered welded seam membrane.
 - b. Cover board, 1/4-inch.
 - c. Tapered rigid insulation.
 - d. Steel deck or substrate.

1.4 SUBMITTALS

- A. General: Submit in accordance with General Conditions Section 4.14.
- B. Product Data: Submit product data for each product.
- C. Shop Drawings:
 - 1. Submit details for this specific project indicating construction at all penetrations, terminations, and flashings.
 - 2. Indicate vapor barrier placement and method of installation.
 - 3. Technical acceptance by roofing manufacturer.

- D. Samples for Verification: Of following products:
 - 1. 12 by 12 inch square of welded seam single ply roofing membrane, of color selected, including T-shaped side and end lap seam.
 - 2. 12 by 12 inch square of roof insulation.
 - 3. 12 by 12 inch square of roof sheathing board.
 - 4. 12 inch length of metal termination bars.
 - 5. 6 roof sheathing board and insulation fasteners of each type, length, and finish.
- E. Informational Submittals: Submit following packaged separately from other submittals:
 - 1. Certifications specified in Quality Assurance article.
 - 2. Qualification Data: Manufacturer's qualification data.
 - 3. Qualification Data: Applicator's qualification data.
 - 4. Manufacturer's instructions; include applicable temperature ranges.
 - 5. Manufacturer's field reports.
- F. Closeout Submittals: Submit specified warranty in accordance with General Conditions Section 9.8..

1.5 QUALITY ASSURANCE

- A. General:
 - 1. Obtain primary roofing materials from single manufacturer. Manufacturer's name shall appear on containers.
 - 2. Provide secondary materials as required by manufacturer of primary materials.
 - 3. Manufacturer's technical representative shall visit Project site to advise applicator of procedures and precautions for installation of roofing materials and upon completion of roofing to verify warranty requirements.
- B. Owner reserves right to hire an independent roofing consultant to review submittals, procedures, and installation.
- C. Installers Qualifications:
 - 1. Approved by manufacturer prior to execution of this Contract, with documented experience on at least 5 projects using submitted roofing system.
 - 2. Foreman of field crew: 5 years minimum experience with roofing system.
- D. Certifications: Manufacturer's Certification on manufacturer's letterhead:
 - 1. Certify roof system design; penetration, transition, and perimeter details; and system specifications are appropriate and satisfactory for this particular project.
 - 2. Certify products proposed for use comply with referenced standards; with UL and FM attached.
 - 3. Certify materials ordered and supplied are compatible with each other, suited for locale and purpose intended and shipped in sufficient quantity to ensure proper timely installation.
 - 4. Certify roofing materials have express warranty of merchantability and fitness for particular purposes of this Project.
 - 5. Certify manufacturer has reviewed Project and will issue warranty upon successful completion of installation.
 - 6. Certify materials shipped to site meet membrane manufacturer's published performance standards and requirements of this Specification.
 - 7. Membrane manufacturer's approval of insulation type and method of installation.
 - 8. Manufacturer's approval of installer.
- E. Industry Standards: Conform to NRCA - Roofing and Waterproofing Manual, except where more stringent requirements are indicated.

1.6 PRE-INSTALLATION CONFERENCE

- A. Conduct pre-installation conference in accordance with of Section 013100. Discuss sequence and scheduling of work and interface with other trades.
- B. Conduct tour of roof deck and review substrate surfaces to receive roofing and flashings. Report on substrate acceptability, possible problem areas, and recommended remedies.

1.7 DELIVERY, STORAGE, AND HANDLING

- A. Comply with requirements of Section 016000.
 - 1. Store materials in weather protected environment, clear of ground and moisture.
 - 2. Protect membrane from cuts, tears, punctures, and abrasions.
 - 3. Protect light sensitive insulation from direct sunlight exposure.
 - 4. Store materials (except membrane) between 60 degrees F and 80 degrees F. If exposed to lower temperatures, restore to proper temperature before using.
 - 5. Stand roll materials as required by manufacturer.
 - 6. Do not store materials on roof in such concentrations as to cause deck or structural membranes to be overloaded.

1.8 PROJECT CONDITIONS

- A. Environmental Requirements: Proceed with roofing work only when existing and forecasted weather conditions permit work to be performed in accordance with manufacturer's requirements.
 - 1. Comply with more restrictive of following or manufacturer's written requirements under which products can be applied.
 - 2. Verify substrate is free of water, dew, and frost.
 - 3. Ambient temperature is above 0 degrees F.
 - 4. Open fires and spark producing equipment are not and will not be in application area until vapors have dissipated.
 - 5. Application areas must be well ventilated.

1.9 SEQUENCING

- A. Do not install greater amount of insulation than can be covered by membrane in same day. Complete with night seals and appropriate tie-offs.
- B. Sequence work to avoid traversing over completed areas in order to continue roofing operations.
- C. Manufacturer is responsible for details and dimensions not shown on Drawings and shall furnish necessary details and field measurements to ensure roofing is covered by warranty. Coordinate with responsible trades to establish, verify and maintain field dimension and Project conditions.

1.10 WARRANTY

- A. Comply with provisions of General Conditions Section 9.8.
- B. Provide no dollar limit (NDL) warranty and Non-Prorated for full replacement cost of completed installation signed by manufacturer and applicator guaranteeing against water infiltration and defects of materials and workmanship for period of 20 years from date of Final Completion. Warranty shall not exclude ponding water and no time limited shall be assigned for any such ponding water during the warranty period
- C. Provide material required for warranty including penetrations, terminations, flashings, sealants, roof sheathing board, expansion joints, vapor barriers, membrane, insulation, adhesives, and fasteners. Defects include (but are not limited to) un-adhered membrane and flashings, moisture blisters, open seams, and weld scuffs.

PART 2 - PRODUCTS

2.1 THERMOPLASTIC POLYOLEFIN (TPO) ROOFING MEMBRANE

- A. Fabric-Reinforced Thermoplastic Polyolefin Sheet: Uniform, flexible sheet formed from a fleece-backed thermoplastic polyolefin, internally fabric or scrim reinforced, and as follows:
 - 1. Thickness: 0.060 inch (60 mils) minimum.
 - 2. Size: Largest possible sheets as determined by Project conditions; do not overload structural roof deck.
 - 3. Seams: Hot-air weldable.
 - 4. Membrane remains pliable, weldable, and watertight throughout its useful life, minimum of warranty period.
 - 5. Color: White

6. Physical Properties:
 - a. Breaking Strength: 250 lbf; ASTM D 751, grab method.
 - b. Elongation at Break: 25 percent; ASTM D 751.
 - c. Tearing Strength: 55 lbf minimum; ASTM D 751, Procedure B.
 - d. Brittleness Point: Minus 40 deg F.
 - e. Ozone Resistance: No cracks after sample, wrapped around a 3-inch- diameter mandrel, is exposed for 166 hours to a temperature of 104 deg F and an ozone level of 100 pphm; ASTM D 1149.
 - f. Resistance to Heat Aging: 90 percent minimum retention of breaking strength, elongation at break, and tearing strength after 166 hours at 240 deg F; ASTM D 573.
 - g. Water Absorption: Less than 4 percent mass change after 166 hours' immersion at 158 deg F; ASTM D 471.
 - h. Linear Dimension Change: Plus or minus 2 percent; ASTM D 1204.
7. Manufacturers:
 - a. Sure-Weld Adhered TPO, Carlisle SynTec Incorporated.
 - b. Ultra Ply TPO, Firestone Building Products Company.
 - c. JM TPO 60, Johns Manville International, Inc.

2.2 INSULATION

- A. Polyisocyanurate Insulation Materials:
 1. Polyisocyanurate Insulation:
 - a. Type: ASTM C1289, Class 1, Type II.
 - b. Zero ozone depletion potential (ODP) from blowing agent.
 - c. Long Term Thermal Resistance (LTTR) R-value based on ASTM C1303: R Value of 6 per inch, regardless of published values.
 - d. Thickness: 5 inch thick; R=30 in two layers with joints offset.
 - e. Facers: Both faces finished with fiberglass mat facers.
 - f. Manufacturer: Approved by membrane manufacturer.
 2. Roof Cover Board: 1/4 inch Dens-Deck Prime.
 3. Provide tapered polyisocyanurate insulation boards where crickets are shown or as required at edge strips and crickets for proper drainage; minimum positive slope 1/4 inch per foot.

2.3 ACCESSORIES

- A. Base Flashing Material: Manufacturer's standard system compatible with and matching color of roof membrane.
- B. Sealants, Adhesives, and Primers: As required by membrane manufacturer.
- C. Insulation Adhesive or Fasteners:
 1. Fasteners and Plates for Attachment to Steel Deck:
 - a. Self-drilling, self-tapping screw with low profile head. Carbon steel with fluoropolymer finish.
 - b. Corrosion resistant plates.
 - c. FM approved.
 - d. Length required for thickness of material and penetrating deck by 3/4 inch.
 - e. Products: As approved by membrane manufacturer.
- D. Vapor Barrier: Modified bituminous type required by membrane manufacturer.
- E. Roof Board: Glass Fiber Faced Gypsum, ASTM C1177C1177M; Type X; FM approved; silicone treated core with filled, heat-cured coating on one side.
 1. 4 feet by 8 feet.
 2. Thickness:
 - a. 1/4 inch roof cover board for application over roof insulation as indicated.
 - b. 5/8 inch 5 Type X for use over metal deck.
 3. Flame spread: 0.
 4. Acceptable Product: Dens-Deck Prime Roof Board, Georgia-Pacific Corporation.

- F. Walkway Pads:
 1. Manufacturer's standard PVC textured roll materials compatible with and contrasting color of roof membrane.
 2. Place per membrane manufacturer's recommendations around perimeter of building and in direct route from point of roof access to, and surrounding, equipment normally needing servicing.
- G. Wood Nailers and Cants: Solid, preservative treated softwood.
- H. Sheet Seaming System: Manufacturer's standard hot-air welding apparatus.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine conditions and proceed with work in accordance with Section 017300.
- B. Ensure wood blocking has been placed at proper elevations around perimeter of each roof level and at penetrations.
- C. Verify work which penetrates deck has been completed.
- D. Verify deck is clean and smooth, free of depressions, waves or projections, properly sloped to drains. Verify flutes of steel deck are clean and dry.
- E. Verify roof openings and penetrating elements through roof are solidly set, and cant strips, wood blocking, nailing strips, and reglets are in place. Verify deck is properly supported and secured.
- F. Do not apply roofing materials to damp, frozen, dirty, dusty, or other deck surface conditions which are unacceptable to manufacturer and applicator.

3.2 PREPARATION

- A. Clean substrate of dust, debris, and other substances detrimental to roofing installation according to roofing system manufacturer's written instructions. Remove sharp projections.
- B. Prevent materials from entering and clogging roof drains and conductors and from spilling or migrating onto surfaces of other construction. Remove roof-drain plugs when no work is taking place or when rain is forecast.
- C. Wood Nailers:
 1. Install wood nailers, underlayment, membrane, and accessories in accordance with FM, UL, and manufacturer's requirements.
 2. Install at roof perimeter and at base of penetrations over 18 inches long or in diameter.
 3. Thickness equal to insulation or greater where indicated.
- D. Gypsum Roof Board:
 1. Install gypsum roof board on metal deck with long dimension parallel to flutes. Stagger end joints.
 2. Cut roof board cleanly and accurately at roof breaks and protrusions to provide smooth surface.
 3. Adhere insulation to metal deck over pool atmosphere areas.
 4. Mechanically fasten roof board to metal deck in non-pool atmosphere areas with fastener type and penetration in accordance with FM requirements.
 5. Comply with applicable provisions of NRCA Specification INS-S (Pages 689-692).
- E. Vapor Retarder:
 1. Apply vapor barrier over roof sheathing board in accordance with roof manufacturer's requirements.
 2. Lap and seal joints; offset endlaps.
 3. Extend vapor retarder under blocking.
 4. Lap vertically applied flashing over vapor retarder at wall construction to provide continuity of vapor retarder envelope.
- F. Insulation and Roof Cover Board:
 1. Place 2 layers of insulation with fasteners or adhesives and offset joints in accordance with insulation manufacturer's instructions to achieve FM wind uplift rating.

2. Install insulation in parallel courses with end joint staggered and adjacent boards butted together with no joints greater 1/4 inch. Do not install cracked or broken boards.
3. Cut insulation to fit neatly to perimeter blocking and protrusions through roof.
4. Lay tapered boards to provide minimum 1/4 inch per foot slope drainage at crickets and other areas where structure has not provided slope to drains, gutters or roof edge.
5. Provide 1/4 inch roof cover board over insulation with joints offset from insulation joints.
6. Mechanical Attachment (Insulation and Roof Cover Board to Metal Deck):
 - a. Comply with manufacturer's Approved Fastening Pattern to meet wind uplift requirements.
 - b. Install fasteners in accordance with fastener manufacturer's recommendations. Fasteners are to have minimum penetration into structural deck recommended by fastener manufacturer and PVC manufacturer.
 - c. Use fastener tools with a depth location as recommended or supplied by fastener manufacturer to ensure proper installation.
 - d. Provide pullout tests to verify deck condition and actual pullout values. Provide data to Architect and Owner.

3.3 INSTALLATION

A. General:

1. Do not apply roofing materials to surfaces which are unacceptable to manufacturer and installer.
2. Do not install greater amount of insulation than can be covered by membrane in same day.
3. Sequence work to avoid traversing over completed areas in order to continue roofing operations.
4. Do not expose materials vulnerable to water or sun damage in quantities greater than can be weatherproofed during same day.
5. Install night cut-off sealer and appropriate tieoffs at end of day's work.

B. Fully Adhered Membrane:

1. Install sheet according to ASTM D5036.
2. Unroll membrane over prepared substrate in approximate final position. Allow to relax.
3. Cut sheets to maximum length possible to minimize seams.
4. Overlap sheets at edges and ends as required by manufacturer.
5. Apply bonding adhesive to substrate and underside of sheet as required by manufacturer. Do not apply adhesive within seam welding area.
6. Apply membrane and expansion joint materials to isolate roof into areas as required. Seal roofing membrane sheet to joint flange, apply sealant to edge or seam.
7. Weld seams with hot air welder of type approved by manufacturer. Prime seams if necessary to achieve proper weld. Ensure that fastener plates and seams are located in accordance with manufacturer's requirements.
8. Overlap joints on sloped substrate in direction of drainage.
9. Eliminate fishmouths, wrinkles, bubbles, or other type voids.
10. Heat weld membrane to adjoining surfaces.

C. Flashing and Accessories:

1. Install base flashing, terminations, and fascia trim as indicated and required by manufacturer. Use longest pieces practicable.
2. Install base flashing up vertical surfaces minimum 8 inches above cant top or edge strip unless otherwise noted. Fasten top of base flashing with devices and at locations and frequency as recommended by manufacturer.
3. Coordinate installation of base flashing with Section 076000 - Flashing and Sheet Metal.
4. Bond base flashing to substrate in accordance with manufacturer's requirements to obtain water tight bond.
5. Take measures to ensure base flashing is not ridding where there is change of direction.
6. Fasten top of base flashing under metal counterflashing at manufacturer's recommended spacing.
7. Flash penetrations passing through membrane

- D. Walking Pad Installation:
 - 1. Comply with roof membrane manufacturer's requirements.
 - 2. Clean and dry roofing membrane to receive walking pads.
 - 3. Place chalk lines on deck sheet to indicate location of walking pads.
 - 4. Apply continuous coat of adhesive to roof membrane and back of walking pads in accordance with manufacturer's requirements and press pads into place with water-filled, foam-covered lawn roller.
 - 5. Clean roof deck membrane in areas to be welded.
 - 6. Hot-air weld the entire perimeter of the walking pad to roof membrane sheet.
 - 7. Check welds with rounded screwdriver.

3.4 FIELD QUALITY CONTROL

- A. Request site attendance of roofing manufacturer technical representative during various stages of installation of roof assembly.
- B. Manufacturer's Field Services:
 - 1. Comply with requirements of Section 014000.
 - 2. Provide inspection to ascertain specified material and workmanship quality is being maintained and for purposes of warranty verification.
 - 3. Perform final inspection after roof completion.
 - 4. Field Reports: Submit summary of Project site observations, instructions and monitoring activities.
 - 5. Minimum Site Visits:
 - a. Pre-construction conference.
 - b. First day of roofing work on site including acceptance of substrate conditions.
 - c. Inspection of completed roofing.
 - d. Periodic Visits: Weekly during installation.
 - e. Inspection of completed roofing.
- C. Site Tests and Inspections:
 - 1. Inspect cured seams with probe or similar device to ensure welds are consistent.
 - 2. Correct defective seams.
- D. Flood Test: Test for leaks with 2 inch depth of water at highpoint maintained for 24 hours. Repair leaks revealed by examination of substructure and repeat test until no leakage is observed.
 - 1. Restrict water runoff from membrane area by plugging drains and creating dams or dikes.
- E. Correct identified defects or irregularities.

3.5 CLEANING

- A. General: Comply with Section 017400.
- B. Clean as recommended by manufacturer. Do not use materials or methods which may damage membrane, flashing, or surrounding construction.
 - 1. Repair or replace defaced or disfigured finishes caused by work of this Section.

3.6 PROTECTION

- A. Provide temporary roof protection in accordance with Section 017300 requirements and as recommended by manufacturer in areas of anticipated roof traffic during remainder of construction.
- B. Prevent traversing roof without temporary protection.
- C. Remove protection when no longer needed.

END OF SECTION

SECTION 076000
FLASHING AND SHEET METAL

PART 1 - GENERAL

1.1 SUMMARY

- A. Section Includes: Shop and field formed sheet metal flashing, gutters, downspouts, counterflashing, reglets, and associated trim.
- B. Related Sections:
 - 1. Section 072700 – Air Barriers.
 - 2. Section 074113 – Metal Roof Panels.
 - 3. Section 075423 – TPO Single Ply Roofing.
 - 4. Section 077000 – Roof and Wall Specialties and Accessories: Preformed aluminum copings.

1.2 REFERENCES

- A. Reference Standards: Comply with applicable provisions for design, materials, fabrication, and installation of component parts of Sheet Metal and Air Conditioning Contractors National Association (SMACNA), 6th Edition.

1.3 SUBMITTALS

- A. General: Submit in accordance with General Conditions Section 4.14.
- B. Product Data:
 - 1. Submit product data for reglets, and prefinished galvanized steel.
 - 2. Submit product data indicating performance and physical characteristics of sheet metal products, including thickness.
 - 3. Submit color charts for finish indicating manufacturer's colors available for selection.
- C. Shop Drawings:
 - 1. Indicate typical layout including dimensions, configuration, locations, interface with adjacent systems, clearances, tolerances, frequency of attachment, and fabrication details.
 - 2. Submit detail drawings of transitions, intersections, and connections.
- D. Submit following Informational Submittals:
 - 1. Certifications specified in Quality Assurance article.
 - 2. Qualification Data: Fabricator's qualification data.
- E. Closeout Submittals:
 - 1. Warranty: Submit specified product warranty in accordance with General Conditions Section 9.8.

1.4 QUALITY ASSURANCE

- A. Fabricator's Qualifications: Company specializing in sheet metal flashing work with 3 years documented experience in similar size and type of installations.
- B. Certifications: Submit fabricator's certification that products furnished for Project meet or exceed specified requirements.

1.5 DELIVERY, STORAGE AND HANDLING

- A. Comply with requirements of Section 016000.
- B. Stack pre-formed material to prevent twisting, bending, and abrasions, and to provide ventilation.
- C. Prevent contact with materials which may cause discoloration or staining.

1.6 WARRANTY

- A. Provide warranties in accordance with General Conditions Section 9.8.

- B. Warrant installed system to be free of leaks and free from defects in materials and workmanship for 2 years from date of Final Completion of project.
- C. Warrant factory applied fluorocarbon finish to be free of cracks, splits, crazing, chipping, peeling, and color fading for 10 years from date of Final Completion of Project.

PART 2 - PRODUCTS

2.1 MATERIALS

- A. Prefinished Aluminum Sheet:
 - 1. ASTM B209, with pre-finished fluoropolymer (PVDF) coating and wash cut primer on back side.
 - 2. Texture: Smooth finish.
 - 3. Thickness: As recommended in Architectural Sheet Metal Manual for intended purposes.
 - 4. Finish:
 - a. Thermo-cured inhibitive primer 0.2 mil minimum dry film thickness and thermo-cured fluorocarbon coating containing not less than 70 percent resin (Kynar 500 or Hylar 5000), 1.0 mil minimum dry film thickness conforming to AA C12C42R1x.
 - b. Color: Custom color selected by Architect.

2.2 ACCESSORIES

- A. Reglets:
 - 1. General:
 - a. Units of type and profile as indicated, formed to provide secure interlocking of separate reglet and counterflashing pieces.
 - b. Compatible with flashing and roofing materials.
 - 2. Surface-Mounted:
 - a. Manufactured surface applied reglet with slotted holes for fastening to substrate, with neoprene or other suitable weatherproofing washers, and with channel for sealant at top edge.
 - b. Acceptable Product: Equivalent to Type SM, Fry Reglet Corporation.
 - 3. Masonry:
 - a. Manufactured reglet with offset top flange for embedment in masonry mortar joint.
 - b. Acceptable Product: Equivalent to Type MA, Fry Reglet Corporation.
 - 4. Manufacturers:
 - a. Fry Reglet Corporation.
 - b. W. P. Hickman Company.
 - c. Keystone Flashing Company.
- B. Bellows Roof Expansion Joint Covers
 - 1. Acceptable Products and Manufacturers:
 - a. Roof Bellows, Balco Inc., Wichita, KS.
 - b. xpansion Joint Shield, Celotex Roofing Products, Tampa FL.
 - c. Expand-O-Flash, Johns Manville Corporation, Denver, CO.
 - d. Metalastic Expansion Joint Covers, GAF, Wayne NJ.

Description:

- 1.
 - a. Flexible bellows mechanically fastened to metal nailing flanges.
 - b. Style: One L-Shaped curb flange and one straight flange for mounting on curb flange and wall.
 - c. Flange metal: 26 gage commercial quality galvanized steel.
 - d. Bellows: Manufacturer's standard neoprene, EPDM, or chlorosulfonated polyethylene laminated with closed cell foam.
 - e. size to accommodate nominal joint width of 2 inches.
 - f. Accommodate movement in three dimensions plus torsion.
 - g. Provide factory-formed configurations, corners, intersections, and transitions.

- C. Accessories
 - 1. Primer, adhesives, joint/lap cement, splice strips and bituminous coatings: Types and composition recommended by manufacturer of expansion joint assemblies.
 - 2. Fasteners: Large headed nails of type and size recommended by manufacturer of expansion joint assemblies, compatible with metal flanges.
- D. Fasteners:
 - 1. Materials: Copper or brass for fastening copper, lead coated copper, and terne coated steel; AISI Series 300 for stainless and galvanized steel; aluminum for aluminum sheets.
 - 2. Nails: Use annular ring shank type, No. 12 gage or larger to suit application, of sufficient length to penetrate backing material at least 7/8 inch.
 - 3. Screws and Bolts: Sufficient size and length to sustain imposed stresses.
- E. Solder Materials:
 - 1. Flux: Type as recommended by sheet material manufacturer; not detrimental to base material.
 - 2. Solder: ASTM B32, 50 percent tin/50 percent lead for plain copper, galvanized steel.
- F. Asphalt Mastic: SSPC-Paint 12, solvent-type asphalt mastic, containing no asbestos fibers, compounded for 15 mil dry film thickness per coat.
- G. Butyl Tape Sealant:
 - 1. Comply with ASTM C 1281:
 - 2. Preformed, butyl-based elastomeric tape sealant with a solids content of 100 percent; nonstaining and nonmigrating in contact with nonporous surfaces.
 - 3. With or without spacer rod as recommended in writing by tape manufacturers for application indicated.
 - 4. Packaged on rolls with a release paper backing.
- H. Sealants:
 - 1. Silicone—General Purpose sealant specified in Section 079200.
 - 2. Color as selected by Architect from full range of manufacturer's standard colors.
- I. Splash Block: Manufacturer's standard fiberglass.

2.3 FABRICATION

- A. General:
 - 1. Shop fabricate components to maximum extent possible to minimize site fabrication.
 - 2. Fabricate to allow for adjustments in field for proper anchoring and joining.
 - 3. Form sections true to shape, accurate in size, square, free from distortion and defects.
 - 4. Fabricate cleats and starter strips of same material as sheet, interlockable with sheet.
 - 5. Fabricate corners from one piece with minimum 18 inch long legs; solder for rigidity; seal with sealant.
- B. Seams:
 - 1. Provide following seam types unless noted or detailed otherwise.
 - 2. Flat: Drive cleat.
 - 3. Corner: Double corner.
 - 4. Standing: Double lock standing.
- C. Sheet Metal Thickness/Mass:
 - 1. Flashing: In accordance with SMACNA Chapter 4.
 - 2. Gutters: In accordance with SMACNA Table 1-5.
 - 3. Downspouts: In accordance with SMACNA Table 1-9.
- D. Flashing and Counter Flashing:
 - 1. Fabricate as indicated on Drawings and in accordance with SMACNA Architectural Sheet Metal Manual, Chapter 4.
 - 2. Hem exposed flashings on underside 1/2 inch; miter and seam corners.
 - 3. Fabricate vertical faces with bottom edge formed outward 1/4 inch and hemmed to form drip.
 - 4. Fabricate flashings to allow toe to extend minimum 2 inches over wall surfaces.
 - 5.

- E. Gutter:
 - 1. As indicated on Drawings and in accordance with SMACNA Figure 1-2B.
 - 2. Fabricate front edge 1 inch lower than back.
 - 3. Size as indicated on Drawings.
 - 4. Gutter hangers: SMACNA Figure 1-19A.
 - 5. Gutter screens: SMACNA Figure 1-24.
- F. Downspout:
 - 1. As indicated on Drawings and in accordance with SMACNA Figure 1-32B.
 - 2. Size as indicated on Drawings.
 - 3. Hangers: SMACNA Figure 1-35B.

2.4 FINISHES

- A. Fluoropolymer Coating:
 - 1. Comply with AAMA 620.
 - 2. Resin: 70 percent polyvinylidene fluoride (PVDF).
 - 3. Substrate: Cleaned and pre-treated.
 - 4. Primer:
 - a. Coating: Manufacturer's standard resin based compatible coating.
 - b. Dry Film Thickness: Minimum 0.20 mil.
 - 5. Topcoat:
 - a. Coating: PVDF.
 - b. Dry Film Thickness:
 - 1) Coil: 0.80 mil.
 - 2) Extrusion: 1.0 mil
 - 6. Color: Custom color as selected by Architect.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine conditions and proceed with work in accordance with Section 017300.
- B. Verify roof openings, curbs, pipes, sleeves, ducts, and vents through roof are solidly set, cant strips and reglets in place, and nailing strips located.
- C. Verify membrane termination and base flashings are in place, sealed, and secure.

3.2 PREPARATION

- A. Field measure site conditions prior to fabricating work.
- B. Install edge strips and cleats before starting installation.
- C. Install surface mounted reglets true to lines and levels. Seal top of reglets with sealant.

3.3 INSTALLATION

- A. General:
 - 1. Install metal work in accordance with SMACNA.
 - 2. Install units plumb, level, square, and free from warp or twist while maintaining dimensional tolerances and alignment with surrounding construction.
 - 3. Apply asphalt mastic on metal surfaces of units in contact with cementitious materials and dissimilar metals.
 - 4. Fit flashings tight in place. Make corners square, surfaces true and straight in planes, and lines accurate to profiles.
 - 5. Miter, lap seam and close corner joints with solder. Seal seams and joints watertight.
 - 6. Install expansion joints at frequency recommended by SMACNA. Do not fasten seams such that movement is restricted.
 - 7. Coordinate with installation of roofing system and roof accessories.
- B. Flashing
 - 1. Insert flashings into reglets to form tight fit. Secure in place with wedges at maximum 12 inches on center. Seal flashings into reglets with sealant.

2. Secure flashings in place using concealed fasteners. Use exposed fasteners only in locations approved by Architect.
- C. Counterflashing and Reglets:
1. Fabricate counterflashings and reglets as 2 piece assemblies to permit installation of counterflashing after base flashings are in place.
 2. Fabricate reglets of same metal and gage as counterflashings.
 3. Install continuous preformed butyl sealant tape behind fastener line of surface mounted reglets in accordance with manufacturer's written instructions. Apply silicone weather seal at top edge. Prevent contact between different sealing materials.
 4. Overlap composition base flashing 4 inches minimum.
 5. Install bottom edge tight against base flashing.
 6. Lap seam vertical joints 3 inches minimum and apply sealant.
- D. Gutters, Downspouts, and Conductor Heads:
1. Flash and seal gutter to downspout.
 2. Slope gutters not less than 1/8 inch per foot.
 3. Provide expansion joints at 50'-0" maximum.
 4. Hang gutter with sheet metal straps spaced 3'-0" centers.
 5. Coordinate eave flashings conditions with requirements of asphalt shingles.
 6. Provide prefabricated splash blocks for each downspout terminating at ground levels.

3.4 CLEANING

- A. Upon completion of each area of soldering, carefully remove flux and other residue from surfaces. Neutralize acid flux by washing with washing soda solution, and then flushing clear water rinse. Use special care to neutralize and clean crevices.

END OF SECTION

SECTION 077000

ROOF AND WALL SPECIALTIES AND ACCESSORIES

PART 1 - GENERAL

1.1 SUMMARY

- A. Section Includes:
 - 1. Preformed Fascia (Gravel Stops).
 - 2. Preformed Copings
 - 3. Roof Curbs and Supports.
 - 4. Pipe Portals.
 - 5. Roof Hatch.
- B. Related Sections:
 - 1. Section 074113 – Metal Roof Panels
 - 2. Section 075423 – TPO Single Ply Roofing.
 - 3. Section 076000 – Flashing and Sheet Metalng.

1.2 SYSTEM DESCRIPTION

- A. Curbs, Equipment Supports, Pipe Roller Supports, and Pipe Portals:
 - 1. Design Requirements: Manufacturer is responsible for designing units, including anchorage to structural system and necessary modifications to meet specified requirements.
 - 2. Structural Requirements: Design to support load of curb-mounted equipment.

1.3 SUBMITTALS

- A. General: Submit in accordance with General Conditions Section 4.14.
- B. Product Data:
 - 1. Submit manufacturer's descriptive literature and product specifications for each product.
 - 2. Indicate profiles, anchorages, jointing details, flashings, and accessories.
 - 3. Include color charts for finish indicating manufacturer's standard colors available for selection.
- C. Shop Drawings:
 - 1. Indicate typical layout including dimensions, configuration, locations, interface with adjacent systems, clearances, tolerances, frequency of attachment, and fabrication details.
 - 2. Submit detail drawings of transitions, intersections, and connections.
 - 3. Submit detail drawings of accessory components not included in manufacturer's product data.
- D. Submit following Informational Submittals:
 - 1. Certifications specified in Quality Assurance article.
 - 2. Manufacturer's instructions.
- E. Closeout Submittals:
 - 1. Submit under provisions of General Conditions Section 9.8.
 - 2. Warranty: Submit specified warranty in accordance with General Conditions Section 9.8.

1.4 QUALITY ASSURANCE

- A. Single Source Responsibility: Furnish each product from one manufacturer, unless otherwise acceptable to Architect.
- B. Manufacturer Qualifications: Company specializing in manufacturing Products specified in this Section with minimum 5 years documented experience.
- C. Roof Curb Installer Qualifications: Acceptable to manufacturer with documented experience on at least 5 projects of similar nature in past 5 years.
- D. Certifications:
 - 1. Submit manufacturer's certification that products furnished for Project meet or exceed specified requirements.

2. Submit Contractor's and installer's certification that products are installed in accordance with Contract Documents.

1.5 DELIVERY, STORAGE, AND HANDLING

- A. Comply with requirements of Section 016000.
- B. Stack materials to prevent twisting, bending and abrasions, and to provide ventilation.

1.6 WARRANTY

- A. Comply with provisions of General Conditions Section 9.8..
- B. Warrant installed roof curbs, roof expansion joint covers, fascias, and copings to be free from defects in material and workmanship for time period to match roof system specified in Section 075423.

PART 2 - PRODUCTS

2.1 MATERIALS

- A. Aluminum Extrusions: ASTM **B221**, alloy and tempered as required by manufacturer for intended use but not less than strength and durability qualities of alloy 5005-H15.
- B. Aluminum Sheet: ASTM **B209**, alloy and tempered as required by manufacturer for intended use but not less than strength and durability qualities of alloy 6063-T5.
- C. Preservative Pressure Treated Wood: Softwood lumber treated in accordance with AWPA C2 for above grade use.
- D. Bituminous Paint: SSPC Paint 12
- E. Roofing Cement: ASTM D4586, Type I.

2.2 TRIM

- A. Fascia:
 1. Acceptable Products and Manufacturers:
 - a. Safeguard System, Style F, W. P. Hickman Company.
 - b. Model **[SLF-Series [I] II]** F-Series System, MM Systems Corporation.
 - c. Perma-Tite Fascia, Metal-Era, Inc.
 2. Description:
 - a. Metal water dam with fascia.
 - b. Provide with continuous clamp mechanically fastened to be secured and engaged against roofing membrane.
 - c. FM 1-90 wind uplift rating.
 - d. Provide with flowover scupper.
 - e. Dam: **24 gage** commercial quality galvanized steel.
 - f. Fascia: **0.050 inch thick aluminum**.
 - g. Provide with splice plates to conceal and weatherseal joints between sections of dam and fascia.
 3. Finish: Kynar 500 to in custom color to match metal roof panels.
- B. Fabrication:
 1. Form sections true to shape, accurate in size, square, free from distortion and defects, to profiles indicated.
 2. Shop fabricate intersections, inside corners, and outside corners with miters welded in factory prior to finishing.
- C. Accessories: Provide fasteners, clamping devices, splice strips adhesives, and sealants required by system for proper performance and as recommended by manufacturer.

2.3 CURBS AND SUPPORTS

- A. Acceptable Roof Curb Products and Manufacturers:
 1. Model RPC-1 by Roof Products, Inc.
 2. Style PC-5 by The Pate Company.

3. Model RC-4A by Roof Products and Systems Corporation.
 4. Model TC-1 by ThyCurb.
- B. Acceptable Equipment Support Rail Products and Manufacturers:
1. Model RPES-1 by Roof Products, Inc
 2. Style ES-5, The Pate Company.
 3. Model ER-4A, Roof Products and Systems Corporation.
 4. Model TEMS-1, ThyCurb.
- C. Acceptable Pipe Roller Support Products and Manufacturers:
1. Style PRS-5, The Pate Company.
 2. Model PMP, Roof Products and Systems Corporation
 3. Model TEMS-1 with pipe roller assembly, ThyCurb.
- D. General:
1. Sheet Metal: Structural quality galvanized steel, thickness to suit spans and imposed loads with corner seams mitered and welded.
 2. Insulation: 3 pcf density, rigid glass fiber board, minimum 1-1/2 inches thick.
 3. Wood Nailers and Grounds: Preservative pressure treated wood, minimum 2 inch cross sectional dimensions.
 4. Height: 8 inches minimum above elevation of finished roofing, except where indicated otherwise.
 5. Built-in Cant: 3 inch wide; 45 degree angle.
 6. Fabricate with bottom edge of built-in cant raised above roof deck surface to accommodate roof deck insulation.
 7. Curbs:
 - a. Size: Accommodate curb-mounted equipment and pipe portals; coordinate requirements prior to fabrication.
 8. Pipe Rollers Supports:
 - a. Provide with single channel atop curb to support threaded rods holding pipe rollers.
 - b. Size pipe rollers to accommodate pipe sizes.

2.4 PIPE PORTALS

- A. Pipe Portals for Low-Sloped Roofs:
1. Manufacturer's standard ABS and EPDM rubber boots to accommodate 3/8 through 6 inch diameter pipe.
 2. Furnish complete with stainless steel hose clamps.
 3. Accommodate quantity and size of piping to pass through portal caps.
 4. Fabricate for mounting atop manufacturer's curb.
 5. Acceptable Products and Manufacturers:
 - a. RPVP-3 Vertical Pipe Curb and Cover, Roof Products, Inc.
 - b. PCA-5, Pipe Curb Assembly, The Pate Company.
 - c. Pipe Portal System, Roof Products and Systems Corporation.
 - d. TP-2 Piping Cover, ThyCurb.

2.5 CAST IRON ROOF DRAIN GRATES

- A. Replacement grates for existing roof drains:
1. Manufacturer's standard cast iron grate compatible with existing roof drain assembly.
 2. Furnish complete with attachment accessories and clamps.
 3. Accommodate size of existing roof drain.
 4. Acceptable Manufacturers:
 - a. Zurn Industries
 - b. Josam Manufacturing
 - c. Jay R. Smith
 - d. Wade.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine conditions and proceed with work in accordance with Section 017300.
- B. Verify that deck, curbs, blocking, cants, roof membrane, and base flashing are in place and positioned correctly.
- C. Flashings, Fascia, Gravel Guard, and Coping:
 - 1. Verify that coverage onto vertical finish materials is sufficient to result to watertight installation.
 - 2. Verify membrane terminations and base flashings are in place, sealed, and secure.

3.2 INSTALLATION

- A. General:
 - 1. Install units plumb, level, square, and free from warp or twist while maintaining dimensional tolerances and alignment with surrounding construction.
 - 2. Apply bituminous paint on metal surfaces of units in contact with cementitious materials and dissimilar metals.
 - 3. Securely anchor roof accessories to supporting substrates with appropriate type fasteners.
 - 4. Coordinate with installation of roofing system and related flashings.
- B. Fascia:
 - 1. Secure in place with concealed fasteners using methods as recommended by manufacturer to comply with FM rating.
 - 2. Seal joints watertight.
- C. Curbs: Integrate curbs with adjacent roofing systems, base flashings, and counter flashings to create watertight conditions.
- D. Hatches: Secure flanges to deck by bolting or welding.

3.3 CLEANING

- A. Clean as recommended by manufacturer. Do not use materials or methods which may damage finish or surrounding construction.
- B. Clean primer, adhesive, flashing cements, and other products from surfaces, exposed sheet metal and bellows.

3.4 PROTECTION

- A. Protect finished work in accordance with Section 017300.

END OF SECTION

SECTION 079200
JOINT SEALANTS

PART 1 - GENERAL

1.1 SUMMARY

- A. Related Sections:
 - 1. Section 076000 - Flashing and Sheet Metal.
 - 2. Section 086300 - Metal-framed Skylights.

1.2 DEFINITIONS

- A. Use definitions in ASTM C717.
- B. Non-Bleeding: Not capable of exuding liquid chemical components of sealant.
- C. Non-Staining: Not capable of discoloring joint substrate.
- D. Sealant System: Sealant, sealant backing, and primer intended for use in particular condition.

1.3 SUBMITTALS

- A. General: Submit in accordance with General Conditions Section 4.14.
- B. Product Data:
 - 1. Submit product data and product specifications for each product.
 - 2. Include data to indicate chemical characteristics, performance criteria, limitations, substrate preparation, installation requirements, and curing requirements.
 - 3. Include information for accessories and other required components.
 - 4. Include color charts indicating manufacturer's full color range available of each sealant type for Architect's initial selection.
- C. Samples: Submit four 1/4 inch diameter by 2 inch long samples illustrating sealant colors for each product exposed to view.
- D. Submit following Informational Submittals:
 - 1. Test Reports: Submit written results of testing specified as part of Source and Field Quality Control articles.
 - 2. Certifications specified in Quality Assurance article.
 - 3. Qualification Data: Manufacturer's and installer's qualification data.
 - 4. Manufacturer's instructions. Include requirements for surface preparation, priming, joint size ratios, adhesion testing, and perimeter conditions requiring special attention.
 - 5. Manufacturer's field reports.
- E. Closeout Submittals:
 - 1. Submit under provisions of General Conditions Section 9.8.
 - 2. Warranty: Submit specified warranty.

1.4 QUALITY ASSURANCE

- A. Single Source Responsibility:
 - 1. Provide products for each sealant system from one manufacturer for entire Project, unless otherwise acceptable to Architect.
 - 2. Provide products from a single manufacturer to ensure material compatibility where different sealant materials come in direct contact with each other.
 - 3. Provide each sealant system as complete unit, including accessory items necessary for proper function.
- B. Manufacturer Qualifications: Company specializing in manufacturing products specified in this Section with minimum 5 years experience.
- C. Applicator Qualifications: Acceptable to manufacturer, specializing in applying sealants, with experience on at least 5 projects of similar nature in past 5 years.

D. Certifications:

1. Manufacturer's Certification that Products:
 - a. Furnished for Project meet or exceed specified requirements.
 - b. Assembled for each joint are compatible with each other and with joint substrates under conditions of service and application.
 - c. Are suitable for the indicated use.
2. Manufacturer's certification that sealants, primers, and cleaners, comply with local regulations controlling the use of volatile organic compounds.
3. Contractor's and installer's certification that products are installed in accordance with Contract Documents, based on inspection and testing specified as part of Field Quality Control.

1.5 FIELD SAMPLES

- A. General: Comply with provisions of Section 014500.
- B. Preconstruction Field Sample:
 1. Construct sealant joint mock-up 5 feet long for elastomeric joint sealants specified in this Section.
 2. Position at location directed by Architect.
 3. Construct minimum of 3 weeks prior to scheduled installation.
 4. Perform "field hand-pull adhesion test" described under Field Quality Control, one per each different substrate on the building exterior envelope. Pull Test to be performed 21 days after installation of field sample.

1.6 MOCK-UPS

- A. General: Comply with provisions of Section 014500.
- B. Visual Mock-Up:
 1. Seal joints in mock-ups of assemblies specified in other Sections that are indicated to receive joint sealants specified in this Section.
 2. Visual mock-up may be used for preconstruction field test mock-up of assemblies specified in other Sections.
 3. Construct minimum of 3 weeks prior to scheduled installation.
 4. Demonstrate:
 - a. Selections made from submittal samples.
 - b. Sealant color and aesthetic effects.
 - c. Material and installation qualities.
 - d. Placement of two-stage seals, including sequence and curing procedures.
 5. Perform "field hand-pull adhesion test" described under Field Quality Control, one per each different substrate on the building exterior envelope. Pull Test to be performed 21 days after installation of field sample.

1.7 PRE-INSTALLATION CONFERENCE

- A. Conduct pre-installation conference in accordance with Section 013100.
- B. Convene pre-installation conference 3 weeks prior to commencing work of this Section.
- C. Conference Purpose and Agenda:
 1. Visit Project site to analyze site conditions, and inspect surfaces and joints to be sealed in order that recommendations may be made should adverse conditions exist.
 2. Review mock-up and field sample.
 3. Discuss following items:
 - a. Substrate conditions.
 - b. Preparatory work.
 - c. Weather conditions under which work will be done.
 - d. Anticipated frequency and extent of joint movement.
 - e. Joint design.
 - f. Sealant installation procedures.

1.8 DELIVERY, STORAGE AND HANDLING

- A. Comply with requirements of Section 016000.
- B. Deliver materials to site in unopened containers and bundles with labels indicating:
 - 1. Manufacturer's name.
 - 2. Product name and designation.
 - 3. Color.
 - 4. Expiration period for use.
 - 5. Working life.
 - 6. Curing time.
 - 7. Mixing instructions for multi-component materials.
- C. Storage and Protection:
 - 1. Store products within manufacturer's required temperature and humidity ranges.
 - 2. Prior to use, condition products within manufacturer's required temperature range, humidity range, and time period.

1.9 PROJECT CONDITIONS

- A. Environmental Requirements:
 - 1. Apply sealant when the following are within manufacturer's limits during and for 24 hours after sealant installation:
 - 2. Ambient and surface temperatures.
 - 3. Relative humidity.
 - 4. Do not apply sealants to wet or frozen surfaces.
 - 5. Comply with manufacturer's requirements regarding application of sealants in vicinity of curing sealants of a different material.

1.10 SEQUENCING

- A. Coordinate work with Sections referencing General Conditions Section 9.8.
- B. Coordinate installation of sealants with substrates to which they are applied.

1.11 WARRANTY

- A. Provide warranties under provisions of Section 017800.
- B. Warrant installed products to be free from defects in material, labor, or installation techniques for 20 years from Final Completion on silicones used at exterior building envelope, 2 years from Final Completion at sealants used at interior locations.
- C. Include coverage for installed sealants and accessories which:
 - 1. Fail to achieve air tight seal.
 - 2. Fail to achieve watertight seal.
 - 3. Exhibit loss of adhesion.
 - 4. Exhibit loss of cohesion.
 - 5. Do not cure.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Acceptable Acrylic Sealant Manufacturers:
 - 1. Pecora Corporation.
 - 2. Sonneborn Building Products.
 - 3. Tremco, Inc.
- B. Acceptable Silicone Sealant Manufacturers:
 - 1. The Dow Chemical Company.
 - 2. General Electric Silicones.
 - 3. Pecora Corporation,.
 - 4. Tremco, Inc.

- C. Acceptable Urethane Sealant Manufacturers:
 - 1. Pecora Corporation.
 - 2. Sika Corporation.
 - 3. Sonneborn Building Products.
 - 4. Tremco, Inc.

2.2 MATERIALS

- A. Acrylic Latex (Designation AL):
 - 1. Description:
 - a. ASTM C834.
 - b. Non-sag; non-staining; non-bleeding.
 - c. Joint movement range without cohesive/adhesive failure: Plus 7.5 percent to minus 7.5 percent of joint width.
 - d. Color: As selected by Architect from manufacturer's full color range.
 - 2. Acceptable Products:
 - a. AC-20, Pecora Corporation.
 - b. Sonolac, Sonneborn Building Products.
 - c. Acrylic Latex Tremflex 834, Tremco, Inc.
- B. Silicone—General Purpose (Designation S-GP):
 - 1. Description:
 - a. ASTM C920:
 - 1) Type: S
 - 2) Grade: NS
 - 3) Class: 25
 - 4) Uses: NT, G, A, O
 - b. Single component, neutral curing, non-staining, non-bleeding silicone sealant.
 - c. Medium modulus silicone for metal to metal and metal to adjacent substrates; Low modulus silicone for all other locations.
 - d. Joint movement range without cohesive/adhesive failure: Plus 50 percent to minus 50 percent of joint width.
 - e. Color: Selected by Architect from manufacturer's full color range.
 - f. Acceptable Medium Modulus Products:
 - 1) 795, Dow Corning.
 - 2) Silpruf, General Electric.
 - 3) 864, Pecora.
 - 4) Spectrem 2, Tremco.
 - g. Acceptable Low Modulus Products (Expansion joints at brick, storefront to masonry):
 - 1) 790, Dow Corning.
 - 2) 890, Pecora.
 - 3) Spectrem 1, Tremco.
- C. Silyl-Modified Polyether Sealant (Designation SMP):
 - 1. Paintable elastomeric sealant used on surfaces to be painted.
 - 2. Materials must be chemically compatible with coating.
 - 3. Description:
 - a. ASTM C920:
 - 1) Type: S
 - 2) Grade: NS
 - 3) Class: 25
 - 4) Uses: NT, M, A, G, O
 - b. Chemical or neutral curing, non-staining, and non-bleeding.
 - c. Joint movement range without cohesive/adhesive failure: Minimum plus 100 percent to minus 50 percent of joint width.
 - d. Color: Standard.
 - 4. Acceptable Product: Sonolastic 150 with VLM Technology, Sonneborn Div. Of BASF.

- D. Control Joint Sealant (Designation CJS):
 1. Two-component, self-leveling 100% solids polyurea control joint filler.
 2. Resistant to diesel spills.
 3. Location: Control Joints.
 4. Acceptable Product: TF-100 Control Joint Filler, Sonneborn Building Products, Shakopee, MN.
- E. Repair Sealant (Designation RS):
 1. Two component 100% solids polyurea crack repair compound.
 2. Location: Saw-cut joints.
 3. Acceptable Product: TF-100CR, Sonneborn Building Products, Shakopee, MN.

2.3 ACCESSORIES

- A. Joint Cleaner:
 1. Chemical cleaners required by sealant manufacturer for substrates encountered, compatible with sealant backing bond breaker materials.
 2. Free of substances capable of staining, corroding, or harming:
 - a. Joint substrates.
 - b. Adjacent nonporous surfaces.
 - c. Sealant.
 - d. Sealant backing.
 3. Formulated to promote optimum adhesion of sealants to joint substrates.
- B. Primer:
 1. Dyed coating material required by sealant manufacturer for enhancing sealant adhesion to joint substrates.
 2. Non-staining to joint substrate beyond the substrate surface.
 3. Required for use unless not required by results of:
 - a. "Manufacturer's sealant-substrate compatibility and adhesion test" described under Source Quality Control.
 - b. "Field hand-pull adhesion test" under Field Quality Control.
- C. Sealant Backing Bond Breaker Rod:
 1. Non-staining material.
 2. Compatible and non-adhering to sealant when tested in accordance with ASTM C1087.
 3. Compatible with sealant, joint substrates, primers, and other sealant backing bond breakers.
 4. Sealant manufacturer approved.
 5. Sized and shaped to provide optimum performance and backing to sealant.
 6. Preformed, compressible, resilient, non-staining, non-outgassing, non-waxing, non-extruding, cylinder-shaped plastic foam rods compliant with ASTM D1056.
 7. Open Cell Polyurethane: Use not permitted unless required by sealant manufacturer.
 8. Closed Cell Polyethylene:
 - a. Non-absorbent to liquid water.
 - b. Use in wall and ceiling joints unless otherwise required by sealant manufacturer.
 9. Reticulated Polymeric: Sof®-Rod, Nomaco, Inc.
 10. Unless otherwise required by sealant manufacturer, oversize rod to be larger than joint width by following minimum amounts:
 - a. Open Cell Polyethylene: 50 percent.
 - b. Closed Cell Polyethylene: 33 percent.
 - c. Reticulated Polymeric: 25 percent.
- D. Elastomeric Tubing Joint Filler:
 1. Neoprene, butyl, EPDM, or silicone tubing compliant with ASTM D1056.
 2. Shore A hardness of 70.
 3. Compatible with sealant, joint substrates, primers, and other sealant backing bond breakers.
 4. Use in pavement joints, unless otherwise required by sealant manufacturer.
 5. Use sealant backing bond breaker tape to separate sealant from rod.
 6. Unless otherwise required by sealant manufacturer, oversize rod to be larger than joint width by 25 percent the following minimum amounts:

- E. Sealant Backing Bond Breaker Tape:
 1. Pressure sensitive polyethylene tape or tetrafluorethylene self-adhesive tape required by sealant manufacturer to suit application.
 2. Minimum Thickness of 11 mils.
- F. Masking Tape: Non-staining, non-absorbent material compatible with sealants and surfaces adjacent to joints.
- G. Tooling Liquids: Non-staining material approved by manufacturer to reduce adhesion of sealant to joint finishing tools.

2.4 MIXES

- A. Comply with manufacturer's instructions.
- B. Mix thoroughly with mechanical mixer without mixing air into sealants.
- C. Continue mixing until sealant is uniform in color and free from streaks of unmixed materials.

2.5 SOURCE QUALITY CONTROL

- A. General: Comply with requirements of Section 014500.
- B. Tests:
 1. Coordinate testing of sealant compatibility and adhesion to:
 - a. Sealant backing materials.
 2. Manufacturer's Sealant-Substrate Compatibility and Adhesion Test:
 - a. Test Methods:
 - 1) Determine if priming and other specific joint preparation techniques are not required to obtain rapid, optimum adhesion of sealants to joint substrates.
 - 2) Comply with ASTM C510, ASTM C794, and ASTM C1087.
 - b. Submit not less than 9 pieces 3 by 5 inches in size of each type of material, including joint substrates, shims, sealant backing, and miscellaneous materials.
 - c. Schedule sufficient time for testing and analysis of results to prevent delay in the progress of the Work.
 - d. Investigate sealant material's failing compatibility/adhesion tests and obtain manufacturer's written instructions for corrective measures, including the use of specially formulated primers.
 - e. Include in Test Report, Manufacturer's:
 - 1) Interpretation of test results regarding sealant performance.
 - 2) Primers and substrate preparation required to achieve adhesion.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine conditions and proceed with work in accordance with Section 017300.
- B. Ensure that concrete and masonry have cured minimum of 28 days.
- C. Verify that sealant backing is compatible with sealant.
- D. Verify that substrate surface:
 1. Is within manufacturer's moisture content range.
 2. Complies with manufacturer's cleanliness and surface preparation requirements.
- E. Joint Width:
 1. Verify joints are greater than minimum widths required by manufacturer.
 2. If joints are narrower than minimum required widths, widen narrow joints to indicated width.
 3. Do not place sealant in joints narrower than manufacturer's required minimum.

3.2 PREPARATION

- A. Prepare, clean, and prime joints in accordance with manufacturer's instructions.
- B. Remove loose materials and matter which might impair adhesion of primer and sealant to substrate.

- C. Remove form release agents, laitance, and chemical retarders, which might impair adhesion of primer and sealant to concrete and masonry surfaces.
- D. Comply with ASTM C1193.
- E. Protect elements adjoining and surrounding work of this Section from damage and disfiguration.
- F. Priming:
 - 1. Prime joint substrates unless priming is not required by:
 - a. "Manufacturer's sealant-substrate compatibility and adhesion test" described in Source Quality Control article.
 - b. "Field hand-pull adhesion test" described in Field Quality Control article.
 - 2. Apply primer to substrate areas where joint sealant is to adhere.
 - 3. Comply with manufacturer's sequencing requirements for joint priming and sealant backing bond breaker rod installation to assure required primer application coverage and rate without placement of primer on backer rod surface to be in contact with sealant and avoid three-sided sealant adhesion.
 - 4. Do not allow spillage and migration of primer onto surfaces not to receive primer.
 - 5. Install sealant to primed substrates after primer has cured.
- G. Masking Tape:
 - 1. Use masking tape to prevent contact of primer and sealant with adjoining surfaces that would be permanently stained or damaged by:
 - a. Contact with primer and sealant.
 - b. Cleaning methods used to remove primer and sealant smears.
 - 2. Place continuously along joint edges.
 - 3. Apply masking tape so it does not shift in position after placement.

3.3 APPLICATION

- A. General:
 - 1. Comply with requirements of Section 017300.
 - 2. Comply with results and recommendations from:
 - a. "Manufacturer's compatibility and adhesion test" described in Source Quality Control Article.
 - b. "Field hand-pull adhesion test" described in Field Quality Control article.
 - 3. Provide compatible sealant system between dissimilar assemblies and adjacent construction.
 - 4. Seal locations necessary to create and secure continuous air, water, and vapor enclosure even though Contract Documents may not indicate all locations; do not seal weep holes.
 - 5. Seal to prevent migration of water, vapor, and air through joints.
 - 6. Comply with manufacturer's required application temperature and relative humidity ranges. Consult manufacturer when sealant cannot be applied within these ranges.
- B. Sealant Backing Bond Breaker:
 - 1. Measure joint dimensions and size materials to achieve manufacturer-required width-to-depth ratios.
 - 2. Install to achieve sealant depth and sealant contact depth no greater than distance required by manufacturer for sealant material, joint width, and joint movement range.
 - 3. Install using blunt instrument to avoid puncturing.
 - 4. Do not:
 - a. Twist, puncture, and tear material.
 - b. Leave gaps between ends of material pieces.
 - c. Stretch or compress material along its length.
 - d. Stretch or compress tape material along its width.
 - 5. Install to provide optimum joint profile and in manner to provide not less than 1/4 inch sealant depth when tooled.
 - 6. Install tape where insufficient joint depth makes use of rod not possible. Match tape width to joint width to prevent three-side adhesion. Do not wrap tape onto sides of the joint.
 - 7. Replace backing bond breaker materials which have become wet with dry materials prior to sealant application.

- C. Sealant:
 - 1. Install sealants at same time as installation of backing bond breaker materials.
 - 2. Do not exceed manufacturer's required:
 - a. Material shelf life.
 - b. Material working life.
 - c. Installation time after mixing.
 - 3. Comply with manufacturer's requirements for applying different sealant materials in direct contact with each other.
 - 4. Use gun nozzle size to suit joint size and sealant material.
 - 5. Install sealant with pressure-operated devices to form uniform continuous bead.
 - 6. Use sufficient pressure to fill voids and joints full.
 - 7. Install to adhere to both sides of joint.
 - 8. Install to not adhere to back of joint; provide sealant backing.
 - 9. Install sealant free of air pockets and embedded matter.
 - 10. Recess sealant 1/8 inch from surface of pavements and horizontal surfaces.
- D. Sealant Tooling:
 - 1. Comply with manufacturer's tooling method requirements.
 - 2. Tool sealant within manufacturer's tooling time limits.
 - 3. Tooling liquids:
 - a. Comply with manufacturer's requirements regarding use.
 - b. Do not use when not permitted by manufacturer.
 - c. Do not allow tooling liquids to come in contact with surfaces receiving sealant.
 - 4. Produce smooth exposed surface.
 - 5. Tool Sealant to be Free of:
 - a. Air pockets and voids.
 - b. Embedded impurities.
 - c. Surface ridges, sags, and indentations.
 - 6. Achieve full sealant contact and adhesion with substrate.
 - 7. Form a concave tooled joint shape indicated in Section A of Figure 5 of ASTM C1193, unless otherwise indicated.
 - 8. Remove excess sealant from surfaces adjacent to joint.
 - 9. Allow acrylic latex sealant to achieve firm skin before paint is applied.
- E. Masking Tape:
 - 1. Remove immediately after tooling sealant and before sealant skin forms.
 - 2. Remove without disturbing sealant.

3.4 FIELD QUALITY CONTROL

- A. General: Comply with requirements of Section 014500.
- B. Field Hand-Pull Adhesion Test:
 - 1. At field sample or mock-up:
 - a. Before sealant installation is commenced, test materials for indications of staining and poor adhesion to substrate.
 - b. Perform after sealants have fully cured.
 - c. Perform under observation of Architect and manufacturer's technical representative.
 - 2. Subsequent to commencement of sealant installation:
 - a. Perform under observation of manufacturer's technical representative.
 - b. Perform minimum of 4 times prior to completion of sealant installation.
 - c. Schedule tests at evenly-spaced intervals during sealant installation at discretion of sealant manufacturer.
 - 3. Procedure:
 - a. Make knife cut through sealant from side to side of joint.
 - b. At joint's sides, make two cuts approximately 2 inches long meeting cut made across joint width.
 - c. Place a mark on cut portion of sealant 1 inch from cut across joint width.
 - d. Use fingers to grasp 2 inch piece of sealant firmly between mark and cut across joint width.

- e. Pull cut portion outward at an angle of 90 degrees from sealant face.
 - f. Use a ruler to measure distance that sealant is pulled.
 - g. Pull uncut sealant out of joint to distance recommended by manufacturer for testing adhesive capability, but not less than a distance equal to maximum movement capability in extension.
 - h. Hold extended sealant for a minimum of 10 seconds.
 - i. If adhesion is proper, sealant should tear cohesively in itself or be difficult to adhesively remove from joint substrate.
4. Summarize test results in test report. Indicate:
 - a. Sealants tested.
 - b. Joint substrates.
 - c. Cohesive failures.
 - d. Adhesive failures.
 - e. Pull distance used.
 - f. Actions to correct failures and non-complying conditions.
 5. In absence of noncomplying conditions, sealants which do not indicate adhesive failure from testing will be considered satisfactory.
 6. Replace sealant removed from test locations by applying sealant in accordance with manufacturer's requirements for applying sealant to previously sealed joints.

3.5 CLEANING

- A. Clean excess sealants and sealant smears from adjacent surfaces as application progresses; comply with sealant manufacturer's requirements and manufacturer of surface in which joints occur.
- B. Repair or replace defaced or disfigured finishes caused by work of this Section and replace where installation techniques result in unsatisfactory joining of materials and unsightly conditions.

3.6 PROTECTION

- A. Protect in accordance with Section 017300.
- B. Protect sealants from contamination until cured.
- C. Protect sealant joints in horizontal surfaces from foot and vehicular traffic until cured.

END OF SECTION

SECTION 086300
METAL-FRAMED SKYLIGHTS

PART 1 GENERAL

1.1 SUMMARY

- A. Section Includes:
1. Aluminum skylight systems, complete with reinforcing, shims, anchors, and attachment devices.
 2. Flashing and trim integral to skylight.
 3. Accessories necessary to complete Work.
- B. Related Sections:
1. Section 061053 - Miscellaneous Rough Carpentry: Preparation of adjacent work to receive anchors required for support of skylight systems.
 2. Section 079200 - Joint Sealants: Perimeter sealants and backup materials.
 3. Section 088000 - Glazing.

1.2 SYSTEM REQUIREMENTS

- A. Design Requirements:
1. Drawings are schematic and do not purport to identify nor solve problems of thermal or structural movement, glazing, anchorage or moisture disposal. Requirements shown by details are intended to establish basic dimension of unit, sight lines and profiles of members.
 2. Employ registered professional engineer, licensed to practice structural engineering in jurisdiction where Project is located, to engineer each component of skylight system.
 3. System manufacturer is responsible for designing system, preparing depicting sketches and fabricating skylight systems, including anchorage, flashing, and structural requirements, and necessary modifications to meet specified requirements and maintain visual design concepts.
 4. System shall accommodate expansion and contraction due to structural movement, movement within system, movement between system and perimeter framing components, dynamic loading and release of loads, and deflection of structural support framing, without detriment to appearance or performance, without damage to system or components, and without damage to perimeter seals.
 5. Perimeter conditions and clearances shall allow for installation tolerances, expansion and contraction of adjacent materials, and sealant manufacturer's recommended joint design.
 6. Assemblies shall be free from vibration harmonics, rattles, wind whistles, and noise due to thermal and structural movement, and wind pressure.
 7. Attachments shall accommodate anticipated movement with no possibility of loosening, weakening, or fracturing connections between adjoining skylight components or between skylight components and building structure.
 8. Provide concealed fastening wherever possible.
 9. Ensure exterior glass retaining components utilize pressure plate arrangement or pocket glazing engagement.
 10. Do not calculate glass, sealants, and interior finishes as contributing to framing member strength, stiffness, or lateral stability.
 11. System shall drain water entering joints and condensation occurring within system by drain holes and gutters of adequate size to evacuate water without infiltration to interior.
 12. Provide baffles at weep hole locations.
 13. Provide uniform color and profile appearance at components exposed to view.
- B. Structural Requirements:
1. Dead Loads: Support actual weight of materials and construction, but not less than unit dead loads prescribed by applicable building codes and ANSI A58.1.
 2. Live and Snow Loads: Support design 30 psf ground snow load but not less than minimum uniformly distributed live load of 30 psf.

3. Concentrated Loads: Refer to General Structural Notes on Structural Drawings.
 - a. Support minimum concentrated load of 200 lb at any point along rafters.
4. Deflection under uniform loading: Limit deflections of framing members as follows at design pressure:
 - a. Maximum Deflection Perpendicular to Plane of Glazing: $L/175$ of span or 3/4 inch.
 - b. Maximum Deflection Parallel to Plane of Glazing at Ridges and Corners: 75 percent of glass edge bite or 3/8 inch, whichever is less.
- C. Thermal Requirements:
 1. Framing systems shall accommodate expansion and contraction movement due to surface temperature differential of 180 degrees F without causing buckling, stress on glass, failure of joint seals, excessive stress on structural elements, reduction of performance or other detrimental effects.
 2. Do not transmit thermal movement from skylight components to other building elements
- D. Interface with Adjacent Construction:
 1. Furnish inserts and anchoring devices which need to be preset and built into structure to appropriate trade.
 2. Supply on timely basis to avoid delay in Work.
 3. Instruct other trades of proper location and position.
 4. Furnish setting drawings, diagrams, templates and installation instructions.
 5. Integrate design and connections with adjacent construction.
 6. Accommodate allowable tolerances and deflections for structural members in installation.
- E. Testing Requirements:
 1. Skylight system shall be tested and labeled as complying with AAMA / WDMA / CSA 101 / I.S.2 / A440.
 2. The label shall state the name of the manufacturer, the approved labeling agency, the product designation and the performance grade rating per AAMA / WDMA / CSA 101 / I.S.2 / A440.
 3. Skylight system shall be rated separately for both positive and negative pressure.

1.3 SUBMITTALS

- A. General: Submit in accordance with General Conditions Section 4.14.
- B. Product Data:
 1. Submit product data for each manufactured product.
 2. Describe physical, structural, and performance characteristics of products proposed for use.
 3. Include information for factory finishes, accessories and other required components.
- C. Shop Drawings:
 1. Submit shop drawings bearing seal and signature of Professional Engineer responsible for design.
 2. Submit drawings indicating plan and elevation views as appropriate, detailed design, system and component dimensions, member profiles, joint locations, arrangement of units, member connections, and thickness of various components.
 3. Show following items:
 4. Location of work points.
 5. Details of special shapes.
 6. Reinforcing.
 7. Drainage details and flow diagrams.
 8. Anchorage system and location and types of field welding.
 9. Framed opening requirements and tolerances.
 10. Interfacing with building construction.
 11. Provisions for expansion and contraction including joint locations and details.
 12. Anticipated deflection under loads.
 13. Thermal breaks.
 14. Indicate glazing details, methods, and internal sealant requirements.
 15. Clearly indicate locations of exposed fasteners and joints for Architect's acceptance.

16. Clearly show where and how manufacturer's system deviates from Contract Drawings and Specifications.
- D. Samples:
1. System samples: Submit 12 by 12 inch assembled composite sample including typical mullion intersection with glazing material installed.
 2. Finish samples:
 - a. Submit samples indicating quality of specified finish on alloys used for work, 12 inches long for extrusions and 6 inches square for sheet materials.
 - b. Where normal texture or color variations are expected, include additional samples illustrating range of variation.
- E. Submit following Informational Submittals:
1. Design Data: Submit criteria used in design of system including dead load, live load, snow load, concentrated loads, wind loads, and other pertinent design data.
 2. Support reactions design data.
 3. Certifications specified in Quality Assurance article.
 4. Qualification Data: Manufacturer's, engineer's, and installer's qualification data.
 5. Manufacturer's instructions.
- F. Closeout Submittals:
1. Submit under provisions of General Conditions Section 9.8.
 2. Warranty: Submit specified warranty.

1.4 QUALITY ASSURANCE

- A. Single Source Responsibility:
1. Provide skylight systems that are products of a single manufacturer.
- B. Engineer Qualifications: Registered professional engineer licensed to practice structural engineering in jurisdiction where Project is located, with minimum of 5 years experience in design of aluminum skylight systems.
- C. Manufacturer Qualifications: Company specializing in manufacturing products specified in this Section with minimum 5 years documented experience in fabrication of aluminum skylight systems.
- D. Welder Qualifications: AWS certified within past 12 months for each type of weld required.
- E. Erector Qualifications: Acceptable to manufacturer with documented experience on at least 5 projects of similar nature in past 5 years.
- F. Certifications:
1. Submit certificates verifying AWS qualifications for each welder employed on Project.
 2. Submit manufacturer's certification that products furnished for Project meet or exceed specified requirements.
 3. Engineering certifications.

1.5 DELIVERY, STORAGE, AND HANDLING

- A. Comply with requirements of Section 016000.
- B. Protect finished surfaces to prevent damage.
- C. Do not use adhesive papers or sprayed coatings which become firmly bonded when exposed to sun.
- D. Do not leave coating residue on surfaces.

1.6 PROJECT CONDITIONS

- A. Environmental Requirements: Comply with manufacturer's written requirements for ambient and surface temperatures under which products can be installed and verify joint conditions are suitable for installation of materials.

- B. Existing Conditions:
 - 1. When scheduling permits, field verify existing conditions prior to fabricating Work of this Section.
 - 2. Verify that field measurements are as indicated on shop drawings.

1.7 WARRANTY

- A. Provide warranties in accordance with General Conditions Section 9.8.
- B. Warrant installed skylight system to be free from defects in material and workmanship for 10 years from date of Final Completion.
- C. Provide written warranty in form acceptable to Owner jointly signed by manufacturer, installer and Contractor warranting work and agreeing to replace defective components including material and labor costs.
- D. Warrant installed system to be watertight, free from defects in materials and workmanship, free from glass breakage due to defective design.
- E. Warrant Installed System will be:
 - 1. Free from uncontrolled water infiltration and air infiltration beyond specified tolerances.
 - 2. Free from rattles, wind whistles and noise due to thermal and structural movement and wind pressure.
 - 3. Structurally sound and free from distortion.
- F. Provide Coverage Against:
 - 1. Glass breakage or glazing gasket slippage or "popping" from frames due to design wind, expansion or contraction movement or structural loading.
 - 2. Abnormal deterioration or dislocation of glazing sealants and gaskets due to sunlight, weather or oxidation.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Acceptable Skylight Manufacturers:
 - 1. Basis of Design: Kawneer 2000 Architectural Aluminum Skylight System
 - 2. Naturalite Skylight Systems, Terrell, TX.
 - 3. Super Sky Products, Inc., Mequon, WI.
- B. Acceptable Vertical Glazing Manufacturers:
 - 1. Basis of Design: Kawneer 1600 Wall System 1 Curtain Wall
 - 2. Naturalite Skylight Systems, Terrell, TX.
 - 3. Super Sky Products, Inc., Mequon, WI.

2.2 FRAMING MATERIALS AND ACCESSORIES

- A. Aluminum:
 - 1. ASTM B221, alloy 6063-T5 or T6 for extrusions; ASTM B209, alloy 5005-H16 for sheets; or other alloys and temper recommended by manufacturer appropriate for specified finish.
 - 2. Minimum thickness of 0.125 inch for framing members and 0.050 inch for glazing stops and similar components.
- B. Flashings: Sheet aluminum, same finish as for system components; secured with concealed fastening method; thickness as required for conditions encountered.
- C. Thermal Break: Manufacturer's standard system to provide thermal separation between exterior and interior components.
- D. Internal Reinforcing:
 - 1. ASTM A36 for carbon steel; or ASTM B308 for structural aluminum.
 - 2. Shapes and sizes to suit installation.
 - 3. Shop coat steel components after fabrication with SSPC Paint 11 alkyd type zinc chromate primer.

- E. Inserts and Anchorage Devices:
 1. Manufacturer's standard formed or fabricated assemblies, steel or aluminum, of shapes, plates, bars or tubes.
 2. Hot-dip galvanize steel assemblies after fabrication, comply with ASTM A123, 2.0 ounce minimum coating.

- F. Fasteners:
 1. Non-magnetic stainless steel or cadmium plated steel coated with yellow or silver iridescent plating, compatible with materials being fastened.
 2. Series 300 stainless steel for exposed locations. Cadmium plated steel with 0.0005 inch plating thickness and color chromate coated for concealed locations.
 3. Provide nuts or washers of design having means to prevent disengagement; deforming of fastener threads is not acceptable.
 4. Provide concealed fasteners wherever possible.
 5. For exposed locations, provide fasteners with finish matching item fastened.
 6. Use heat-strengthened, not case hardened fasteners.

- G. Self-Drilling, Self-tapping Fasteners: Elco Dril-Flex with Stalgard Finish.

- H. Shims: Non-staining, non-ferrous, type as recommended by system manufacturer.

- I. Protective Coatings: Cold applied asphalt mastic complying with SSPC-Paint 12, compounded for 30 mil thickness for each coat; or SSPC Paint 11 alkyd type zinc chromate primer.

- J. Glazing Gaskets:
 1. Compression type design, replaceable, molded or extruded silicone, neoprene, or ethylene propylene diene monomer (EPDM).
 2. Comply with ASTM C509 or C864.
 3. Profile and hardness as necessary to maintain uniform pressure for watertight seal.
 4. Manufacturer's standard black color.
 5. Factory molded corners required at interior.

- K. Weep Hole Baffles: Open cell polyurethane foam sized for installation.

- L. Internal Sealants: Types recommended by system manufacturer to remain permanently elastic, tacky, non-drying, non-migrating and weathertight.

2.3 GLASS AND GLAZING ACCESSORIES

- A. Skylight Glazing:
 1. Insulating Glass: 1-1/8 inch consisting of 1/4 inch clear laminated safety glass exterior lite, 1/2 inch sealed air space and 3/8 inch frosted laminated safety glass interior lite
 2. Insulating Glass for Vertical Glazed End: 1 inch consisting of 1/4 inch clear laminated safety glass exterior lite, 1/2 inch sealed air space and 1/4 inch frosted laminated safety glass interior lite.
 3. 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.
 4. 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.
 5. Glazing Weatherseal Sealant: Neutral-curing silicone sealant recommended by skylight and sealant manufacturers for this use and furnished by skylight manufacturer.
 - a. 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.
 - b. 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.
 - c. Color: Black.

2.4 SYSTEM FABRICATION

- A. Take accurate field measurements to verify required dimensions prior to fabrication.
- B. Location of exposed joints are subject to Architect's acceptance.
- C. Provide concealed thermal breaks to prevent exterior and interior aluminum framing members from being in contact with each other.
- D. Fabricate components in accord with approved shop drawings. Remove burrs and ease edges. Shop fabricate to greatest extent practicable to minimize field cutting, splicing, and assembly. Disassemble only to extent necessary for shipping and handling limitations.
- E. Welding:
 - 1. Comply with recommendations of American Welding Society.
 - 2. Performed by AWS qualified welders using recommended electrodes and methods to avoid distortion and discoloration.
 - 3. Grind exposed welds smooth and flush with adjacent surfaces before finishing; restore mechanical finish.
- F. Steel Components:
 - 1. Clean surfaces after fabrication and immediately prior to application of primer in accord with SSPC-SP2 or SSPC-SP3 at manufacturer's option.
 - 2. Apply specified shop coat primer in accord with manufacturer's instructions to provide 2.0 mil minimum dry film thickness.
- G. Fabricate components true to detail and free from defects impairing appearance, strength or durability. Contour outdoor horizontal or purlin glazing retainers to minimize water ponding and ice or snow buildup.
- H. Fabricate components to allow for accurate and rigid fit of joints and corners. Match components carefully ensuring continuity of line and design. Ensure joints and connections will be flush and weathertight. Ensure slip joints make full, tight contact and are weathertight.
- I. Reinforce components at anchorage and support points, at joints, and at attachment points for interfacing work.
- J. Provide structural reinforcing within framing members where required to maintain rigidity and accommodate design loads.
- K. Provide holes or slots, deflector plates, internal flashings, and sealants to accommodate internal weep and drainage system.
- L. Rafter and sill extrusions are to act as gutters and weep water to exterior; do not penetrate drainage areas with fasteners.
- M. Allow for adequate clearance around perimeter of system to enable proper installation and for thermal movement within system.
- N. Separate dissimilar metals with protective coating or preformed separators to prevent contact and corrosion.

2.5 FINISH

- A. Color Anodized, to be selected by Architect:
 - 1. Conforming to AA-M12C22A42 or A43 or A44.
 - 2. Architectural Class I, etched, medium matte, anodic coating 0.7 mil minimum thickness.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine conditions and proceed with Work in accordance with Section 017300.
- B. Verify dimensions, tolerances, and method of attachment with other Work.

3.2 INSTALLATION

- A. Install in accordance with Section 017300.
- B. Align assemblies true to line, free of warp or twist, aligning with adjacent Work.
- C. Provide attachments and shims to permanently fasten system to building structure.
- D. Anchor securely in place, allowing for required movement, including expansion and contraction.
- E. Separate dissimilar materials at contact points, including metal in contact with masonry or concrete surfaces, with protective coating or preformed separators to prevent contact and electrolytic action.
- F. Set sill members in bed of sealant. Set other members with internal sealants and baffles to provide weathertight construction.
- G. Install flashings, bent metal closures, corners, gutters, and other accessories as required or detailed.

3.3 FIELD QUALITY CONTROL

- A. Site Tests: Comply with requirements of Section 014500.
- B. Independent testing laboratory will perform hose test;

3.4 CLEANING

- A. Clean surfaces in compliance with manufacturer's recommendations; remove excess mastic, mastic smears, and other foreign materials.
- B. Clean metal surfaces exercising care to avoid damage.

END OF SECTION

SECTION 088000

GLAZING

PART 1 - GENERAL

1.1 SUMMARY

- A. Section Includes:
 - 1. Glass for interior borrowed light and sidelight frames.
 - 2. Associated glazing sealants and accessories.
- B. Related Sections:
 - 1. Section 086300 - Metal-framed Skylights.

1.2 SYSTEM REQUIREMENTS

- A. Design Requirements:
 - 1. Provide continuity of building enclosure to maintain continuous air and vapor barrier throughout glazed assembly from glass pane to heel bead of sealant.
 - 2. Employ registered professional engineer, licensed to practice structural engineering, to engineer each component of glass and glazing system.
- B. Glazing Requirements:
 - 1. Comply with CPSC 16 CFR 1201 and ANSI Z97.1 for safety requirements of glazing materials.
 - 2. Glass thickness, where indicated, are minimum requirements and are to be confirmed by glass manufacturer.
 - 3. Provide glass of thickness and heat treatment (annealed, heat strengthened or fully tempered) as necessary to prevent temperature stress breakage.
 - 4. Use 2.5 safety factor of glass to statistical probability of failure (8 lites/1000).
 - 5. Obtain safety glazing products permanently marked with certification label of the Safety Glazing Certification Council or another certification agency acceptable to authorities having jurisdiction.

1.3 SUBMITTALS

- A. General: Submit in accordance with General Conditions Section 4.14.
- B. Product Data: Manufacturer's product data for each type of glass and glazing material specified, including glazing accessories and glazing sealants.
- C. Shop Drawings:
 - 1. Sections and details of glass and glazing materials installation at framing members including head, mullions, transoms, jambs and sills.
 - 2. Stamp shop drawings with seal and signature of professional engineer responsible for design.
- D. Samples: 12 inches by 12 inches in size illustrating color of glass.
- E. Submit following Informational Submittals:
 - 1. Test Reports:
 - a. Glazing sealant indicating substrate adhesion.
 - b. Glazing sealant compatibility.
 - c. Glazing sealant manufacturer's recommendations.
 - 2. Certifications specified in Quality Assurance article.
 - 3. Qualification Data: Engineer's and installer's qualification data.
 - 4. Manufacturer's instructions.
- F. Closeout Submittals:
 - 1. Submit under provisions of General Conditions Section 9.8.
 - 2. Warranty: Submit specified warranty

1.4 QUALITY ASSURANCE

- A. Single Source Responsibility: Glass of each type to be produced by same manufacturer.
- B. Engineer Qualifications: Registered professional engineer licensed to practice structural engineering, with minimum of 5 years experience in design of glass and glazing.
- C. Installer Qualifications: Acceptable to manufacturer with documented experience on at least 5 projects of similar nature in past 5 years.
- D. Regulatory Requirements:
 - 1. Fabricate glass to comply with ASTM C1036, ASTM C1048, and ANSI Z97.1.
 - 2. Perform work in accordance with GANA Glazing Manual for glazing installation methods.
 - 3. Fire-Resistive Glazing Products for Door Assemblies: Products identical to those tested per ASTM E 152, labeled and listed by UL or another testing and inspecting agency acceptable to authorities having jurisdiction.
 - 4. Fire-Resistive Glazing Products for Window Assemblies: Products identical to those tested per ASTM E163, labeled and listed by UL or another testing and inspecting agency acceptable to authorities having jurisdiction.
- E. Certifications:
 - 1. Manufacturer's letter certifying glass and glazing materials compatibility.
 - 2. Manufacturer's letter certifying that sealed insulating glass units meet or exceed specification.
 - 3. Engineering certifications.

1.5 PRE-INSTALLATION CONFERENCE

- A. Conduct pre-installation conference in accordance with Section 013100.

1.6 DELIVERY, STORAGE, AND HANDLING

- A. Deliver, store, and handle products in accordance with Section 016000.

1.7 PROJECT CONDITIONS

- A. Environmental Requirements:
 - 1. Perform glazing when ambient temperature is above 40 degrees F.
 - 2. Perform glazing on dry surfaces only.

1.8 WARRANTY

- A. Manufacturer's standard 5 year warranty on hermetically sealed insulating glass units from the date of Final Completion.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Other Acceptable Manufacturers:
 - 1. Cardinal IG, Minnetonka, MN.
 - 2. Ford Glass, Allen Park, MI.
 - 3. Guardian Industries Corporation, Carleton, MI.
 - 4. Viracon, Owatonna, MN.

2.2 GLASS MATERIALS

- A. Insulating Glass Units:
 - 1. Quality: Double glazed, hermetically sealed around perimeter with continuous metal spacer filled with moisture absorbing desiccant per ASTM E2190, adhered to glass lights with:
 - a. Primary Seal: Polyisobutylene.
 - b. Secondary Seal: Silicone two-part.
 - 2. Total thickness: 1-1/8 inch.
 - a. Outer Light:
 - 1) Quality: Glazing select, float, complying with ASTM C1036.

- 2) Type: Heat-strengthened, complying with ASTM C1048, Kind HS, heat strengthened where required by heat load; tempered, complying with ASTM C1048, Kind FT fully tempered where required by code for safety glazing.
 - 3) Thickness: 1/4 inch.
 - 4) Low E Coating: No. 2, inner surface.
 - 5) Color: Clear.
- b. Inner Light:
 - 1) Quality: Glazing select, float.
 - 2) Type: Laminated safety glass
 - 3) Thickness: 3/8 inch.
 - 4) Color: Frosted.
 - c. Air Space: 1/2 inch dehydrated air space.

2.3 GLAZING ACCESSORIES

- A. Setting Blocks:
 1. Material: Preformed neoprene, compatible with sealant.
 2. Hardness: 80-90 Shore A durometer.
 3. Size: 0.10 inch for each square foot of glazing, not less than 4 inch length by width of channel minus 1/16 inch by 1/4 inch high.
 4. Location: Sill quarter points, centered minimum 4 inches from each edge.
 5. Requirement: Resistant to sunlight, weathering oxidation and permanent deformation under load.
- B. Spacer Shims:
 1. Material: Preformed neoprene, compatible with sealant.
 2. Hardness: 50-60 Shore A durometer.
 3. Size: Minimum 3 inch length by 1/2 height of glazing stop by thickness to suit application.
- C. Edge Blocks:
 1. Material: Preformed neoprene, compatible with sealant.
 2. Hardness: 60-70 Shore A durometer.
 3. Size: Minimum 4 inch length by width to support thickness of glass, allow nominal 1/8 inch clearance between edge of glass and edge bumper.
 4. Location: Place in vertical channel.
 5. Requirement: Resistant to sunlight, weathering, oxidation and permanent deformation under load.
- D. Glazing Tapes:
 1. Material: Preformed butyl or closed cell PVC foam with integral spacing device and containing paper release.
 2. Hardness: 10-15 Shore A durometer.
 3. Size: Continuous corner to corner.
 4. Acceptable Products:
 - a. Pre-Shimmed 440 Tape, Tremco, Inc., Beachwood, OH.
 - b. Norseal V-980, Saint Gobain Performance Plastics, Granville, NY.

2.4 GLASS FABRICATION

- A. Accurately size glass to fit openings allowing clearances following recommendations of "Glazing Manual" published by Glass Association of North America (GANA).
- B. Cut glass clean and carefully. Nicks and damaged edges will not be accepted. Replace glass with damaged edges.
- C. Heat Treatment:
 1. Ensure heat-strengthened and tempered glass is examined by glass manufacturer to detect and discard lights which exceed GANA and industry standard tolerances for bow.
 2. Where strengthening process results in essentially parallel ripples or waves, maximum allowable deviation from flatness at any peak-to-valley is 0.003 inch.
 3. Where bow tolerance and wave tolerance differ, stricter requirement governs.

4. Heat soak test tempered glass with sufficiently high temperature and duration to break glass containing nickel sulfide inclusions.
 5. As an alternative to heat soaking, other quality control measures may be used provided that glass with nickel sulfide inclusions is eliminated.
 6. Upon request by Architect or Owner, submit written quality control records attesting that procedures have been implemented to eliminate nickel sulfide inclusions or that heat soaking requirements have been accomplished.
 7. This Specification defines nickel sulfide inclusions as a glass material defect.
- D. Insulating Glass:
1. Fabricate insulated glass with double edge seals.
 2. Provide continuous (including corners) primary seal between glass and desiccant filled spacer fabricated from extruded polyisobutylene.
 3. Provide secondary seals completely covering spacer without voids or gaps and continuously bonded to both panes of glass.
 4. Verify thickness of secondary seal for silicone supported units for structural adequacy by testing.
 5. Ensure edge seal is capable of transferring at least 3 times force per linear inch produced by design pressure acting on outdoor glass alone or on indoor glass alone.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine conditions and proceed with Work in accordance with Section 017300.
- B. Verify that openings for glazing are correctly sized and within tolerances.
- C. Verify that glazing channel surfaces or recesses are clear, free of burrs, obstructions, irregularities, and glass is free of edge damage or imperfections.

3.2 PREPARATION

- A. Clean contact surfaces with solvent and wipe dry.
- B. Seal porous glazing channels or recesses with substrate compatible primer or sealer.
- C. Verify that materials used for cleaning edges of sealed insulating units are compatible with sealants and components and will not damage or cause deterioration of the integrity of the sealed insulating unit.

3.3 INSTALLATION

- A. Install glass units in accordance with Section 017300.
 1. Ensure weep and drainage holes are not blocked by sealants or setting blocks.
 2. Install so that appropriate markings remain permanently visible.
- B. Preformed Glazing Gaskets (Dry Method):
 1. Cut gasket to proper length.
 2. Weld joints by butting gasket and sealing junctions with sealant.
 3. Place setting blocks at quarter points, with edge blocks no more than 6 inches from corner.
 4. Rest glass on setting blocks and push against stop with sufficient pressure to ensure full contact and adhesion at perimeter.
 5. Install removable stops, avoiding displacement of gasket and exert pressure for full continuous contact.
 6. Install glass in gaskets as specified in Section 086300.
- C. Interior Dry Method (Tape and Tape):
 1. Cut glazing tape to length and install against permanent stop, projecting 1/16 inch above sight line.
 2. Place setting blocks at 1/4 points with edge blocks no more than 6 inches from corners.
 3. Rest glass on setting blocks and push against stop for full contact and adhesion at perimeter.
 4. Place glazing tape on free perimeter of glass in same manner described above.

5. Install removable stop, avoid displacement of tape, exert pressure on tape for full continuous contact.
 6. Knife trim excess or protruding tape.
- D. Tempered Glass:
1. Do not cut, seam, nip or abrade tempered glass.
 2. Install in windows and sidelights where required by code.

3.4 PROTECTION

- A. Protect finished Work under provisions of Section 017300.
- B. After installation, mark glass pane with an "X" by using removable plastic tape or paste.
- C. Do not mark heat absorbing or reflective glass units.

3.5 CLEANING

- A. Clean work under provision of Section 017300.
- B. Remove excess glazing materials from finished surfaces.
- C. Remove labels after work is completed.
- D. Wash and polish both faces not more than 7 days prior to Owner's acceptance of work.
- E. Comply with glass manufacturer's recommendations for final cleaning.

END OF SECTION

SECTION 099000
PAINTING AND COATING

PART 1 - GENERAL

1.1 SUMMARY

- A. Section Includes:
1. Preparation and priming of surfaces scheduled at end of this Section to receive finish coatings.
 2. Painting and finish coating of exterior and interior items and surfaces, including:
 - a. Scheduled and otherwise identified exterior surfaces.
 3. Exterior items and surfaces not requiring painting, unless noted otherwise:
 - a. Surfaces coated by other specification sections.
 - b. Items with factory applied finishes.
 - c. Aluminum, stainless steel, brass, bronze, chromium plate, copper, and nickel.
 - d. Moving parts of operating units.
 - e. Code required labels or equipment identification plates.
 4. Field finish coating of shop or factory primed items. Refer to individual Sections for priming requirements.
 5. Finish coatings schedule.
 6. Preparation work and coatings specified in this Section are in addition to shop and factory applied finishes and surface treatment specified in other Sections.

1.2 DEFINITIONS

- A. Conform to PDCA Glossary for interpretation of terms used in this Section except as modified below.
- B. Exposed Surfaces: Surfaces of products, assemblies, and components visible from any angle after final installation. Includes internal surfaces visible when operable doors, panels or drawers are open, and surfaces visible behind registers, grilles, or louvers.
- C. Concealed Surfaces: Surfaces permanently hidden from view in finished construction and which are only visible after removal or disassembly of part or all of product or assembly.
- D. Sheen: Degree of luster as measured with specular gloss meter in accordance with ASTM D523:
- | | | |
|-------------|-----------------|----------|
| Flat: | 85 degree meter | Below 15 |
| Eggshell: | 60 degree meter | 5 to 20 |
| Satin: | 60 degree meter | 15 to 35 |
| Semi-gloss: | 60 degree meter | 30 to 65 |
| Gloss: | 60 degree meter | 65 to 80 |
| High Gloss: | 60 degree meter | Over 80 |
- E. Industrial Maintenance Primers and Topcoats: High performance coatings formulated for and applied to substrates in industrial, commercial, or institutional situations for purpose resisting heavy abrasion, immersion, prolonged exposure to temperatures in excess of 250 degrees F, prolonged moisture condensation, chemical corrosion, solvent cleaning, or exterior exposure of metal structures.

1.3 SYSTEM REQUIREMENTS

- A. Perform testing according to following methods:
1. Solids Content by Volume: ASTM D2832.
 2. Surface Burning Characteristics: ASTM E84.
- B. Volatile Organic Compound Content: EPA TM-24 (40 CFR 60, Appendix A) [ASTM D3960].
- C. Application Requirements: Apply coatings to exposed surfaces of items and spaces unless specifically indicated otherwise.

- D. Surfaces Not To Be Painted:
 1. Aluminum and aluminum based alloys, copper and copper based alloys, lead and lead based alloys, nickel and nickel based alloys, stainless steel, plated architectural metals, and "weathering" metals.
 2. Elastomeric membranes and flashings, roofing materials, and exterior sealants and caulking.
 3. Rubber, vinyl, or plastic seals and bumpers.
 4. Surfaces concealed or inaccessible in finished construction unless specifically required.
- E. Materials and Products Not To Be Painted:
 1. Items with integral or factory-applied final finish unless indicated otherwise.
 2. Moving parts of operating equipment such as valve and damper operators, linkages, sensing devices, motor and fan shafts.
 3. UL, FM or other code-required labels, name plates, identification or performance rating labels.
- F. Interface with Adjacent Systems:
 1. Upon request from other trades, furnish information on characteristics of finish materials proposed for use to ensure compatibility of various coatings.
 2. Test compatibility of existing coatings, including shop applied primers and previously applied coatings, by applying specified special coating to small, inconspicuous area.
 3. If specified coating lifts or blisters existing coating, apply barrier or tie coat as recommended by coating manufacturer.
 4. If no compatible barrier or tie coat exists, remove existing coating completely and apply coating system as specified for new work.

1.4 SUBMITTALS

- A. General: Submit in accordance with Section 013300.
- B. Product Data:
 1. Submit product data, including label analysis for each product proposed for use.
 2. Specifically include percent solids-by-volume, volatile organic compound (VOC) content lb/gal, and lead content (percent of weight of dried film).
 3. Schedule:
 - a. List each material proposed for use, and cross-reference to specific coating system and substrate application.
 - b. Identify each material by manufacturer's catalog number, product name, and generic classification.
 - c. Include typewritten list identifying coating systems and colors applied to each room, space, or item.
- C. Color and Sheen Samples:
 1. Prepare 1 sample of each opaque finish coating specified in each color and sheen selected for appearance verification.
 2. Apply to 12 by 12 by 1/4 inch hardboard. Apply sufficient coating thickness to provide proper hiding and appearance.
 3. Label each sample to indicate material, color, and sheen.
- D. Coating System Samples:
 1. Prepare 1 sample of each transparent coating system scheduled on actual wood substrate proposed for use. Apply in each top coat color selected.
 2. Prepare 1 sample of each opaque coating system scheduled on actual substrate materials proposed for use. Apply in most common top coat color selected.
 3. Step back each coat and process at least one inch to show bare substrate and each coat and process in system build-up.
 4. Minimum sample size of 4 by 8 inches.
 5. Label each sample to indicate materials, color, sheen, DFT of each coat applied, and total system DFT.
- E. Submit following Informational Submittals:
 1. Certifications specified in Quality Assurance article.

2. Qualification Data: Applicator's qualification data.
 3. Manufacturer's instructions.
- F. Closeout Submittals:
1. Submit under provisions of Section 017800.
 2. Warranty: Submit specified warranty.

1.5 QUALITY ASSURANCE

- A. Single Source Responsibility:
1. Provide products of single manufacturer for use in each coating system.
 2. Do not mix products of different manufacturers without approval of Architect and manufacturers involved.
 3. Provide manufacturer recommended materials (base and tints) for deep tone colors.
- B. Applicator Qualifications: Company specializing in commercial painting and finishing with 3 years documented experience.
- C. Regulatory Requirements:
1. Comply with CPSC 16 CFR 1303 and other applicable federal, state, and local regulations limiting lead content of coatings to be applied.
- D. Certifications: Submit certification from manufacturer that materials furnished for use on this Project meet or exceed specified requirements and comply with applicable federal, state, and local requirements regarding lead and VOC content.

1.6 FIELD SAMPLES

- A. General: Comply with requirements of Section 014500.
- B. Sample Installation: Duplicate finishes of approved coating system samples on wall surfaces and other interior and exterior components selected by Architect.
- C. Provide full-coat finish on at least 100 sq ft of surface until required color, sheen, and texture are obtained. Simulate finished lighting conditions for review of in-place work.
- D. Request review by Architect of first finished item for each coating system for color, texture, quality, and workmanship.

1.7 DELIVERY, STORAGE, AND HANDLING

- A. Comply with requirements of Section 016000.
- B. Deliver products to site in manufacturer's sealed and labeled containers; inspect to verify compliance with specified requirements.
- C. Label containers to indicate manufacturer's name, product name and type of coating, brand code or stock number, date of manufacture, coverage, surface preparation, drying time, cleanup, color designation and instructions for mixing and reducing.
- D. Store coating materials in tightly covered containers in well ventilated area at ambient temperatures of 45 degrees F minimum and 90 degrees F maximum, unless required otherwise by manufacturer. Maintain containers in clean condition, free of foreign materials and residue with labels in legible condition.
- E. Take precautionary measures to prevent fire hazards and spontaneous combustion.

1.8 PROJECT CONDITIONS

- A. Environmental Conditions: Comply with more restrictive of following or manufacturer's requirements under which systems can be applied.
1. Provide continuous ventilation during application of coatings to exhaust hazardous fumes.
 2. Maintain temperature and humidity conditions for minimum 24 hours before, during, and 48 hours after application of finishes, unless longer times are required by manufacturer.
 3. Do not permit wide variations in ambient temperatures which might result in condensation on freshly coated surfaces.

4. Provide illumination of not less than 80 footcandles measured mid-height at substrate surface during application of coatings.
5. Apply water reducible coatings only when ambient and surface temperatures are between 50 degrees F and 90 degrees F.
6. Apply solvent reducible coatings only when ambient and surface temperatures are between 45 degrees F and 90 degrees F.
7. Do not apply coatings under any of following conditions:
 - a. When surfaces are damp or wet.
 - b. During snow, rain, fog, or mist.
 - c. When relative humidity is less than 20 percent or exceeds 85 percent.
 - d. When temperature is less than 5 degrees F above dew point.
 - e. When dust may be generated before coatings have dried.
 - f. In direct sunlight.
 - g. When wind velocity is above 20 mph.
8. Application of coatings may continue during inclement weather provided work areas and surfaces to be coated are enclosed and specified environmental conditions are maintained.

1.9 WARRANTY

- A. Comply with provisions of Section 017800.
- B. Warrant installation to be free from defects in material and workmanship for 5 years.
- C. Repair or replace defects occurring during warranty period.
- D. Defects include but are not limited to pinholes, crazing or cracking, loss of adhesion to substrate, deficient thickness, improper materials and workmanship.

1.10 EXTRA STOCK MATERIAL

- A. Furnish under provisions of Section 017800.
- B. Provide 1 unopened gallon container of each type of opaque top coating in each color and sheen used on Project.
- C. Store where directed with labels intact.

PART 2 - PRODUCTS

2.1 COATING MATERIALS - GENERAL

- A. Coatings:
 1. Ready-mixed, factory tinted, best professional grade produced by manufacturer.
 2. Use manufacturer's appropriate base materials to achieve required colors.
 3. Fully grind pigments to maintain soft paste consistency in vehicle.
 4. Capable of being dispersed into uniform, homogeneous mixture.
 5. Possess good flowing and brushing properties.
 6. Capable of drying or curing free of streaks or sags, and yielding specified finish.
 7. VOC content of field applied coatings shall comply with local governing authorities.

2.2 FINISH COATINGS SCHEDULE

- A. Exterior Coating Systems:
 1. Metal Surfaces:
 - a. Non-Ferrous Metals and Zinc-Coated (Galvanized) Steel.
 - 1) System No. EM-2 (Latex Finish):
Sheen: Semi-Gloss.
Prime Coat: Universal Primer at 2.0 mils.
Under Coat: Industrial Acrylic at 3.0 mils.
Top Coat: Industrial Acrylic at 3.0 mils.
System DFT: 8.0 mils.
 - b. Ferrous Metals - Uncoated:
 - 1) System No. EM-4 (Latex Finish):

Sheen: Semi-Gloss.
Prime Coat: Universal Primer at 2.0 mils.
Under Coat: Industrial Acrylic at 2.5 mils.
Top Coat: Industrial Acrylic at 2.5 mils.
System DFT: 7.5 mils.

- c. Ferrous Metals - Previously Coated:
 - 1) Coating System No. EM-6 (Latex Finish):
 - Sheen: Semi-Gloss.
 - Prime Coat: Touch-up existing with compatible primer.
 - Under Coat: Industrial Acrylic at 2.5 mils.
 - Top Coat: Industrial Acrylic at 2.5 mils.
 - System DFT: 5.0 mils (excluding existing and touch-up primer).

2.3 PRIME COATINGS

- A. Exterior Alkali Resistant Primer:
 - 1. Behr Paints: Premium Multi Surface Primer (436)
 - 2. Benjamin Moore: Regal Select Primer (546)
 - 3. PPG: Perma-Crete Alkali-Resistant Primer 4-603
 - 4. Sherwin-Williams: Loxon Masonry Primer (A24W8300)
- B. Etching Metal Primer:
 - 1. Behr: Krud Kutter Metal Clean and Etch
 - 2. Benjamin Moore: Cleaner / Etch (P83)
 - 3. Sherwin-Williams: DTM Wash Primer (B71Y1).

2.4 WATER REDUCIBLE COATINGS

- A. Exterior Premium Acrylic Latex House Paint:
 - 1. Behr:
 - a. Flat: Premium Plus Exterior Flat (4050)
 - b. Satin: Premium Plus Exterior Satin (9050)
 - c. Semi-Gloss: Premium Plus Exterior Semi-Gloss (5050)
 - 2. Benjamin Moore and Company:
 - a. Flat: Regal Select Flat (400)
 - b. Satin: Regal Select Low Luster (401)
 - c. Semi-Gloss: Regal Select Soft Gloss (402)
 - d. Gloss: NA
 - 3. PPG
 - a. Flat: Manor Hall Flat 70-101
 - b. Satin: Manor Hall Timeless Satin 70-410
 - c. Eggshell: Manor Hall Egg Shell 70-301
 - d. Semi-Gloss: Manor Hall Semi-Gloss 70-501
 - e. Gloss: Manor Hall Gloss 52-110
 - 4. Sherwin-Williams:
 - a. Flat: Duration Flat (K32).
 - b. Satin: Duration (K33).
 - c. Semi-Gloss: Metalatex SG (B42)
 - d. Gloss: Duration (K34)
- B. Industrial 100% Acrylic:
 - 1. Behr:
 - a. Semi-Gloss: Behr Pro e600 Exterior Semi-Gloss 670
 - 2. Benjamin Moore:
 - a. Semi-Gloss: Regal Select Soft Gloss (402)
 - b. Gloss: NA
 - 3. PPG
 - a. Satin: Pitt- Tech Satin DTM 90-1110 premium
 - b. Semi-Gloss: .Pitt Tech Plus DTM Acrylic Semi-Gloss 90-1210

- c. Gloss: Pitt Tech Plus DTM Acrylic DTM Gloss 90-1310 premium
- 4. Sherwin-Williams:
 - a. Semi-Gloss: Metalatex SG (B42)
 - b. Gloss: Duration Gloss (K34). SOLO 100% Acrylic Int/Ext Gloss, A77W00051

2.5 ACCESSORY MATERIALS

- A. Muriatic acid, mildewcide, TSP (tri-sodium phosphate), acidic-detergent, zinc sulfate, sodium metasilicate, and solvent: Commercially available, non-damaging to surface being cleaned; as specified in PDCA Specification Manual; acceptable to coating manufacturer.
- B. Metal Conditioner: Proprietary phosphoric acid based, etching type solution; acceptable to coating manufacturer.
- C. Rust Inhibitor: Water containing 0.32 percent of sodium nitrite and 1.28 percent by weight of secondary ammonium phosphate (dibasic); or water containing 0.2 percent by weight of chromic acid or sodium chromate or sodium dichromate or potassium dichromate.
- D. Spackling compound, putty, plastic wood filler, liquid de-glosser, latex patching plaster, latex base filler, thinners, and other materials not specifically indicated but required to achieve finishes specified: Pure, of highest commercial quality, compatible with coatings and acceptable to coating manufacturer.
- E. Do not use products of different manufacturers in combination.

2.6 MIXING

- A. Use factory prepared colors matching approved samples. Site tinting will not be permitted.
- B. Thoroughly mix and stir coatings before use to ensure homogeneous dispersion of ingredients. Prior to application, blend multiple containers of same material and color by pouring from one container to another several times to ensure uniform consistency, color, and smoothness.
- C. Mix only in clean mixing pails of material recommended by manufacturer to avoid contamination.
- D. Remove film which may form on surface of material in containers and strain material before using. Stir frequently during use to maintain pigments in suspension. Do not stir film into material.
- E. Apply coatings of consistency recommended by manufacturer. Thin only within recommended limits using thinners approved by coating manufacturer.

2.7 COLORS AND FINISHES

- A. Colors: Selected by Architect.
- B. Sheen:
 - 1. Metals – Semi-gloss, unless noted otherwise.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine conditions and proceed with work in accordance with Section 017300.
- B. Prior to applying alkali and acid sensitive coatings, test surface pH with universal pH paper placed against wetted surface. Substrate pH shall not exceed pH of clean wash water.
- C. Beginning of execution constitutes acceptance of existing conditions.

3.2 PREPARATION - GENERAL

- A. Protect completed construction from damage. Furnish drop cloths, shields, and protective methods to prevent spray, splatter, or droppings from disfiguring other surfaces.
- B. Remove surface hardware, mechanical diffusers, escutcheons, registers, electrical plates, light fixture trim, fittings, fastenings and similar items prior to preparing surfaces for finishing. Provide surface-applied protective masking for non-removable items. Carefully store removed items for reinstallation.

- C. Before beginning application of coatings, ensure surfaces are clean, dry, and free of dirt, dust, rust or rust scale, oil, grease, mold, mildew, algae, efflorescence, release agents, or any other foreign material which could adversely affect coating adhesion or finished appearance.

3.3 SURFACE PREPARATION FOR NEW WORK

- A. General:
 - 1. Correct minor defects.
 - 2. Remove temporary labels, wrappings, and protective coverings from surfaces to be coated.
 - 3. Seal stains, marks, and other imperfections which may bleed through surface finishes.
- B. Steel - Uncoated:
 - 1. Remove weld spatter by chipping or grinding.
 - 2. Clean interior and weather protected steel in accordance with SSPC SP2 "Hand Tool Cleaning" and SP3 "Power Tool Cleaning". Clean areas of excessive corrosion or scale in accordance with SSPC SP7 "Brush-Off Blast Cleaning".
 - 3. Clean exterior steel permanently exposed to elements in accordance with SSPC SP6 "Commercial Blast Cleaning".
 - 4. Apply metal conditioner to bare surfaces in accordance with manufacturer's recommendations, paying particular attention to abrasions, welds, bolts, and nuts. Allow to set as recommended by solution manufacturer. Rinse with clean water with rust inhibitor mixed with water or applied immediately following rinse. Allow to dry.
 - 5. Prime coat immediately.
- C. Steel - Prime Coated:
 - 1. Remove loose primer and rust to feather-edge at adjacent sound primer by cleaning in accordance with SSPC SP2 "Hand Tool Cleaning" and SP3 "Power Tool Cleaning".
 - 2. Apply metal conditioner to abrasions, welds, bolts, and nuts in accordance with manufacturer's recommendations. Allow to set as recommended by manufacturer. Rinse with clean water with rust inhibitor mixed with water or applied immediately following rinse. Allow to dry.
 - 3. Prime coat bare areas immediately.
- D. Galvanized Steel: Remove soluble and insoluble contaminants and corrosion. Sweep (Abrasive) Blasting per ASTM D6386 to achieve a uniform anchor profile (1.0 - 2.0 mils).

3.4 SURFACE PREPARATION OF PREVIOUSLY COATED SURFACES

- A. General:
 - 1. Remove cracked and deteriorated sealants and caulking.
 - 2. Remove chalk deposits and loose, blistered, peeling, scaling, or crazed finish to bare base material or sound substrate by scraping and sanding.
 - 3. Wash surfaces with solution of TSP to remove wax, oil, grease, and other foreign material; rinse, and allow to dry. Exercise caution that TSP solution does not soften existing coating.
 - 4. Abrade glossy surfaces by sanding or wiping with liquid de-glosser.
 - 5. Remove mildew as specified above.
 - 6. Test compatibility of existing coatings by applying new coating to small, inconspicuous area. If new coatings lift or blister existing coatings, request recommendation from Architect.
 - 7. Apply specified primer to surfaces scheduled to receive coatings.
- B. Metal:
 - 1. Remove rust from surfaces to bare metal in accordance with SSPC SP6 "Commercial Blast Cleaning".
 - 2. Exercise care not to remove galvanizing.
 - 3. Complete preparation as specified for new work.

3.5 APPLICATION

- A. General Requirements:
 - 1. Coat all surfaces specified, scheduled, illustrated, and otherwise exposed unless specifically noted otherwise.

2. Apply coatings of type, color, and sheen as selected.
 3. Apply products in accordance with Section 017300. Use application materials, equipment, and techniques as recommended by coating manufacturer and best suited for substrate and type of material being applied.
 4. Do not apply finishes to surfaces that are improperly prepared.
 5. Number of coats specified are minimum number acceptable.
 6. Apply coating systems to total dry film thickness scheduled. Apply material at not less than manufacturer's recommended spreading rate. Do not exceed maximum single coat thickness recommended by coating manufacturer. Do not double-back with spray equipment building up film thickness of two coats in one pass.
 7. Ensure that edges, corners, crevices, welds, and exposed fasteners receive dry film thickness equivalent of flat surfaces.
 8. Finish edges of coatings adjoining other materials or colors sharp and clean, without overlapping.
- B. Prime Coats:
1. Apply initial coat to surfaces as soon as practical after preparation and before subsequent surface deterioration.
- C. Intermediate and Top Coats:
1. Allow previously applied coat to dry before next coat is applied.
 2. Sand and dust lightly between coats as recommended by coating manufacturer.
 3. Apply each coat to achieve uniform finish, color, appearance, and coverage free of brush and roller marks, runs, misses, visible laps or shadows, hazing, bubbles, pin holes, or other defects.
 4. If stains, undercoats, or other conditions show through final topcoat, correct defects and apply additional topcoats until coating film is of uniform finish, color, and appearance..
- D. Reinstall trim, fittings, and other items removed for finishing.

3.6 FIELD QUALITY CONTROL

- A. General: Comply with requirements of Section 014000.
- B. Periodically test film thickness of each coat with wet film gage to ensure coatings are being applied to proper thickness.
- C. Immediately prior to Substantial Completion, perform detailed inspection of painted surfaces and repair or refinish abraded, stained, or otherwise disfigured surfaces.

3.7 CLEANING

- A. Promptly remove spilled, splashed, or spattered coatings. Clean spots, oil, and other soiling from finished surfaces using cleaning agents and methods which will not damage materials.
- B. If completed construction is damaged beyond normal cleaning or repair by painting operations, replace damaged items at no additional cost to Owner.
- C. Maintain premises and storage areas free of unnecessary accumulation of tools, equipment, surplus materials, and debris.
- D. Collect waste, cloths, and material which may constitute fire hazards and place in closed metal containers; remove from site daily along with empty containers.

3.8 PROTECTION

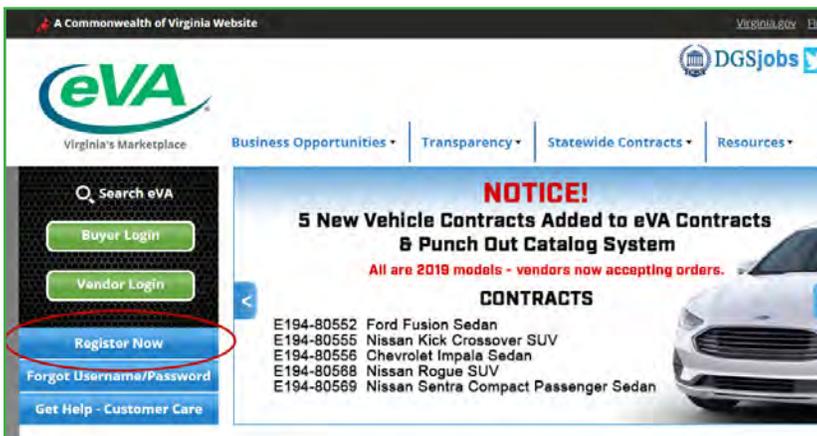
- A. Protect finished work in accordance with Section 017300.
- B. Protect work of other trades against damage from coating activities. Correct damage by cleaning, repairing, replacing, and recoating as acceptable to Architect.
- C. Provide "Wet Paint" signs and other methods to protect newly coated surfaces. Remove when directed or when no longer needed.

END OF SECTION



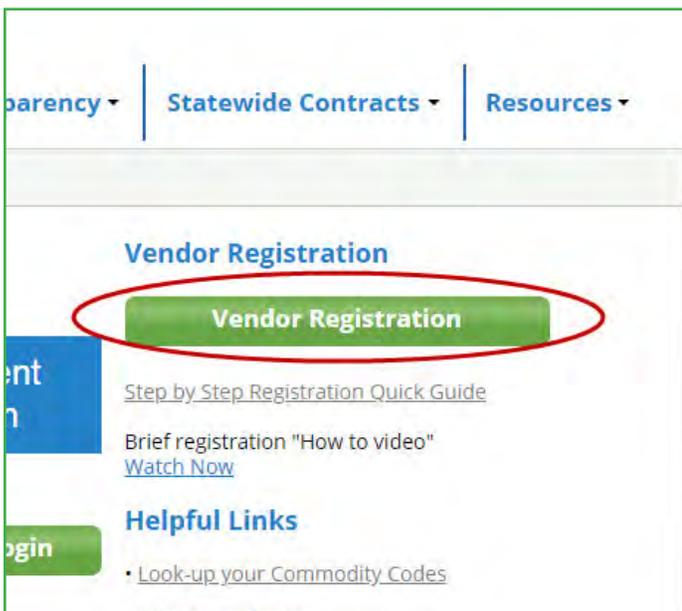
Step by Step Vendor Registration Instructions

Start by clicking the *Register Now* link on the eVA website homepage (www.eVA.virginia.gov).



Registration Checklist

1. **Company name** – Be sure to list a name that buyers will easily recognize.
2. **Federal Tax Identification Number (TIN)** – The 9 digit TIN or Social Security number that identifies your organization.
3. **Addresses & Contact information**
You will need street and/or PO box addresses, phone & fax numbers, and email addresses for orders, payments, bills, solicitations (business opportunities), and physical location.
4. **Commodity Codes** – Describes to buyers what your company sells. Use the *NIGP Code Look Up* link on the left hand menu of the eVA home page.



You can either begin a **New Registration**

Or you can choose **Add Location** or **Change Registration Type** to update an existing account

Search for your company location

Has your company done business with us in the past? If so, your company may already be in our database. Please use search.

Company Name:

Is your company listed ?

Yes, I found my Headquarters but not my Location → Click **Add Location** to create new Location for the existing Headq

Yes, my Account is activated but I don't know the login → Call Customer Care @ 1-866-289-7367 for help.

No, Register Now →

Headquarter Standard Name	Location Name	HQ Account	Registration Type	
Team MX	Tomahawk	No	Self-Registered	Add Location
Tom Gilbert	Michigan	Yes	Self-Registered	Add Location
Tom Tom Inc	Tom Tom Inc	Yes	Self-Registered	Add Location
✓ Tom's Taxidermy	HQ	Yes	State-Entered	Change Registration Type Add Location

For a new registration, you will start the registration process by reviewing & accepting eVA's Memorandum of Agreement then entering your company's EIN or SSN number.

eVA Memorandum Of Agreement (Effective 5/16/2006)

Thank you for joining the Commonwealth of Virginia eVA supplier community. You must agree to the terms defined below in order to:

- continue with the eVA registration process.
- avoid having an existing registration deactivated/canceled.

You are strongly encouraged to click on the "help & advice" button for more information.

This Memorandum Of Agreement (Agreement) sets forth the terms that have been established by the Commonwealth of Virginia, Department of General Services (DGS) to govern all electronic procurement transactions made between your firm ("Vendor") and any agency or public body made, in whole or in part, utilizing the Commonwealth of Virginia's web-centric statewide electronic procurement solution (eVA).

For purposes of this Agreement:

- electronic procurement transaction is defined to include electronic quotations, bids, proposals, purchase orders, contracts, invoices, and procurement information, instruments and notices electronically transmitted, received, or posted using eVA in lieu of or in addition to paper.
- agency is defined as any department, authority, board, post, commission, division, institution, or office of State government of the Commonwealth of Virginia.
- public body is defined as any legislative, executive or judicial body, agency, office, department, authority, post, commission, or board created by law in Virginia to exercise some sovereign power or to perform some governmental duty, and empowered by law to utilize eVA.
- eVA Fee Schedule is defined as a listing of eVA registration, transaction, and other fees (eVA fees) that are assessed to eVA users and published on the eVA Website. Each fee set forth on the eVA Fee Schedule is effective dated so eVA users, including Vendors, can

Provide the following and continue

Taxpayer ID & Type: EIN SSN

Company Zip:

Department of General Services • Division of Purchases and Supply • eProcurement Bureau
1111 East Broad Street • Richmond, VA 23218-1199 • Patrick Henry Building
For additional information, contact evacustomer@dgsvirginia.gov or 1-866-289-7367.

Company Profile

Tell us about your company, including if you'd like to receive bidding opportunities and whether or not your company accepts charge cards.

Enter information as it appears on your W-9 form

▼ Company Profile

* Taxpayer ID Number(Type) : 451203698(EIN)

* Organization Type :

Supplemental Organization Type :

Company/DBA/Location Name: Check if same as above

* Company Legal Name :

* DBA/Location Name :

Web Address :

* Notification of Bids? :

* Accept Charge Cards? :

Tax Exempt :

Tax Address

* W-9 Address :

City/State/Zip :

Country :

Attachments - attach supporting files: W-9, W-8, etc.
Registration is not considered complete unless a Commonwealth of Virginia Substitute W-9 is received. Payments for goods or services may be impacted without a properly executed Commonwealth of Virginia Substitute W-9 form found here: http://www.doa.virginia.gov/General_Accounting/Forms/W9_COVSubstitute.pdf

Purchases under \$5,000 will be made via the Commonwealth's Small Purchase Charge Card (VISA). Standard vendor merchant fees apply.

Upload your W-9 here.

Registration is not considered complete unless the Commonwealth of Virginia Substitute W-9 is received. Payments for goods or services may be impacted without a properly executed Commonwealth of Virginia Substitute W-9 form found here:
http://www.doa.virginia.gov/General_Accounting/Forms/W9_COVSubstitute.pdf

User Information

By checking the box for *Notifications* you are requesting for the *User to be* sent bidding opportunities.

▼ Create your Login Profile

* First Name :

* Last Name :

* Email :

* Retype Email :

* Phone :

Fax :

Notifications : (Include this user for Bid Notifications)

* Password :

* Retype Password :

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Ordering Information

If your *Ordering Address* is the same as the *W-9 address* you entered above, then click *Copy Tax Address*.

If your *Ordering Contact* is the same as the *Login Profile* you entered above, then click *Copy Login Profile Info*.

The screenshot shows the 'Address Information' section of a web form. It is divided into two columns: 'Ordering Address' and 'Ordering Contact'. The 'Ordering Address' column includes fields for Street 1, Street 2, City/State/Zip, and Country, along with a 'Method of Notification' dropdown menu currently set to 'Email'. The 'Ordering Contact' column includes fields for Contact First Name, Contact Last Name, Email, Retype Email, Phone, and Fax. A yellow callout box with a green border is positioned over the 'Method of Notification' dropdown, containing the text: 'Receive bid notifications electronically by selecting *email* from the drop down menu.'

Leave the default as “Yes” if your other addresses are the same as your *Ordering Address*.

If one of the addresses is NOT the same as your *Ordering Address* then select “No” from the drop down menu for that address type and complete all required fields.

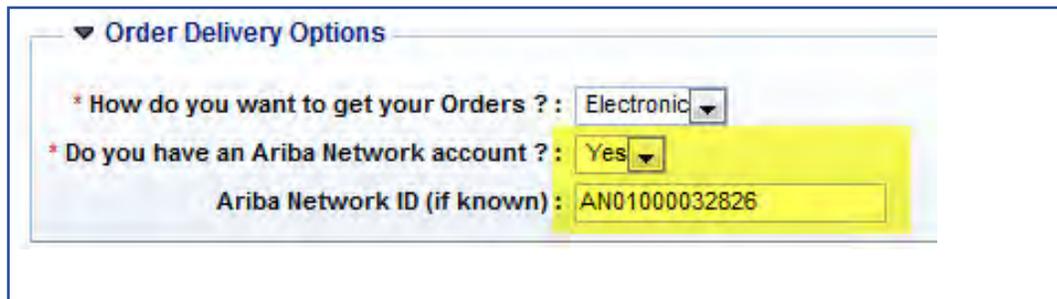
This screenshot shows the same 'Address Information' form, but with the 'Physical Address/Contact(same as Ordering?)' dropdown menu set to 'No'. The 'Ordering Address' and 'Ordering Contact' sections are visible, with the 'Physical Address/Contact' dropdown highlighted in yellow. The 'Method of Notification' dropdown is also highlighted in yellow. The 'Physical Contact' section is visible on the right side of the form.

Order Delivery Options

Receive your Orders Electronically

The Commonwealth of Virginia uses the Ariba Network, an Internet based service, to transmit Purchase Orders to our Vendors electronically. Electronic order routing is the preferred method of the Commonwealth.

If you have an Ariba Network Account choose “Electronic.” Select “Yes” to *Do you have an Ariba Network account?* and be sure to list your Ariba Network ID.



▼ Order Delivery Options

* How do you want to get your Orders ? : Electronic ▼

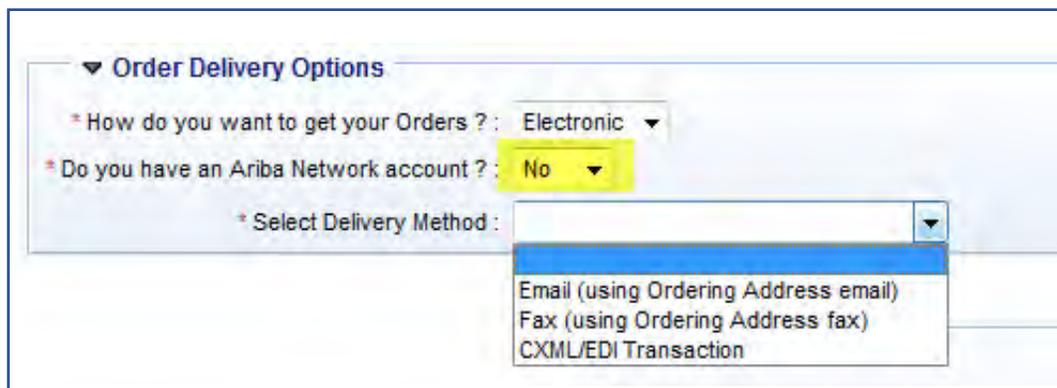
* Do you have an Ariba Network account ? : Yes ▼

Ariba Network ID (if known) : AN01000032826

If you do not have an Ariba Network Account choose “Electronic.” Select “No” to *Do you have an Ariba Network Account?* and select Email or Fax as your Delivery method. Orders will be routed to the Email or Fax you listed in your Ordering Address details.

By selecting “Electronic,” a free Ariba Network account will be pre-enabled for you. You will receive instructions on how to activate your Ariba account with your first order. With an Ariba account you will have access to Ariba’s vast network of users to whom you can also market your goods and services.

Choose “US Mail” only if the above methods do not fit your needs.



▼ Order Delivery Options

* How do you want to get your Orders ? : Electronic ▼

* Do you have an Ariba Network account ? : No ▼

* Select Delivery Method :
Email (using Ordering Address email)
Fax (using Ordering Address fax)
CXML/EDI Transaction

Service Area(s)

Tell Buyers where you do business

By choosing Zone 10, Statewide, you'll receive bid notifications from all over the state, not only from your area—providing you greater access to opportunities.

▼ **Service Area(s) and Commodity Profile**

Select Area(s) where you sell goods/services

Select Area(s)

Delete Service Area Zone

Choose

Select one or more Service Areas to associate to your company. To search for your Service Area, enter in a valid service area and click Search. Please click OK to save your changes.

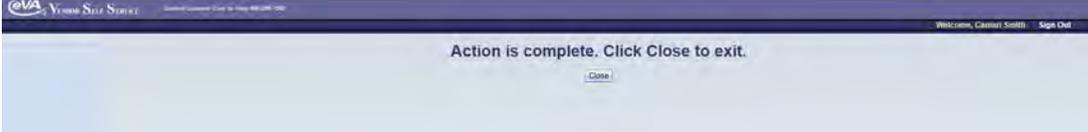
Clear

Service Area Zone :

	Service Area Zone
<input checked="" type="checkbox"/>	Statewide
<input type="checkbox"/>	Cities: Chesapeake, Franklin, Hampton, Newport News, Norfolk, Poquoson, Portsmouth, Suffolk, Virginia Beach, and Williamsburg. Counties: Isle of Wight, James City, Southampton, Surry, Sussex, and York.
<input type="checkbox"/>	Cities: Colonial Heights, HopeWell, Petersburg, and City of Richmond. Counties: Charles City, Chesterfield, Dinwiddie, Goochland, Hanover, Henrico, King William, New Kent, Powhatan, and Prince George.
<input type="checkbox"/>	City: Fredericksburg. Counties: Caroline, Culpeper, Essex, Gloucester, King and Queen, King George, Lancaster, Madison, Mathews, Middlesex, Northumberland, Orange, Richmond County, Spotsylvania, and Stafford.
<input type="checkbox"/>	Cities: Alexandria, Fairfax, Falls Church, Manassas, Manassas Park and Winchester. Counties: Arlington, Clarke, Fairfax, Fauquier, Frederick, Loudoun, Page, Prince William, Rappahannock, Shenandoah, and Stafford.
<input type="checkbox"/>	Cities: Charlottesville, Harrisonburg, Staunton, and Waynesboro. Counties: Albemarle, Augusta, Fluvanna, Greene, Highland, Louisa, Nelson, and Rockingham.
<input type="checkbox"/>	City: Emporia. Counties: Amelia, Brunswick, Buckingham, Charlotte, Cumberland, Greensville, Halifax, Lunenburg, Mecklenburg, Nottoway, and Prince Edward.
<input type="checkbox"/>	Cities: City of Bedford, Buena Vista, Clifton Forge, Covington, Danville, Lexington, and Lynchburg. Counties: Alleghany, Amherst, Appomattox, Bath, Bedford County, Botetourt, Campbell, Pittsylvania, and Shenandoah.
<input type="checkbox"/>	Cities: Galax, Martinsville, Radford, City of Roanoke, and Salem. Counties: Carroll, Craig, Floyd, Franklin, Giles, Henry, Montgomery, Patrick, Pulaski, and Roanoke County.
<input type="checkbox"/>	Cities: Bristol and Norton. Counties: Bland, Buchanan, Dickenson, Grayson, Lee, Russell, Scott, Smyth, Tazewell, Washington, Wise, and Wythe.
<input type="checkbox"/>	Counties: Accomack and Northampton

First Prev Next Last

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<p>Amend Response (cont'd)</p>	<p>ix. Review response and click Submit</p> <p>x. Confirm submission of response by clicking the Submit button on pop up.</p> <p>NOTE: You will receive an “Action is complete. Click Close to exit.” confirmation screen once your response has successfully submitted.</p>  <p>xi. Click Close</p>
<p>7 Withdraw Response</p>	<p>i. From the Home page, click the My Business dropdown box and click the Responses link (top of page).</p> <p>ii. Find the latest version of your solicitation response and click the View/Edit Response button.</p> <p>iii. Click Withdraw (top of page)</p> <p>iv. Confirm and click Withdraw on pop up</p> <p>NOTE: You will receive an “Action is complete. Click Close to exit.” confirmation screen once your response has successfully submitted.</p>  <p>v. Click Close</p> <p>vi. Status under Response will now be Withdrawn</p>
<p>8 Print Response</p>	<p>i. From the Home page, click the My Business dropdown box and click the Responses link (top of page).</p> <p>ii. Find the latest version of your solicitation response and click the View/Edit Response button.</p> <p>iii. Click Next: Line Items</p> <p>iv. Click Next: Subcontractor Plan</p> <p>v. Click Next: Review & Submit</p> <p>vi. Click Print</p> <p>vii. Click Exit</p>